Escaping Visibilisation

Atmospheres of Fear, Cramped Space and Rethinking the Harms of Biometric Bordering

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Contents

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Abstract

In 2020, 18 police forces across England and Wales acquired mobile devices equipped with the capacity to remotely carry out real-time checks of a person's fingerprints against immigration and law enforcement databases. Someone may be "stopped and scanned" in any public space, such as a street corner or park, and face immediate detention if a match is found. For four years advocacy groups such as the Racial Justice Network have protested mobile fingerprinting for widening the scope of hostile environment measures that increasingly cut off migrant individuals and communities from public resources and spaces. Faced with such accounts of contemporary migrant struggles within biometric landscapes, this thesis investigates the impact of such technologies in the policing and management of migration in Europe and seeks to address how they create new forms of harm. This thesis thus contributes to debates in critical migration and border studies that examine the relation between the body and its rendering in data, particularly insofar as this supports a growing literature on electronic borders. In this regard, an important body of work has considered how the rendering of life as data as security practice works, how the border is evolving, and the philosophical, gendered and racialised dimensions. However, there has been a lack of research investigating what this biometric data subjectivity and border work does in the world, why it matters and how it profoundly impacts lives. This thesis fills this gap by developing a distinct understanding of harm through an engagement with the concept of 'cramped space' (Thoburn 2016), which names the experience of the social and political world one inhabits as marked with blockages, impediments, and constraints to how one can move through that world. This thesis argues that harm is created in two ways. Firstly, through a form of biometric individuation that makes people visible in ways that would expose them to isolation, confinement, and violence. Secondly, through the creation of atmospheric conditions of fear in which people must attempt to escape this visibilisation by, for example, burning fingerprints or avoiding spaces where they may be fingerprinted. Under such conditions, the 'impossibility of activity' characteristic of cramped space is matched with 'the impossibility of doing nothing if life is to be lived' (2016: 370). This thesis therefore seeks to rethink harm in terms of strategies to survive impossible conditions marked by the mutual imbrication of material, affective and spatial impacts of biometric technologies.

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Chapter 1: Introduction

Overview of Research

In 2018, West Yorkshire Police (WYP) began trialling handheld fingerprint scanners that allow police officers to remotely carry out real-time checks of a person's fingerprints against the Home Office's Immigration and Asylum Biometric Database (IABS) and IDENT1 (the law enforcement database). Someone may be "stopped and scanned" in any public space, such as a street corner or park, and face immediate detention if a match is found. This capacity is enabled by an amalgamation of pieces of software and hardware. At its centre is the Biometric Service Gateway (BSG) – a portal that enables almost instantaneous access to the fingerprints stored on IABS and IDENT1. An officer can connect to the portal through an app downloaded onto their smartphone. Finally, there is the fingerprint scanner itself, which in most cases is a separate small portable device that plugs into the smartphone. While each check against one of the databases must be performed separately, an officer may scan the individual against both. If a match is found in the IABS database, the device flags the police officer *without* specifying the form of immigration status (e.g., VISA, refugee status, residence permit). The officer then decides whether to report them by contacting the Home Office' Command and Control'. If reported, Command and Control will then instruct the officer whether to detain the person who has been "stopped and scanned".

Over the last four years, a small number of non-governmental organisations (NGOs) and advocacy groups have criticised the mobile fingerprinting devices for embedding racial profiling and widening the scope of hostile environment measures that increasingly cut off migrant individuals and communities from public resources and spaces (The Racial Justice Network and Yorkshire Resists 2021; Liberty 2019a). However, despite initial engagement from authorities with the advocacy groups' challenges, the devices have been rolled out nationally. According to the most recent Freedom of Information (FOI) requests, as of January

2021, at least 18 forces across England and Wales are already using the technology, with four more in the process of acquiring the software (Wangari-Jones et al. 2021: 5).

This thesis investigates the impact of such biometric technologies in the policing and management of migration in Europe. It seeks to address how they create forms of harm. This thesis argues that harm is created in two ways. Firstly, through a form of biometric individuation that makes people visible in ways that would expose them to isolation, confinement, and violence. Secondly, through the creation of atmospheric conditions of fear in which people must attempt to escape this visibilisation. As such, this research is guided by the following research questions:

- How do biometric technologies – as distributed systems – individuate?
- What are the harms created by this form of biometric individuation, and what do they do?
- How do people navigate these harms?

While there are several intertwined ways border controls utilise biometrics, this thesis focuses on two empirical contexts in particular. The first of these is the EURODAC (European Asylum Dactyloscopy Database) - a European-wide database central to the practice of using algorithms to translate, decode and cross-reference fingerprints taken from asylum seekers. The second of these is the aforementioned Biometric Service Gateway (BSG) and the handheld fingerprinting devices that enable remote and instantaneous access to immigration and criminal databases. These two technologies speak respectively to the "global" and "local" dimensions of biometric border control, whose boundaries are nevertheless not always so clear cut in the lived experience of the daily encroachment of biometric surveillance.

Before unpacking this argument, however, to begin, I would like to paint a picture of the last four years a campaign led by The Racial Justice Network (RJN) and Yorkshire Resists (YR), called 'Stop the Scan', has spent struggling against the national rollout of these scanners in order to illustrate the kind of biometric practices and processes this thesis seeks to theorise. While a full analysis of the work RJN and YR have undertaken in this regard is beyond this project's scope, I open with insights from some of their campaign material to point towards the importance of the affective, material, and spatial dimensions of biometric technologies. These intertwined dimensions shape the conditions within which the struggles, rhythms,

foreclosures, and openings of daily life unfold for targeted communities and through which a particular politics of inhabitation emerge (Lancione and Simone 2021). In starting here, I hope to recognise not only how marginalised and racialised communities are so often at the forefront of struggles within and against oppressive forms of power but also how the work of RJN has been foundational to my thinking about the harms of biometric technologies.

The first piece of campaign material I would like to call attention to is a video released on Stop the Scan's website. Here RJN's director, Peninah Wangari-Jones, explains why the campaign started.

> 'The other concerns that we have, apart from the fact that [handheld fingerprint scanners] have been rolled out to the rest of the country, is the fear and mistrust of the police. We know our communities are not stepping forward even when they need help for, for example, domestic violence, hate crime and hate crime incidences. Because they see police as a border force.'
>
> (Stop the Scan 2020: [03:30—03:40])

Several NGOs have documented how many do not seek help from the police out of fear they will be reported to the Home Office (McIlwaine et al. 2019; Bradley 2018; RJN 2020). The National Police Chiefs Committee's guidance recognises this (Sawyer 2020: para. 2.5). The campaign video highlights how mobile fingerprinting make this fear more pervasive as officers can now carry out real-time immigration checks in public spaces such as roadsides, street corners, and public parks.

At the end of 2020, a year after the campaign video was released, RJN surveyed 115 individuals on their reactions to the Biometric Services Gateway (BSG) and found that 88% of migrant respondents (23 participants) would not feel safe to ask for help from the police or report a crime in light of this news. The report identifies fear as a primary theme and frequently used word in the reasons migrant participants gave (RJN and YR 2021: 4). As one participant explained,

> 'For years, I have been fearful of accessing public services, including the NHS or the police. This [the BSG] would merely add to that.'
>
> (cited in RJN and YR 2021: 23)

The third piece of campaign material is a recording of an event held by RJN in April 2021 and posted on YouTube. The event was held to publicise the findings from Freedom of Information

(FOI) requests that revealed the scanners were being used disproportionately on 'BAME' individuals and, by some forces, solely for scans against IABS (the immigration databases) (Wangari-Jones et al. 2021: 5).[1] One of the speakers invited to the event - director of the NGO Unjust C.I.C, Katrina Ffrench – had previously chaired a Stop and Search scrutiny panel in Islington. Below she comments on her interactions with London Metropolitan police when the scanners were briefly presented:

> 'What they were saying is, basically, we're going to cajole people into consenting to give their fingerprint… because now you're under the threat of arrest, because they then said, "Why wouldn't you give your name? Why wouldn't you give your fingerprint?". It was this kind of circular argument. Because, even if I have nothing to hide, I may still want to hide… to go about daily business without interference from the state.'

> (cited in RJN 2021: [00:20:00 – 00:20:45])

The event ends with Laura Loyola-Hernández, scholar and member of RJN, weaving together insights from the different speakers. She describes how differential experiences of safety circumscribe the possible modes of action and movement for targeted communities and the need to acknowledge these restrictions (to encourage those in less precarious positions to step forward when they can, but also to find ways of working within them and bridging through them as marginalised communities). It is about doing 'what we can with what resources we have' to frustrate the individualising, isolating and exhausting powers that form the backdrop to 'all of this'.

> 'People are positioned in a very different way. If you're a British citizen, if you're not, those have very different implications on the type of action. I don't feel safe going to a protest, for example, and I never do, and I think we need to acknowledge that. We do what we can with what resources we have.… It's really important that we do that and acknowledge that because this white supremacist capitalist system is built to burn you out and to pit us one-against-the-other. So, it's about how do we bridge those moments of solidarity but also happiness and love as well as a community.

> Katrina said something that shook me to the core "we can change our name, but we cannot change our fingerprints". I think that is one of the key issues, and how the police station is being brought to us on the streets. That really shook me to the core.

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[1] The term 'BAME' has been adopted here as it is the term used in official information, and in the FOI data.

One of the things that Mary said [was] about how easy it is to become undocumented or to "be in trouble" with the law. If you look at the asylum process in itself and how people can fall into destitution, for example, it's so easy to have these laws criminalise you even more so, just because of where you are and how the system is designed.

… We have to do what we can. As Katrina was saying, if we need to be in the room, those of us who can go in the room, some of us can't go in the room, we can't talk to authorities. It's doing what we can.

Finally, I think Luke also connects these issues around "they're trying to criminalise our communities, our way of lives". That's part of a colonial backdrop to all of this. Again, I want to come back to community love and reinforcing our communities, our cultures, our language, our love for each other. Because that's also part of resisting as well, and that's part of protesting.'

(cited in RJN 2021: [01:29:00 - 01:31:58])

When Laura and Katrina talk about fingerprints being personal and unchangeable, they notably convey the constitutive relationship between body data and identity (van der Ploeg 1999). However, I think there is something in Laura and Katrina's description of fingerprinting that points towards a more fundamental relationship between the materiality of fingerprints and their datafication. There is also this latent sense of something of the body being taken and constituted in a realm outside of one's own control. Thus, I think their description conversely speaks to the sociality of the body in terms of both the material traces a fingerprint leaves and the existential potential for harm this sociality entails, located within these traces.

Together these insights map across three themes that are central to this thesis. The first is the way in which fingerprinting makes people visible. More than an attempt to visualise or represent migration trajectories, bodies, or identities, visibilisation names a certain kind of sensory exposure. The second is the affective reverberations of fingerprinting that create senses of fear and confinement to, and restriction within, certain spaces for certain bodies. The final theme is the creative, practical, and strategic forms of engagement those subject to the threat of biometric visibilisation must draw upon to navigate these conditions.

In what follows I seek to give an overview of these arguments by positioning them within the wider literature in critical migration and border studies and indicating the key conceptual resources I draw on. I then outline the logics of assemblage and folding that have guided my

research and the secondary source analysis and fieldwork I undertook to answer my research questions. Finally, I give a brief outline of how I intend to proceed with the chapters.

Positioning of Research

This project seeks to build on and contribute to two sets of literatures within critical migration and border studies. The first is work that deals with the translation of migrant bodies into biometric data, and how it serves to open and close doors of opportunity in terms of access to mobility and benefits. In this regard, there is an increasing recognition of the importance of examining the relation of the body and its rendering in data, particularly insofar as this contributes to a growing body of literature on electronic borders. Exemplar contributions include Nick Vaughn-William's (2015) work on the erection of electronic borders; Louise Amoore's (2006; 2021) work on how contemporary forms of data, analytics and risk management are changing the techniques of border control; and Van der Ploeg's (1999) Simone Browne (2015), and Joseph Pugliese (2010) work on the datafication of the body and other philosophical, normative, gendered and racialised aspects of biometric technologies.

My research capitalises on this momentum and proposes that we think about fingerprinting as more than an abstract data process and instead think about how materiality gets into this process. This argument follows a specific understanding of materiality and its relationship to discourse. As Michel Foucault (1972: 54) highlights, discourses hold a distinctly material component, producing practices that 'systematically form the objects of which they speak'. Discourses are realised not only in the textuality of representation and knowledge but also in 'the regulating principles and actions of institutions, in forms of everyday practice, in actual material arrangements' (Hook 2007: 179 cited in Hardy and Thomas 2015: 681). In this way, discourse does not preclude materiality but rather lies at the core of its operation.[2] Thus, my

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[2] For a critique of debates that reify the anthropocentric notion of materiality as ontologically outside of discourse, see Coward et al. (2014). For an example of scholars who make this distinction when studying biometric technologies, see Kuster and Tsianos (2016) and Martin and Whitley (2013). The former, for example, criticise scholars such as Amoore (2006), Broeders and Hampshire (2013), Dijstelbloem et al. (2011) and Aus (2006) for their supposedly 'top-down approach' to border technologies which, they claim, risk disconnecting

argument starts from the premise that the algorithms used to decode, translate, and cross-reference fingerprints are not free-floating entities devoid of matter and infrastructure but involve a fundamental materiality. As other scholars have shown, for example, algorithmic codes depend upon silicon-based microchips (Marenko 2015; Deleuze 1988); emerge from ensembles of hardware, software and computational techniques; and they require the chemical, electrical and affective participation of bodies (Ash 2012; Ash et al. 2018). It is through such material relations of power that the meanings of algorithmic discursive logics are woven and that they come to have an efficacy and impact in the world.

In this thesis I want to talk about this as a process of individuation that makes people visible as an intersection of fragments and data. In using the term 'visibilisation', I am not trying to talk about ways of representing in ways amenable to human vision. Instead, I would like to think about visibility in terms of exposure. To do so, I turn to Judith Butler. Any demand or attempt to give an account of oneself, Butler (2005) argues, must necessarily fail since "I" am always constituted in relation to others in ways I cannot know or narrate, to a sociality that precedes and exceeds me. Yet we may be compelled to give an account, nonetheless. We may compelled to undertake 'a kind of showing of oneself' (2005: 131), which represents the prospect that fragments of my being 'might be linked somehow, that some part of that opacity might be brought to light' (2005: 80-2). It is in this sense that I would like to think about visibility. When someone is fingerprinted, what is brought to light are fragments of data and material of the always already constitutively incomplete subject. Thus, as with anything constitutive of the subject, these fragments, and the relations between them are avenues and sites of exposure through which one can be harmed. The way they converge denies and allows access, isolates, confines and exposes people to the violence of deportation and detention.

In the second half of this thesis, I look at the outcomes of this individuation process in terms of the lengths people must go to in order to navigate this pervasive threat of visibilisation. Here I attempt to make sense of two phenomena that complicate our understanding of harm. The first is accounts of how people refrain from entering spaces where they might encounter police for

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them from the technical and material infrastructures they require. However, in making this claim, Kuster and Tsianos both overstate the extent to which these works – which study the complex imbrications of society and technology - divorce their analysis from the nuts and bolts of the technical context and, moreover, fail to understand that discourse can be properly understood as dealing with the material.

fear of being fingerprinted and reported to the Home Office (RJN and YR 2021; RJN 2021). This involves, for example, not seeking help when you have been a victim or witness of a crime or being cautious about walking down certain over-policed streets or partaking in highly visible forms of protest that risk exposure to interactions with authorities. The second is accounts of how people have burnt their fingerprints (using acid or oven hobs) because of the pervasive fear of being fingerprinted and sent back somewhere where they face very uncertain futures, where they have faced anti-refugee violence, or where they are given no shelter or resources (European Union Agency for Fundamental Rights 2018) While the latter phenomenon has been widely documented for a number of years, critiques have often framed it as a form of "self-harm" (see Merrick 2021 and Tilling 2015, for example). However, I argue that understanding the burning of fingerprints as a harm committed '*by* oneself *on* oneself' misses what is going on here. The damaged fingerprint – rather than revealing something about the intentions or character of a person – reveals something about the kind of affective environment they are inhabiting. Thus, rather than understanding these phenomena as self-determined acts of will or deception, forms of self-harm directly caused by an omnipotent actor or liberating acts of emancipation to break an oppressive force, I understand them as strategies to navigate impossible conditions.

To make sense of these phenomenon, the second set of literature I draw upon is work that enables us to recognise not only the constitutive role of materiality in bordering practices, but also the affective capacity of this materiality and how it speaks to questions of confinement and power. I draw upon recent scholarship that has sought to bring the idea of 'atmospheres' into debates on the affective power of bordering infrastructures by examining their immersive, diffuse, and pervasive quality (Dijestbloem and Walters 2021; Adey 2008; McGregor 2012). Affects are sensory relations to the world and an atmosphere describes one way in which such sensory relations may be collectively organised and experienced. An atmosphere can be conceived of as kind of an 'indeterminate spatially extended quality of feeling' (Böhme 1993: 117-118), or a palpable 'quality of environmental immersion' (McCormack 2008: 413). We may walk into a room, for example, and get a feel of its atmosphere, but what we feel 'depends on the angle of our arrival' or the moods we arrive with (Ahmed 2007-2008: 126). Furthermore, as Angharad Close Stephens writes (2015: 99), political moments and movements are often experienced as 'a "structure of feeling" [Williams 1977] or "moody force field" [Amin and Thrift

2013: 16)] before they can be explained as (and reduced to) a rational, conscious decision'. It is in this register that I would like to understand the harms of biometrics.

In keeping with this line of inquiry, I examine the role fingerprinting plays in what I call "the orchestration of atmospheres of fear". The concept finds its inspiration in the work of Closs Stephens and others (2020), who develop the term 'orchestration' to describe those affects and emotions scripted and planned by institutional centres of power. Here they look at the efforts of municipal authorities to orchestrate a plural sense of civic identity or a 'resilient city' during the commemoration of the Manchester Arena bombings, and the spontaneous and transitory affects that exceeded such organisation. In this regard, their analysis also resonates with Closs Stephens (2016) earlier work on the nationalist atmospheres of the London Olympic Games. My use of the term therefore seeks to capture the way in which immigration systems produce an overall sense of fear that applies pressure to subjects to achieve certain goals. These goals may be multiple (e.g., populist credentials, ideological reinforcement, immigration targets) and their pursuit may have unintended, unplanned, or even surprising resonant effects. Yet these effects are symptomatic of the organisation of material relations of power that seek to intervene in and mould affective life. Furthermore, Closs Stephens and her collaborators also provide additional conceptual resources for thinking through the imbrication of space and technology. In a separate paper on the Manchester commemorations, this group of scholars highlight that a focus on atmospheres can help think through a 'mutually constitutive flow through which materials acquire digitality and digital logics acquire material form' (2020: 550). This argument becomes important in my exploration of how biometric visibilisation feeds atmospheres of fear.

Furthermore, if visibilisation names the way in which fingerprinting brings someone to light as a convergence of fragments of material and data, then I would like to think about how these traces form part of the affective environments biometricised subjects must navigate. Visibilisation is thus understood as an atmospherically distributed security practice. It is performed through complex relations and associations that are thoroughly material and embodied but almost impossible to pin down to a singular time and place (Adey 2014: 838). It is realised not only through practices that seem ephemeral (e.g., 'diffused web[s] of informational connections' [Den Boer and Van Buuren 2012: 98]), but also through practices that are often deeply coercive and intimate (e.g., data seizures at roadsides). Visibilisation also profoundly disrupts the intimate by suturing it to a set of global and historical injunctions (e.g., on the legality and illegality of

certain kinds of presence). While the threat of visibilisation is not always immediate, various kinds of security techniques ensure it is pervasive, that the potentiality of its encounter can be sensed in multiple spheres of life. In this thesis I explore, for example, the kind of discourses of intimidation that occur in both "online/offline" realms (e.g., speeches, tweets, documentaries, Home Office campaigns). I am also interested in the policing and organisational models guiding the use of biometrics, (e.g., the contexts in which immigration raids are organised and planned, and the influence of 'broken windows' theory on "stop and scan"). These, I argue, have more to do with a wider public *sense* of being "tough on crime" or "tough on immigration" than they do with its achievement.

Thus, what biometric visibilisation does is to extend and deepen atmospheres of fear. Moreover, such atmospheric pressures forces (or makes necessary) a certain kind of engagement with the world. This might include attempts to escape or avoid being made visible (e.g., to burn fingerprints, or to refuse to seek help). Alternatively, it may involve refraining from engaging in certain practices (e.g., not attending a street protest) so that one can continue to engage in others (e.g., to be able to organise one online). There are, of course, significant differences between these forms of engagement and the particular circumstances in which they occur, which I unpack later in this thesis. However, I wish to contend that they are local expressions of a complex field of harm and struggle that unfolds within, and beyond, biometric power. For this reason, of equal importance in understanding what happens under these atmospheric pressures – their political significance - is Nicholas Thoburn's (2003; 2016) conceptualisation of 'cramped space'. While the potential the concept of cramped space holds for understanding bordering conditions and subjectivities remains under-developed in critical migration and border studies, there are a few scholars who have made important efforts to do so (Kocher and Steusse 2020; Walters and Lüthi 2016). I wish to build upon these efforts.

Reworked from Gilles Deleuze and Felix Guattari's (1986) argument for minor politics, Thoburn's cramped space names the experience of the social and political world one inhabits as marked with blockages, impediments, and constraints to how one can move through that world. Moreover, it is an experience characterised by a particular kind of interplay between the individual and the social, the personal and the political. Of course, critical theorists have long problematised the dichotomisation of these terms both analytically and experientially. However, cramped space names their breakdown to a particular degree of intensity. That is, the social and

political is felt as an almost constant constraint such that 'the way ahead is traversed in all directions by blockages, boundaries and limits, be they social or material' (Heron 2020: 94; Walters and Lüthi 2016: 362). In cramped conditions the question becomes 'how to proceed when lines of movement, lines of escape and lines of becoming appear blocked on all fronts?' (2016: 362-3). Cramped space offers no readymade answers to this. What it does offer, however, is a way to talk about what subjects *do* when they find themselves within conditions not of their own devising. That is, they must find ways to rework them, to create something liveable (Heron 2020: 95).

While recognising the importance of the work that has gone before, this paper seeks to bring the literatures on datafication, atmospheres and cramped space into conversation with one another to investigate how questions of fingerprinting are fundamentally questions of the intertwinement of materiality, affect and space. It identifies their intersection as a distinct form of harm and struggle. In this regard, I emphasise the importance of work that understands the impacts of bordering technologies not only in terms of their proliferation and expansion, but also their weight, depth and duress for those lives on the receiving end of ambiguous matrixes of dispossession The works I highlight here have provided crucial and compelling explorations of these questions in regards to, for example, the depth and duress of deep learning technologies (Amoore 2021), the contraction and constriction bordering regimes saturated by digital and computational techniques (Mbembe 2019b), and the constriction and obstruction within infrastructures of mobility (Walters and Lüthi 2016). My aim is to contribute to these debates by exploring these questions within more situated uses of fingerprinting. I seek to do so by examining biometric identification and the conditions it creates in terms of cramped space: conditions of impossibility through which new forms of subjectivity emerge. These conditions, I contend, challenge our understanding of harm and struggle within the politics of biometric bordering.

Indeed, if we think back to Laura's description of fingerprinting, rather than the "personal" being a marker of some boundary crossed – such as the illusion of bodily integrity provided by the skin, or an individual right to privacy – the sense of intimacy embedded in the language of the personal speaks to something akin to the intensity of the interplay between the personal and political characteristic of cramped space. So too does Laura's invitation for collective forms of response, whether as care, solidarity, or resistance. But we shall come back to this matter.

Theoretical Framework and Methodology

This thesis investigates the impact of such biometric technologies in the policing and management of migration in Europe. In this section I outline the logics of assemblage and folding that have guided my research, as well as the secondary source analysis and fieldwork I undertook to answer the following sub-research questions:

- How do biometric technologies – as distributed systems – individuate?
- What are the harms created by this form of biometric individuation, and what do they do?
- How do people navigate these conditions?

To provide a framework through which to the above research questions can be explored, I draw together the work of Deleuze and Guattari (1987) on assemblage and Deleuze (1988) on folding. An 'assemblage' denotes a multiplicity of relations between heterogeneous elements (such as people, institutions, materials, concepts, discourses etc.) that are involved in a continual process of being assembled, contested, dissolved or reassembled. Assemblage's understanding of interdependence and emergence helps conceptualise the relation between wholes and parts in distributed socio-technical systems, such as those constitutive of biometric bordering technologies. If we use assemblage to talk about the interconnection of heterogeneous parts, we can specify folding as what happens at those interconnections or, in other words, how the assemblage is put together. In the context of technologies utilising migrants' bodies to enforce migration policies, it therefore helps think through how the diverse entities constituting the biometric border assemblage – from the software and hardware of scanners and racialised discourses to border guards and fleshy bodies - are articulated together. In turn, this helps reveal the kind of topographical and morphological power relations, ways of being, and harms produced by the 'becoming together' of these entities. Thus, drawing these two logics together provided the lens through which I approached the intertwinement of the material, affective and spatial dimensions constitutive of biometric technologies and databases.

While this thesis seeks to make a theoretical contribution to the literature on biometrics in critical migration and border studies, my research has been based on a mixture of fieldwork and

secondary source analysis. Between 2019 and 2020, I undertook preliminary research to find out more about the complex way distributed systems attend to individuation. To do so, I sought to conduct semi-structured interviews with those responsible for the enrolment, enforcement, and management of biometric data processing. I began by interviewing an asylum caseworker involved in the fingerprinting of asylum seekers in Sweden and an assistant at an accommodation centre in The Netherlands responsible for the weekly scanning of residents' fingerprints to ensure they had not 'absconded'. Following this, I conducted a group interview with authorities from the Directorate-General for Migration and the Immigration and Naturalisation Service (IND) in The Netherlands and technicians involved in managing Dutch national and European-wide databases.

However, the research process has not been without its frustrations and re-directions. In the preliminary stages of my fieldwork, I encountered difficulties gaining further access to authorities involved in enrolling biometric data, particularly in the context of UK policing. My attempts to set up lines of communication failed, and interviews scheduled with immigration lawyers and judges were repeatedly postponed. At this point, I detoured into several interviews, which ended up being beyond the scope of the project, on iBorder control (a pilot project combining biometric identification with the analysis of so-called 'micro-facial expression' for automated lie-detection at European borders). Through these interviews, however, I snowballed contacts to set-up the possibility of carrying out observational fieldwork on fingerprinting at "Hotspots" (emergency first reception facilities) in Greece. There was also eventually the tentative possibility of interviewing police officers on the use of the handheld scanners, where previous requests had been rejected, as I had found a potential line of communication through mutual academic contact. However, at the beginning of the COVID-19 pandemic in the spring of 2020, global lockdowns and closure of borders put a halt to these lines of enquiry.

It was around this time that I became involved in a personal capacity as a volunteer with The Racial Justice Network (RJN), a charity and advocacy group whose campaign 'Stop the Scan' provided some of the opening insights to this thesis. Made up of a loose network of individuals, communities and organisations across the West Yorkshire region, RJN works closely with migrant and racially minoritized communities and several of their most active members are those with lived experience of hostile environment policies. Over the past few years, RJN has played a pivotal role in the development of this project in several regards. Firstly, the qualitative and

quantitative data they have made publicly available on the use and impact of the handheld biometric scanners has formed much of the empirical context this thesis draws. These include collaborative publications of FOI requests on when and how the scanners are being used; online surveys on the Biometric Services Gateway and mobile fingerprinting; and their YouTube videos of their events and collective conversations. Secondly, as friends and fellow volunteers, and through informal "interviews" and formal organisation of community-based work (ranging from Stop the Scan to migrant community-led responses to the isolation of the pandemic), they have played a huge role in how I think about both the conditions created by biometric identification and how people navigate those conditions.

Throughout this project I have sought to support my research by carrying out secondary source analysis on a wide range of data. To answer the research question on how biometric technologies individuate, I compared my findings "in the field" with publicly available data from a number of NGOs and institutional and governmental actors. This included policing documentaries, tweets and resources (see for example, BBC London 2019; The Police Foundation 2015; Sawyer 2020); Privacy Impact Assessments (PIAs) conducted by the Home Office (2018a; 2017b; 2017c); and various reports from governance bodies related to the legal and technical organisation of immigration and asylum systems within the Schengen Area (see for example, eu-LISA 2020; 2021). To answer the research questions on the harms created by biometric individuation, and how they are navigated, I gathered testimonies from asylum seekers who have spoken about their experiences of fingerprinting. These testimonies came from cases extensively documented by other researchers (Kuster and Tsianos 2013; 2016), newspaper articles and blogs (Grant and Domokos 2011; Merrick 2021; Tilling 2015; Reidy 2017) and the European Union Agency for Fundamental Rights (2018) and Amnesty International (2016). Finally, I supported this research by analysing secondary sources (newspaper articles and NGO reports) that provided additional data on proxy measures of harm such as statistics and testimonies on the destitution, violence and exclusion suffered through wider bordering practices (see for example, McIlwaine et al. 2019; Crisis 2019; Bradley 2018; Townsend 2020).

Thesis Outline

As outlined above, this thesis investigates the impact of biometric technologies in the policing and management of migration and seeks to address how they create new forms of harm. I argue that harm is created in two ways. Firstly, through a form of biometric individuation that makes people visible in ways that would expose them to isolation, confinement, and violence. Secondly, through the creation of atmospheric conditions of fear in which people must attempt to escape this visibilisation. This thesis begins by unpacking in greater depth the theoretical and methodological underpinnings of this project, before putting these ideas to work in a three-part analysis of how biometric technologies – as distributed systems - individuate, the harms created by this pervasive form of individuation, and the how targeted individuals and communities navigate these conditions.

To this end, Chapter 2 develops a theoretical framework that can navigate two puzzles: firstly, on the datafication of bodies (the relation between the body and its rendering in data); and secondly, on the spatialities of biometric bordering (the proliferation and depth of interconnections between biometric technologies and database). Section I begins by introducing the literature within feminist and critical security studies that help respond to the following questions: "How do biometrics constitute borders?" and "How do biometrics constitute bodies?". I conclude by indicating how my research seeks to build on and contribute to these debates. The subsequent sections are dedicated to building a theoretical and methodological framework that can help guide this analysis. Therefore, Section II focuses on the concept of assemblage and explores how this thesis uses and understands questions of relationality and emergence to help conceptualise the relation between wholes and parts in distributed socio-technical systems. In addition, I clarify how assemblage thinking has shaped how this thesis approaches the question of structure and how the biometric devices it investigates relate to one another. Finally, Section III returns to the question of the datafication of the body and what an assemblage understood as the folding – or articulation (Coward 2012) – of elements brings to my understanding of biometric subjectivity. I argue that biometric subjectivity constitutes a particular material arrangement of relations of exposure that render subjects intolerably vulnerable to harm.

In order to hold analytical purchase, assemblage must not be reduced to simple social networking. Even when analysis is not confined to boundaries of one state, such an approach risks reproducing a territorial understanding of sovereignty by focusing on the networked connections of state actors and practices as a 'series of lines and connections extended horizontally from site to site across an even landscape' (Allen 2016: 29). Instead, assemblage must be worked out in dialogue with other theoretical lenses that provide a more topological and morphological account of the manifestations of power that 'do not correspond to a territorial or scalar landscape' (Martínez 2020: 126). Chapter 3, therefore, moves into debates within Critical Border Studies and Critical Mobility Studies on the assemblages of processes and practices that make borders and their impacts possible. In this chapter, I am interested in how we approach questions of harm as well as introducing the debates this thesis seeks to contribute to beyond analyses of biometrics. I argue that to comprehend what is at stake in the datafication of bodies and borders, bordering technologies need to be thought about not only in terms of expansiveness and proliferation but also their density and pressure: the 'choked passages' characteristic of cramped space. To begin, Section I explores how the question of harms has been approached by critical theorists of borders and bordering practices. It then introduces the concept of cramped space as it has been used in this literature (Walters and Lüthi 2016). In Section II and Section III, I provide more detail on cramped space and how the discussion relates to my fieldwork. Here I discuss my involvement with RJN's 'Stop the Scan' campaign, how it shaped how I understood the consequences of biometric technologies and the ethical issues embedded in this kind of research.

Chapter 4 then illustrates how biometric identification works in practice in two situated contexts. First, I describe the assemblages that constitutes the Biometric Services Gateway and mobile fingerprinting. Additionally, I illustrate what this process might look like in the context of EURODAC. The aim is to show the kind of biometric practices this thesis seeks to theorise in more concrete terms. I frame the various steps, practices and processes involved as 'five foldings' of biometric subjectivity – five moments where a specific subject is constituted. Section I illustrates how someone might *encounter* the controls and processes that culminate in a registration or search of their fingerprints in an immigration biometric database. Section II and Section III expand upon the steps involved in *preparing* a fingerprinting procedure and how the *scanning* process unfolds. Section IV provides technical

details on how the biometric data is *processed*, transmitted, and compared within databases. Finally, Section V describes how the results from the search are displayed, the form of *interpretation* involved and the bureaucratic procedures that unfold.

In Chapter 5, I explore the question of how to understand how biometric technologies individuate. What must happen for there to be an emergence of a kind of a singularity that can be acted upon and made to act? Moreover, what are the implications for these processes on the kind of subject produced? Here I expand upon my argument that biometric individuation makes people visible in ways that would expose them to isolation, confinement, and violence. In this chapter, I consider Louise Amoore's (2020) critique of the visual register for understanding algorithmic technologies and seek to situate my understanding of "visibilisation" in relation to this critique. To do so, I draw on Butler's (2005: 131) understanding of what happens when the fundamentally opaque self is compelled to undertake 'a kind of showing of oneself'. I apply Butler's argument to the fragmented accounts biometrics give of bodies through an engagement with Deleuze's (1992: 5) work on societies of control. Drawing these two thinkers together, this chapter explores how, when someone is fingerprinted, fragments of the material traces left by a fingerprint are brought into a domain of appearance and constituted as a social manifestation of the body. I argue that the way these fragments converge constitute a powerful mechanism of control and, as part of the very sociality of the body, are avenues and sites of exposure through which one can be harmed.

What then are the conditions for those living with the threat of this form of visibilisation and exposure? This is the question of the orchestration of atmospheres of fear that I examine in Chapter 6. The aim here is to show the way in which a background sense of fear pervades the environment that migrants (particularly those seeking asylum, refugees, or those with precarious status) have to navigate, and the way biometric technologies exacerbate this. I unpack this argument in the context of the UK's hostile environment, illustrating the pervasive threat of visibilisation through the Biometric Services Gateway (BSG) and mobile fingerprinting. Here I draw explicitly on, and engage in depth with, my work with RJN and Yorkshire Resists. For example, I draw upon our survey on public opinions and experiences of the BSG. I examine the way migrant participants framed its impacts on their sense of safety and well-being as a kind of added layer to accumulative challenges faced throughout the

hostile environment. I explore how this spoke to the concerns that had emerged from within RJN and Yorkshire Resists work.

Finally, in Chapter 7 I engage with the concept of cramped space to explore how, under such atmospheric pressures of fear, there is a confinement and narrowing of spaces the subject can occupy. Here I examine the circumstances in which people are pressured into attempts to escape being made visible to authorities by a pervasive form of biometric individuation that would isolate them, confine them, and expose them to violences of detention and deportation. In these conditions, experiences of the social (which I take to be constituted by both relations and spaces) presents 'boundaries' and 'impasses' rather than 'enabling possibilities or clear options' (Thoburn 2016: 370). While others have emphasised the disposability (Agamben 1998) or letting die (Foucault 1976) of certain lives, what I call the atmosphere of fear refers to the conditions within which those subject to the threat of biometric visibilisation must go on living. Thus this 'impossibility of activity' characteristic of cramped space is matched with 'the impossibility of doing nothing if life is to be lived' (2016: 370). As Kai Heron (2020: 95) writes, an 'abstracted liberal notion of freedom' in set aside in favour of describing how cramped conditions call for a rigorous strategic engagement with the conditions that minorities find themselves within: 'it isn't a question of liberty as against submission, but only a question of a line of escape or, rather, of a simply way out.' (Deleuze and Guattari 1986: 6). I conclude by considering Heron's (2020) argument on the meaning of "politics" within cramped space. This has to do with the difference and interplay between, on the one hand, the imposition of an established political order (*la politique*) on the private and, on the other, the space for the political it opens up (*le politique).* I come back once again to The Racial Justice Network and Yorkshire Resists.

Chapter 2: Assembling Biometric Technologies

'Knowledge is not made for understanding, it is made for cutting'

- Michel Foucault (1984: 88)

To begin, what *are* biometric technologies? In their broadest sense, biometric technologies are devices that measure, analyse and archive bodily features such as fingerprints and faces. Through the application of mathematical and statistical techniques (automated or otherwise), they produce a certain kind of knowledge – "data" or "information" – about the subject. How are we to understand what this "data" *is*? As Michel Foucault argued in his treatise on the *Archaeology of Knowledge* (1972), any specific corpus of knowledge is not an objective measurement of a world "out there" waiting to be discovered, but is contingent on the historical-political conditions in which it emerges. It is embedded within a field of power relations that it is both a product of and that it actively produces. So too with the mathematical propositions that are understood to form the basis of biometric measurement. As Louise Amoore (2020: 9), following Ludwig Wittgenstein, argues in her work on the ethical status of algorithms, the use of mathematical propositions is profoundly social and political. They formulate a series of claims about the world and, in doing so, must act within it: they must decide what can be made to matter and structure the relations between these claims (2020: 9). That is to say, from the start, we cannot understand biometric data as something *taken* from a given subject, a resource utilised towards a specific end (identification, management, control). Rather biometric data is *produced* by the relations between the subject and the technologies of power that seek to make that subject a matter of concern. In other words, the data produced by biometric technologies is a specific way of knowing, making legible or *making visible* the world and its subjects.

In this thesis, I use the term visibility as it has been developed within the "visual turn" in International Relations, particularly the Scopic Regime literature and work that applies it to "datafied" (i.e., automated) practices of security (Grayson and Mawsdley 2018; Amoore 2007; 2009; Amoore and Hall 2009). Here visibility is not so much a practice of seeing but a mode of bringing to attention through 'strategies of isolation and separation' (Crary 1999: 3), of establishing 'the parameters for what may constitute a field of view and the information that can be potentially gleaned from it' (Grayson and Mawdsley 2018: 448). In short, making visible is a way of organising what can be made to matter through an economy of sensory techniques (Amoore 2009). Biometric data as a way of making visible is thus a discursive formation in as much as it provides a kind of grammar of language and a set of codified relations which allow certain statements to be made: "you are whom you say you are" or, "you are this person with this history (or future)" or "you are this category of person". But biometric data is also a *thing* in as much as it is in material relations of power that the meanings of these discursive logics are woven. It is an ensemble of the actual material arrangements that allow these statements to be made: of apprehended bodies; of the substances these bodies press upon and leave their trace; of the techniques of calculation that make propositions about these traces; and of the mediations between interfaces, actors and institutions that give these propositions their meanings. These co-constitutive material-discursive arrangements are the conditions of possibility for biometric data to exist - to take up space and have an efficacy and impact in the world.

As I understand visibility, however, what is at stake is not simply about representing or misrepresenting a subject. Representation must always fail, and the endpoint of our critiques cannot rest on calls to 'see' or 'show' better without reifying an impossible and, as other scholars have discussed, so often violent (Butler 2005), practice. Rather what is at stake in this mode of "making visible", I argue, is an exposure: a way of making something matter that renders it intolerably vulnerable to harm.

Throughout this thesis, I try to unpack this understanding of visibility in terms of sensory exposure – where the "sensory" is as much about affective charges as it is about rendering perceptible or 'available to the senses' (Amoore 2020). To "get there", however, I am interested in thinking about how the production of biometric data constitutes a specific kind

of subjectivity through the datafication of bodies and borders. The aim of this chapter is to develop a theoretical framework adequate for this task.

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To this end, this chapter seeks to unpack a theoretical framework that can navigate two puzzles: firstly, on the datafication of bodies (the relation between the body and its rendering in data); and secondly, on the spatialities of biometric bordering (the proliferation and depth of interconnections between biometric technologies and database). Section I begins by introducing the literature within feminist and critical security studies that help respond to the following questions: "How do biometrics constitute borders?" and "How do biometrics constitute bodies?". Here I argue for the importance of critiques that problematise traditional understandings of where the limits of the body lie by highlighting their intertwinement with various forms of technology. I conclude Section II by indicating how my research seeks to contribute to these debates by engaging with the notion of harm. The subsequent sections of this chapter are dedicated to developing a theoretical and methodological framework that can help guide this analysis.

Section II, therefore, focuses on the concept of assemblage introduced by Gilles Deleuze and Félix Guattari in *A Thousand Plateaus* (1987). Assemblage provides us with a social ontology based on relationality and emergence, a worldview that explores how complex relationships of and between various multiplicities are drawn together to become a loose and shifting *thing* irreducible to the sum of its parts. Here I explore in greater depth how this thesis makes use of and understands questions of relationality and emergence to help conceptualise the relation between wholes and parts in distributed socio-technical systems. In addition, I clarify how assemblage thinking has shaped how this thesis approaches the question of structure and how the biometric devices it investigates relate to one another. Finally, Section III returns to the question of the datafication of the body and what an assemblage understood as the folding – or articulation (Coward 2012) – of elements brings to my understanding of biometric subjectivity. I argue that biometric subjectivity constitutes a particular material arrangement of relations of exposure that render subjects intolerably vulnerable to harm. How I approach the question of harm and how this relates to my fieldwork is the focus of Chapter 3 and 4, where I lay out the kind of practices this thesis seeks to theorise in more concrete terms.

Section I: Blurred Lines and "Bodies that carry borders"

Biometric technologies, as broadly defined in the opening of this chapter, have been around for centuries. While their roots are often traced back to late-nineteenth-century French policing (with Alphonse Bertillon's 'criminal identification systems') and Francis Galton's classificatory theory of fingerprints (Thales Group 2022), various "beginnings" have been located within divergent historical and regional contexts: from methods of business exchange in fourteenth-century China and partnerships between police forces and universities in mid-nineteenth-century Argentina (Mayhew 2019); to systems of employment and incarceration in colonised India (with the 1859 Henry Classification System) and later the surveillance of local communities in colonised Malaysia (Bioconnect 2021; Vitale 2017). In this thesis, however, I am interested in biometric technologies and data as they transform in the context of automated devices in the latter half of the twentieth century and the beginning of the twenty-first. More specifically, I am interested in these devices as they have been used for the management and policing of migration in Europe since the start of the new millennium.

In this regard, biometric data has emerged as a core and rapidly expanding component of national and transnational efforts to control the movements, flows and containments of migrant subjects. Since the first EU-wide biometric information database system (EURODAC) was launched in 2000, numerous other security systems that rely on fingerprint, iris or facial data have been introduced (e.g., the Schengen Information System and the Visa Information System.). Increasingly, these systems are expanded to enrol new subjects (e.g., children under the age of 4) and towards supplementary purposes (e.g., law enforcement); and integrated or updated to allow for the exchange of data (e.g., Entry-Exit System and the European Travel Authorisation System). Similarly, while national fingerprint databases for immigration control pre-date their EU-wide counterparts, they too have multiplied, merged, or evolved to enable interoperability (e.g., through the UK's Biometric Services Gateway under the Home Office Biometrics Programme). [3]

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[3] "Interoperability" is the technical term used to refer to the capacity of computer and software systems to exchange and make use of information.

Biometric data serves more purposes than just *monitoring* the movements of subjects across borders, however. For example, facial images and fingerprints are central to several "authentication" documents such as passports, Biometric Resident Permits and asylum "Application Registration Cards". These documents - reminiscent of the electronic cards imagined in Deleuze's essay on 'societies of *control*' (1992: 7; emphasis my own) - can enable or impede access to anything from travel, study, and work to housing and financial support (Home Office, no date). Furthermore, biometric data 'explodes and scatters' with technologies that exceed the strict identification of individuals (Amoore 2021: 2). As Amoore (2021) and Claudia Aradau (2020) have shown, biometric data produced for registration in bordering zones may have many afterlives. It may, for example, form one of the multiple sources mined by deep learning devices that draw up immigration models, classify immigration decisions or develop exploratory methods of data analysis. Such techniques may be 'invoked against a person at any future moment' (2021: 4). They are geared towards *anticipation* and *experimentality,* forms of governance that foreclose future political claims and debilitate the migrants subject to 'experiments without protocols' (Amoore 2021: 4; Aradau 2020: 38).

Furthermore, the locations from which biometric databases may be accessed have burgeoned over the past decade, producing insidious living conditions throughout Europe. In 2015, for example, the European Commission set up "hotspots" in Greece and Italy to register refugees' in EURODAC at the edges of the Schengen Area's external borders rather than allow movement further inland to reception and accommodation facilities. Initially implemented as an emergency response to the so-called "refugee crisis", hotspots endure and are plagued by reports of hidden abuse. These include reports of physical force, police brutality and arbitrary detention in fingerprinting procedures; routine violations of the principle of *non-refoulment*; and the infrastructural neglect of overcrowded processing facilities (Mentzelopoulou and Luyten 2018; Amnesty International 2016). Additionally, biometric databases increasingly appear in everyday life - accessed remotely (literally "on the spot") in public places such as streets and city centres through the mobile forms of fingerprinting at the centre of my research.

Against this fraught and evolving backdrop, scholars from across the social sciences have studied the effects of biometric technologies in migration governance. Analyses of EU

biometric asylum regimes have centred around, for example, issues of inefficiency, injustice (Vedsted-Hansen 2005), human costs (Spijkerboer 2007), and the challenges in overcoming (non)implementation of EU law (Schuster 2011). In particular, privacy rights are frequently invoked and continue to gain traction as asylum regimes accumulate and rely on large quantities of identifying data. Such concerns have only intensified with the use of immigration databases being extended to law enforcement (Roots 2015). Crucially, however, several critical security scholars have contended that declaring body data as "private" cannot account for the political significance of the implication of bodies in security practices.

Irma van der Ploeg, for example, has argued that rights to informational privacy rest on the distinction made between 'the body itself' and 'information about, or digital representations of, that body' (2003: 58). Underlying this distinction is an ontology that imagines bodies as bounded entities that end at the skin. For many critical theorists of IR and beyond, this "neat" and individualised conceptualisation of the body will give pause for thought. We might think of, for example, Foucault's (1980) location of the body as an intensely contested locus of power relations where political events materialise and through which histories of sovereignty unfold. Similarly, we might think of Judith Butler's (2004) influential account of the body and embodied existence as fundamentally relational:

> 'The skin and the flesh expose us to the gaze of others, but also to touch, and to violence… [P]rior to the formation of my "will", my body related me to others whom I did not choose to have in proximity to myself.'

> (Butler 2004: 26).

More expressly, we might think of Donna Haraway's (1990: 220) famous provocation, 'why should our bodies end at the skin?'. Following Haraway, feminist and queer theorists of security, for instance, have long questioned where the limits of the body lie (Grosz 1994; Haraway 1991; Hobbs 2020). For example, Jasbir Puar (2017: 217) highlights the systematic failure of theoretical attempts (including those within philosophical, ethical, and scientific discourse) to 'clearly delineate a temporal, spatial, energetic, or molecular distinction [around] a discrete biological body'. Instead, Puar and others point toward assemblage theory to reconceptualise the body as a porous, multiple, and emergent phenomenon. Assemblage theory emphasises the production of entities through their positioning within a webbed series of relationships. In doing so, it destabilises traditional imaginings of objects and subjects as

singular and discrete. Through assemblage theory, the body's contours are blurred. The body is understood as not merely engaged with, but produced through, the relation between human and nonhuman elements that move through and across bodies to coalesce into something larger (Hobbs 2020: 39).

Building on this line of enquiry, feminist and critical security scholars have investigated bodies as intricately enmeshed with technology (Wajcman 2007). These analyses spill over into a wider rethinking of the intellectual terrain of the social sciences, where scholars have identified the centrality of new technologies as agents and drivers of transformation in security practices. Katherine Hayles, for example, uses the term 'cognitive assemblages' to explore how algorithmic technologies are enabled, extended and supported by their interactions with human and technical cognisers (2016: 34). Comparably, Louise Amoore and Alexandra Hall (2009) draw on assemblage to investigate what might be thought of as a counterpart to body-technology enmeshment: the dissection, projection and reassembling of fleshy bodily bits through X-ray scanners at airports. Here the assemblage refers to the projected "whole" of dissected images of the body's 'multiple interiors' entwined with data profiles and risk scores. Amoore and Hall argue that these technological penetrations and projections produce a kind of 'nakedness' central to 'the violence involved in uncovering, breaking down, and writing the body into digital form' (2009: 459). Moreover, they argue that it is this 'vivisectionist violence' for which calls to protect informational privacy rights have no meaningful response (2009: 452).

Following the kinds of inclinations toward the blurriness of bodies outlined above, and the way a relational account of their formation moves us towards a politics of harm, this thesis turns away from individual rights-based critiques of biometrics. Instead, I locate the underpinnings of this research within literature that provides a critical sense of the relationship between bodily matter and bodily information. In this regard, there is increasing recognition of the importance of examining the relationship between the body and its rendering in data, particularly insofar as this contributes to a growing literature on electronic borders. Take, for example, Louise Amoore's work and similar accounts that tie the datafication of the body to its materialisation as a bordering practice. Fifteen years ago, Amoore proposed the concept of the 'biometric border' to capture the twinned politics of the turn to digital technologies and data integration within border management and the 'body

itself' being inscribed with, and demarcating, 'a continual crossing of multiple encoded borders – social, legal, gendered, racialised' (2006: 337 cited in Amoore 2021: 2). The idea of a border 'carried by mobile bodies' and 'deployed to divide bodies at international boundaries, airports, railway stations, on subways or city streets, in the office or the neighbourhood' (2006: 336) has since been echoed throughout debates on the ubiquity of contemporary bordering practices (Breckenridge 2014; Frowd 2018 cited in Amoore 2021: 11). Elsewhere biometric technologies have been comparably conceptualised as 'the intertwinement of individual physical characteristics with information systems' (Mbembe 2019: 9), a technology of power that produces a symbiotic governance of borders and bodies (Muller 2011), and a key mode of the making of 'the body as a password' that enables certain privileges and closes certain doors (Aas 2006).

In problematising the distinction between bodies and technologies, this literature marks a vital contribution to rethinking how contemporary forms of data, analytics, and risk management are changing techniques of border control. For example, scholars such as Amoore (2006), Van der Ploeg (2006) and Huub Dijestbloem and Albert Meijer (2011) have shown how border technologies, by breaking down human bodies into fingerprints, iris traces and other data 'bits', do not only exclude these bodies but recode and upload them into 'new circuits of capital, power, and desire' (Walters and Lüthi 2016: 360). Similarly, where early critiques of biometrics often focused on automated discrimination enabled by relatively fixed categorisations (Lyon 2003; Pugliese 2005), recent work has explored gendered and racialised implications in terms of the unstable relationship between the identities and bodies produced (Kloppenburg and Van der Ploeg 2018; Pugliese 2010; Browne 2015; Benjamin 2019). Furthermore, the idea of "bodies that carry borders" animates critical debates on the ways in which datafication transforms what a border is and, in turn, what a border does. Here the border is said to be 'permeable' (Kuster and Tsianos 2016), 'portable' (Lyon 2005), 'omnipresent' (Dijestelbloem and Broeders 2014), a 'virtual firewall' (Walters 2006a), or a 'more electronic, invisible, and impalpable "global network of border security"' (Vaughan-Williams 2010).

The above work has been essential to invigorating our understanding of how the rendering of life as data as a security practice works and how the border is evolving. My research capitalises on this momentum but moves beyond general theorisations of biometrics, the

body and the border to look at their role in generating forms of harm. I investigate what this biometric data subjectivity and border work does in the world, why it matters and how it profoundly impacts lives. In this regard, I follow Amoore's (2021: 8) recent call to think about bordering devices not only in terms of their expansive 'virtual reach' (important as this may be) but also in terms of the 'weight, the heaviness and the burden, the duress of border politics'. Of course, Amoore's (2021: 2) argument concerns deep learning technologies that 'seem indifferent to… [the] body as such' in their focus on modelling, automated decision-making and exploratory data analysis. However, I think there is still something here to be said for more situated uses of biometrics. That is, there is a politics of weight, duress, and burden in fingerprinting that has yet to be fully accounted for in the literature on biometrics. As such, this research is guided by the following research questions:

- How do biometric technologies – as distributed systems – individuate?
- What are the harms created by this form of biometric individuation, and what do they do?
- How do people navigate these conditions?

In order to answer these questions, a theoretical framework is needed that can navigate two puzzles. Firstly, it needs to clarify how the research understands the datafication of bodies - the relation between the body and its rendering in data. Secondly, it needs to provide an understanding of the spatialities of biometric bordering - the proliferation and depth of interconnections between fingerprinting technologies and databases. The subsequent sections of this chapter are thus dedicated to developing a theoretical and methodological framework that can help guide this analysis. Section II begins by drawing upon Deleuze and Guattari's (1987) work to outline the fundamentals of assemblage theory before discussing how this thesis develops assemblage theory toward an analysis of the datafication of bodies and borders.

Section II: What is Assemblage?

In the following statement made by Deleuze in conversation with Claire Parnet, he summarises the understanding of assemblage he developed in his earlier work alongside Guattari:

'What is assemblage? It is a multiplicity which is made up of heterogenous terms… the assemblage's only unity is that of co-functioning: it is a symbiosis, a "sympathy". It is never filitations that are important, but alliances, alloys'

(Deleuze and Parnet 1987: 69)

Introduced by Deleuze and Guattari in *A Thousand Plateaus* (1987), assemblage theory provides us with a social ontology that explores how complex relationships of and between various multiplicities are drawn together to become a loose and shifting *thing* irreducible to the sum of its parts. An assemblage is not only what draws together disparate elements, but fundamentally *is* the co-functioning of the elements convoked together into a single discernible formation (Deleuze and Guattari 1987: 503-504). As a concept, assemblage names the conspiring together of a multiplicity of relations between, for example, people, institutions, materials, concepts and discourses. However, an assemblage is also a distinctive ontological entity. It is not simply a network in which a series of spatially proximate atomised entities connect to one another across a close gap, but rather an articulation of elements whose separateness is 'simply fiction' (Coward 2012: 477). This moment of articulation, or indivisibility, is central to how I understand the body and its rendering as biometric data: the sites of exposure that constitute harm. Before unpacking this argument further, however, I would like to explain some of the key concepts of assemblage and how they have guided my research.

Concepts: Relationality and Emergence

An assemblage is, first and foremost, relational. As outlined above, assemblages are formed by the relations between intertwined components. Furthermore, these components can only be defined in terms of how they relate to one another. The term given to this double dynamic is *relationality*. While relationality is classically understood as a secondary phenomenon

arising from the contingent connection between individual atoms, in the understanding I follow - and as I believe Deleuze and Guattari intended - relationality is an ontologically prior dynamic (Butler 2004; Nancy 2000: 4 cited in Coward 2012). Relations are not secondary characteristics that arise from the connections between different objects and subjects but are the conditions of possibility for existence. Any form of existence – subjects, bodies, materials, discourses – only comes into being through a kind of interplay with other forms of existence.

Judith Butler's work provides a helpful illustration of relationality's ontological priority in the context of embodied subject formation. Butler tells us how a body cannot "be" without those prior others who brought it into existence, who nurtured or exploited it, and who continue to haunt our adult sense of self (2004: 25-27; see also Butler 2005). She argues that we are born into a condition where our emergence and formation are contingent on others around us and the relationships that may support or harm us. We remain inalienably dependent on them, and the material environments and infrastructures we are differentially supported by and exposed to, throughout our lives. Our embodied existence depends on, for example, struggles for food, clean air and clean water that sustain our bodies at a molecular level. The scarcity of these substances may permeate such struggles, but it is nonetheless our relation to them that constitutes our bodies as living, breathing, porous things. Yet this existential fact of relationality is also true of, for example, the food that depends on soil and certain climates to grow, worms and water to fertilise the soil, and shipping containers, supply chains, logistical companies and markets that move it to contexts where it will be consumed *as* food.

Similarly, a body can only be a body that moves, for example, by virtue of the ground that supports it and the architectural forms that enable or frustrate this support (the presence or lack of things like pavements, streets, stairs, and disability ramps) (Butler 2016). Technologies of mobility like pavements, in turn, rely on solid ground to be laid, the commercial production of chemicals that interact to produce cement and building materials, and the adjacent roads, surrounding buildings and bodies that travel over it and enable it to function as a pavement (as opposed to a flat pile of cement or anything else). In the language of assemblage, any given element is produced by, and productive of, the ensemble of relations within which it is entangled.

Secondly, an assemblage is thus understood as an emergent entity. Here the concept of *emergence* refers to the formation of collective properties of the ensemble; in other words,

what elements of an assemblage "do" together that they could not do alone. Emergent properties of an assemblage are those capacities and capabilities that cannot be understood simply by adding together its parts. They are that which is 'not contained in the elements themselves but could not exist apart from them' (Archer 1982: 475). As a result, what any specific assemblage *is* or *does* transforms if an element is removed or the relations between elements change. Emergence does not mean, however, that assemblages are separate entities in their own right. What constitutes a particular assemblage might be those relational gatherings made discernible by a 'slightly heavier trace' around their borders (Coward 2012: 477) or a thicker set of consistencies between the internal elements. Discerning where this trace lies – or what thicker consistencies we want to emphasise – is as much an artificial cut made by the researcher into a messy reality as any form of knowledge production.

Methodologies: Assemblage Thinking

To illustrate what assemblage theory's understanding of relationality and emergence might look like in practice, let us briefly consider the biometric security assemblages that form the empirical backdrop of this project. Taking emergence and relationality as starting points involves specifying and conceptualising the processes and mechanisms by which the properties and behaviours of complex systems arise from the detailed structure, behaviours, and relationships at a finer scale. What a specific biometric technology looks like and does is conditioned by the relations between, for instance, the hardware used (mobile or sedentary?), the algorithms used to code the software (rules-based or deep learning? Decision trees or neural networks?), and the institutional context in which it is put to use (Airport security queues? police stations or street patrols? Asylum accommodation or reception centres?). Its emergent properties are the co-functioning of these elements. However, the "smaller" assemblage of software, hardware and immediate institutional contexts cannot be meaningfully separated from, for instance, the ensemble of the bodily traces it mediates and produces, nor the databases enabling it to function as a way of producing, archiving or comparing data.

Nor can these technologies be understood outside of the assemblages of legislation and policies in which they take on particular meanings with specific impacts. When we think of EURODAC's categorisations of 'found irregularly residing', 'found irregularly crossing borders'

or 'seeking asylum', for example, we might think of the histories folded into these terms: refugee conventions developed in the aftermath of world war and genocides, or racialised anxieties projected onto nationality acts, dissolution of empires and decolonisation. We might also think of the discursive practices of policymakers or lobbyists that capitalise on or pander to anti-immigration rhetoric and cultivate appetites for the funding of biometric identification and control. We might then consider the details of the scanners that are important in giving rise to the character of certain discourses (e.g., invocations of "efficiency" or imaginaries of "catching criminals" or of smooth pan-European spaces "without internal borders"). Alternatively, if we think about how EURODAC's overall structure and functioning are produced, we might think not only of the interactions between different regional and transnational legal and diplomatic frameworks but also of symbiosis with other forms of surveilling, controlling and encouraging the flows of goods and subjects – its place within more comprehensive security assemblages and bordering regimes. We might then consider its intertwinement with databases like the Schengen Information System and similar techniques of border control that give rise to the proliferation of terms like "Fortress Europe".

In other words, thinking relationally and utilising the concept of emergence involves moving among different economies of scale and grappling with their continuous and co-constitutive interplay. In this way, Deleuze and Guattari push us to 'take thought (and ethics) away from internal meanings, causes, and essences, and toward surface effects, intensities, and flows' (Malins 2004: 5 cited in Hobbs 2020: 27). Assemblage theory involves 'leaving behind attempts to dig beneath the surface of an object to discover its real or true meaning' and instead studying it in terms of the relations that move through it (Hobbs 2020: 27). In Deleuze and Guattari's own words, assemblages push us towards an exploration of the 'rates of flow…relative slowness and viscosity…acceleration and rupture' that characterise the relationships between the multitudes that comprise an assemblage (1987: 3-4).

While there are several divergent – sometimes incompatible - ways assemblage theory has been taken up in political theory,[4] there is a broadly shared emphasis on these qualities of

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[4] On this matter, Christian Bueger (2014) asks us to compare, for example, Saskia Sassen's (2006; 2008) use of assemblage as a loose metaphor to talk about hybridity to Manuel DeLanda's (1997; 2002; 2006) formulation of comprehensive theorisations of world histories, societies, philosophies, and sciences. While each have contributed useful tools and clarified important concepts in assemblage thinking, my approach to assemblage departs from both. I argue that employing assemblage as a loose metaphor for networks deprives it of its

heterogeneity, emergence, and a rejection of an atomised understanding of the world. Jane Bennett, for example, paints assemblages as the coming (or becoming) together of diverse elements enmeshed in a series of shifting and mobile relationships, such that they emerge as 'living throbbing confederations' with their own vitality (2010: 24). Elsewhere assemblages have been described as 'co-functioning' of heterogeneous parts within a provisional whole (Anderson and McFarlane 2011) or 'entanglements between human and nonhuman actors' that 'coalesce into fragile hegemonies' (Lisle 2014: 70). They are, in other words, a way of reframing our inquiries towards messy realities that, even if multiple, also hang together (Mol 2002: 55 cited in Lisle 2014: 61). What then is the analytical and methodological payoff of these assemblages, these inclinations towards relationalities and their surplus?

Firstly, there is the refusal to privilege either the social or the material. Instead, sociality and materiality emerge together (Acuto and Curtis 2014: 3). That is, they are *mutually constituted,* and primacy and exclusivity cannot be assigned to one or the other. This refusal has been central to the way I have approached the question of biometric data, for example, which – as outlined in the introduction of this chapter – I understand as a thoroughly social and political phenomenon embedded in power relations and realised through discursive-material arrangements. Secondly, there is a resistance to totalising systems of thought and the reification of entities (2014: 3). Instead, the approach to multiplicity introduces an inalienably plural and dynamic world, eroding singular overarching logics of systems and particularistic understandings of essences (Bueger 2014: 61). Section I, for instance, illustrated how this comes to bear on how feminist and queer theorists of assemblage have understood the body (Grosz 1994; Haraway 1991; Puar 2012) and how this moves us towards literature that conceives of the body and biometric borders as intertwined (Van der Ploeg 1999; Amoore 2006; Mbembe 2019). Thirdly, there is an emphasis on assemblages as historically contingent entities, which underscores the need to think about a given assemblage not as natural and pre-existing but as something in a continual process of being assembled, contested, dissolved, and reassembled. For example, Chapter 3 discusses the denaturalisation of bordering regimes as historically contingent ensembles that must be continually performed through diffuse

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theoretical meaning. I instead follow Bueger's call for a more in-depth engagement with Deleuzian assemblage. Contrary to DeLanda, I argue that a consistent theory of assemblage is at odds with the spirit of the concept itself which must instead be worked out in dialogue with other theoretical lenses and concepts (2014: 59).

practices and processes. Here I argue that this understanding is essential to analyses of bordering technologies for two key reasons. Firstly, it gives us a sense that the border is "everywhere". More importantly, this sense of enactment, proliferation, and depth shapes the register in which the manifest harms of biometric borders are located.

Finally, bringing these concepts of relationality, multiplicity, and emergence together provides a distinctive approach to questions of structure. As gestured towards in the Introduction of this thesis, there are no clear delineations between distinct scales, such as "local" and "global" or "micro" and "macro". Returning to the idea of 'slightly heavier traces' and thicker internal consistencies, this is because any given assemblage may nest within or overlap another, and each of its parts will be or bleed into another series of "smaller" assemblages. Here I think of a provocation made by Debbie Lisle (2014) on the methodological challenges encountered by theorists who bring the disciplinary hangovers of International Relations (IR) into assemblage thinking. Here she writes,

'[W]hat contemporary emergent assemblages are not global? Even work that extrapolates from the detailed minutiae of a single human/nonhuman encounter ends sutured into the global realm.'

(2014: 60).

To illustrate, Lisle highlights the importance of work within IR that engages with assemblage to open up the political and global character of the constitutive relations of human and nonhuman elements: 'critical infrastructures in cities (e.g. transport system) [Aradau 2010; Coward 2012], security technologies at border sites, (e.g. biometric screening) [Muller 2012] and invisible objects of governance (e.g. data and algorithms) [Amoore 2009b; Bourne 2012]' (cited in Lisle 2014: 69).

Notably, however, this approach does not preclude a distinct order of a particular assemblage or critical efforts to get at provisional structuring conditions and more or less hierarchal modes of governance. In this regard, George E. Marcus and Erkan Sakka (2006) provide a helpful summary. They argue that the term assemblage 'seems structural, an object with the materiality and stability of classic metaphors of structure, but the intent in its aesthetic uses is precisely to undermine such ideas of structure' (2006: 12 cited in Bueger 2014: 60). Following their argument, Christian Bueger writes that whoever draws upon assemblage

theory does so 'with a certain tension, balancing and tentativeness where the contradictions between the ephemeral and structural, and between the unstably heterogenous create almost a nervous conditions for analytic reason' (2014: 60). Assemblage is thus 'a sort of anti-structural concept that permits the researcher to speak of emergence, heterogeneity, the decentred and the ephemeral in nonetheless ordered social life' (2014: 60). In other words, assemblage asks us to think about how things are made possible by their positioning within multitudes and how this ordering of things is ultimately provisional. In doing so, it offers a profound challenge to ontologies and methodologies that would impose stability on a fundamentally unstable, dynamic and fluctuating world.

It is with these theoretical and methodological inclinations that this thesis moves between what might otherwise be called global and local sites of biometric devices: the UK's handheld fingerprinting devices that connect to national immigration and law enforcement databases through the Biometric Services Gateway; and the EURODAC database central to the enforcement of deportation to 'initial countries of entry' across the Dublin territories. Put differently, I approach these devices not as "case studies" traditionally understood, but as ways of unpacking and grounding the core arguments of this thesis within situated empirical and historical contexts. The blurriness of sites and scales does not mean to confound the hierarchisation through which lives are unevenly exposed to harm in racialised, gendered and classist ways (Lancione and Simone 2021: 2). It does mean to account for, however, that which exceeds the clarity of systems thinking in order to foreground a more morphological account of power. This, in turn, lays the ground for a deeper theoretical and empirical engagement with what the relationality and emergence of biometric technologies mean for those who must dwell within their world-making capacities. As Michele Lancione and AbdouMaliq Simone (2021) write of their 'liminal method',

> 'Our limited linguistic capacities try to hold on to multiple affective and material ontologies going on through these processes. The effort lies in staying with the arrangement of how one inhabits dispossession (second concern) and how that inhabitation brings to the fore rhythms of endurance that are pointing beyond the status quo of inhabitation, of how it's currently and accepted done, theorised and spoken of (first concern).'

> (Lancione and Simone 2021: 2)

In an important sense, the above echoes Donna Haraway's 'staying with the trouble' and 'following a thread in the dark' to where it leads in 'real particular places and times' (2016: 3). However, there is – I think - something more in what Lancione and Simone describe, which has to do with the staying with 'the in-between' of spaces 'taken away' and of bodies and existences 'marked as foreclosed' (2021: 2). With these provocations in mind, Section III and Chapter 3 explain how this thesis turns toward supplementary theoretical lenses to bring out the more visceral politics of biometric security assemblages.

Section III: Biometric Subjectivity

At this juncture, I would like to return to the question of the datafication of the body. Earlier I proposed that we understand assemblage not simply as a network in which a series of distinct entities connect across a gap but as an articulation of elements whose separateness is fiction (Coward 2012: 477). This, I claimed, is central to how I understand the body and its rendering as biometric data: the sites of exposure that constitute harm. But what exactly does this mean?

This argument draws from a specific account of assemblage put forward by Martin Coward (2012) in his analysis of urban political subjectivity as constituted by the material 'in-between' of contemporary cities. Here he conceptualises assemblages as 'the articulation of a number of elements through shared divisions into a singular phenomenon' (2012: 476). Drawing on Jean-Luc Nancy's (2000) co-existential analytic of 'shared divisions', relations are understood as 'a kind of joint or hinge' at which two *onta* (e.g., self and other) are differentiated, joined and related (2012: 476). The 'articulation of elements' is Coward's name for this triple dynamic (2012: 477). He describes this in terms of a 'touching' at surfaces composed of indivisible membranes. Where elements are articulated, they unfold at constitutive boundaries that are shared and yet divide (i.e., 'for touch to be touch, there can be no separation') (2012: 478). He understands these divisions at a shared surface of contact as what exposes us to alterity: that which is not the self but without which a self cannot exist. That is, our exposure to otherness – the relations to others and environments that sustain us,

which may support or harm us (Butler 2004) – happens precisely at the material surfaces that make up the things between subjects and that constitute subjects as inalienably plural:

> 'Walls, houses, trains, and fibres are all things that lie between us, things that might be incorporated into many different singular assemblages - and thus, as shared entities, the things that remind us of the presence of a plural alterity in the city'

> (Coward 2012: 478-9).

In Coward's account, 'urban political subjectivity' is thus constituted as 'an assemblage which puts subjects in relation through material infrastructure and exposes them to one another' (2012: 469). Drawing on this conceptualisation allows subjectivity to be understood as one of those sets of elements with thicker internal consistencies - with a 'slightly heavier trace' around it. Moreover, it foregrounds how materialities are incorporated into subjectivity and render subjectivity as a relation of existential exposure.

How does this influence my understanding of the datafication of the body? Moreover, what does this mean for biometric subjectivity? Firstly, it transforms that sense of the body and biometric data as separable entities (e.g., the ridges of a fingerprint versus the mathematical propositions that measure them) into a sense in which a set of elements are articulated at shared boundaries. In this thesis, I use the Deleuzian language of 'folding' to refer to this articulation, which comes from his description of the multiple as 'not only what has many parts but also what is folded in many ways' (1993: 3). Through the concept of folding, subjectification is understood as a process of folding whereby the "inside" (e.g., subjectivity, mind and body) is always part of the "outside" (e.g., discourse, knowledge and spatial environment) and vice versa (Deleuze 1988). Through folding the outside in, "being in the world" is fundamentally material and spatial (Malins 2004: 484). Secondly, biometric subjectivity is understood to consist less of individuals and their migration history than singularities of the discursive materialities they incorporate. Put differently, the production of a biometric subject is not simply about the apprehension of an individual whose fingerprint is read in order to be tied to a specific identity. Instead, it becomes a question of how a biometric subject emerges from a heterogeneous multiplicity of human and nonhuman elements. What must happen for there to be an emergence of a kind of individual that can be acted upon and made to act within this sprawl of constitutive elements? How does singularity

arise from a multitude? This is the question of biometric individuation that I explore in Chapter 5.

Finally, biometric subjectivity is understood as a particular material arrangement of relations of exposure. To clarify this point, we must remember that exposure is an existential condition of subjectivity. That is, all subjects are, in one way or another, exposed to each other at the material surfaces where they touch. For instance, walls 'tell us about the singularity we are when we dwell in a particular house', and 'wires expose us to the plural others whose messages are carried along them' (Coward 2012: 478). However, what kind of material relations a subject is exposed through, and what forms of otherness they are exposed to, is an empirically and historically situated question. Coward illustrates this point with the examples of the individual worker 'inseparable and constituted in and through a complex assemblage of transport, fibre optics, copper wire, and tunnels' or the metropolitan subject characterised by various 'ways in which presence can be effected at a distance: telephone, video, post' (2012: 473). Furthermore, the kind of vulnerability this material exposure amounts to is not evenly borne (Butler 2004). The kind of subjectivity it creates and the conditions that subjects must live within can be, and so often are, radically inequitable. In the circumstances explored in this thesis, I contend that biometric subjectivity is one such instance. This is what the discursive-material arrangements of making visible amount to: relationalities of exposure that, in the context of biometric technologies, renders biometric subjects intolerably vulnerable to harm.

Biometric subjectivity thus constitutes the folding together of the kind of diverse phenomena that have been woven throughout my discussion of relationality and emergence thus far: the deeply political mathematical propositions that constitute bodily traces as data; the sprawl of interconnected databases and fingerprinting devices; the discursive-material histories of hierarchising lives in terms of legality and illegality; and their realisations in the mediations between interfaces, actors, institutions and legal frameworks that give these things particular meanings with specific impacts. These are not separable entities; instead, they are constituted at their shared boundaries. They exist through one another. Their emergence creates not only a biometric technology or a biometric assemblage but something more – a kind of surplus or in-between that produces conditions of impossibility. As this thesis unfolds, I hope to draw out the violences that are a constitutive part of this gathering. I hope to show

how the body's rendering as data cannot be meaningfully separated from – but is instead constituted by and constitutive of – the social situations where relations are saturated and passages blocked (Thoburn 2016; Walters and Lüthi 2016).

Section IV: Conclusion

To conclude, in the context of my research, assemblage theory has been both a methodological guide and a rich theoretical resource for approaching the datafication of the body. 'To think', Michael Shapiro argues, 'is to compose the discourse of investigation with critical juxtapositions that unbind what are ordinarily presumed to belong together and thereby to challenge institutionalised ways of reproducing and understanding phenomena' (2013: xv). Bringing assemblage to the biometric datafication of the body does precisely this. It 'unbinds' common-sense assumptions about the separateness of biometric data and the devices that produce it and the lives it exposes to harm, and explores how these entanglements emerge to create particular political conditions and forms of existence. To make this exploration entails a 'different ethos of engagement with the world' (Anderson and McFarlane 2011: 126) that 'enhances, rather than seeks to order, its multiplicity, heterogeneity and contingency' (Lisle 2014: 70). In this way, the value of assemblage theory lies less in providing a pre-formed toolbox of methods and concepts that might be applied to the world (2014: 70). Such applicationism risks bankrupting assemblage of its theoretical and empirical potential. Rather assemblage theory has been so foundational to this project because it provides a distinctive ontology of the world that foregrounds why the ensemble of things *matters*. In other words, biometric technologies must be thought *with*, not analytically separated from, the harms, bodies and borders they constitute.

In *A Thousand Plateaus*, we are told that 'when one writes, the only question is which other machine the literary machine can be plugged into, must be plugged into in order to work' (Deleuze and Guattari, 1987: 4). In this spirit, the following chapter (Chapter 3) moves on from an engagement with Deleuze and Guattari's assemblage theory in favour of plugging assemblage into debates within Critical Border Studies and Critical Mobility Studies on the

ensemble of processes and practices that make borders and their consequences possible. In this chapter, I am interested in unpacking how this thesis approaches the question of harm and how this approach has emerged through the various frustrations and redirections of my fieldwork. Here I argue that to comprehend what is at stake in the datafication of bodies and borders, bordering technologies need to be thought about not only in terms of expansiveness and proliferation but also their density and pressure: the 'choked passages' characteristic of cramped space.

Chapter 3: Understanding Borders, Understanding Harm

This thesis explores how the use of biometric technologies for the policing and management of migration in Europe creates new forms of harm. In the previous chapter (Chapter 2), I laid out the theoretical and methodological underpinnings of this analysis through an engagement with Deleuze and Guattari's concept of assemblage. I illustrated how this thesis uses and understands questions of relationality and emergence to help conceptualize the relation between wholes and parts in distributed socio-technical systems. In addition, I argued that assemblage understood as the folding – or articulation (Coward 2012) – of elements represents a powerful resource for understanding the datafication of the body and the constitution of biometric subjectivity. Here I argued that biometric subjectivity constitutes a particular material arrangement of relations of exposure that render biometric subjects intolerably vulnerable to harm. This chapter aims to build upon this framework by unpacking how I approach questions of harm and how it relates to the fieldwork that formed the basis of my research.

To begin, Section I explores how the question of harms has been addressed by critical theorists of borders and bordering practices. Here I argue for the importance of accounts that stress the heaviness, saturation, and friction of border assemblages within scenes of entanglement, flux and instability. At this stage, I introduce the concept of cramped space as it has been used in critical borders and mobility literature (Walters and Lüthi 2016). In Section II and Section III, I explain why cramped space has emerged as the concept this thesis uses to understand harm. This grounds a discussion of how I became involved with the Racial Justice Network's 'Stop the Scan' campaign, how it shaped how I understood the consequences of biometric technologies and the ethical issues embedded in this kind of research.

Section I: Approaching Borders, Approaching Harm

The violences and harms of borders and bordering practices have long been the subject of political enquiry. Borders and bordering practices have been a touchstone for some of the most high-profile debates on the disposability (Agamben 1998), or "letting die" (Foucault 1976) of certain lives; the sovereign practices that actively produce these forms of social existence by governing populations through their exposure to death and putting lives in habitual jeopardy (Mbembe 2011; Vaughan-Williams 2010); and, indeed, the politics underlying this naming of certain lives as disposable.[5] Beyond a focus on the biopolitical and necropolitical management of mobile populations, social scientists and political theorists have sought to come to terms with the conditions within which those subject to the underbelly of bordering practices must go on living. These accounts have ranged from the uneven distribution of conditions of precarity and vulnerability (Butler 2004), the differential dispossession of those caught in networks of economic (im)possibility (Anderson 2013; Bhagat 2018), and the multiplication of spaces in which material and spatial boundaries constrain the worlds of some but not others at global (Bhattacharyya 2018;) and local (Keenan 2019) scales. Still more have sought to chart these bordering conditions in terms of what it means to dwell, navigate, and live within them: the slow accretion of everyday violences, and the forms of struggles, resistances and micropolitical fields that unfold from their encounter.

Whatever terminology one chooses to invoke, and with whatever critical and ethical reservations, there is a sense that bordering remains one of the most powerful, divisive, and ubiquitous features of contemporary political landscapes. For this reason, perhaps, critical theorists from across the social sciences – security studies, border studies, Science and Technology Studies, and scholars of postcolonialism and International Relations - return time

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[5] In particular, Giorgio Agamben's (1998) account of the "refugee" as a figure who makes visible the biopolitical basis of the modern state and its production of "bare life" – a life that is socially included through an act of exclusion – has played an influential role in current debates in Critical Border Studies. For a more comprehensive account of Agamben's influence in Critical Border Studies, see Salter (2012). Here Mark Salter (2012: 741) describes Agamben as 'one of the most important contemporary social theorists of border[s]' and discusses the ways in which Agamben's concepts have been taken up in the field. For a critique of this influence that builds on Sarah Ahmed's (2013) discussion on citational practices as a 'rather successful reproductive technology, a way of reproducing the world around certain bodies', see Whitley (2017). Section III of this chapter addresses some of the issues this thesis has encountered in relation to Agamben.

and time again to questions of how borders are constituted – the performances, processes, practices, and technologies that make possible these manifest harms. This section provides a brief overview of these arguments to identify what has been generally regarded as the constitutive features of borders in critical debate.

For borders to exist – to take up space and have an efficacy and impact in the world – they must continually be performed through an array of practices and processes. Indeed, this has been one of the central contentions of Critical Border Studies, which looks to critical theory as a way to think of borders not as lines but as enacted practices (Whitley 2017). Against classical geopolitical understandings of borders as static, physical frontiers, Critical Border Studies applies, in the words of its practitioners, 'theoretical and conceptual work' to the 'diversity and complexity of contemporary bordering practices' (Parker and Vaughan-Williams 2012: 727). Critical theorists of borders and security have shown how borders come into being through, for example, the narratives of security and policy actors (Bigo 2002; Bigo 2007); everyday practices diffuse to the hands of private citizens and institutions (Amoore 2006); legal and diplomatic frameworks and financial and contractual arrangements (Walters 2021); various infrastructures, architectures, and technologies (Adey 2006); and through the layering of histories of empire, racialised anxieties and the lobbying and political mobilisation of particular interest groups (Hayter 2000; Cohen 2006).

This list is by no means exhaustive but points towards the vast work that must go into making borders possible. It does not mean to posit a conspiracy-style account of omnipotent actors unified in their approach to enforcing planetary segregation. Bordering certainly involves planning, directing, resourcing and sustaining, as well as the coordination and complicity of different governments and public and private actors with material and political interests at stake (Bhattarchya 2018; Walters 2021). However, these are not actions of univocal actors. On the contrary, many prominent examples of borders' exclusionary power take place within intensely contested spheres of governance, or they may take on a momentum of their own irreducible to decision-making and interest groups (Bhattarchya 2018).

Nonetheless, I suggest that Critical Border Studies' emphasis on the enactment of borders – and how this takes place through an expansive ensemble of historical, material, and affective investments - is significant to my project for two reasons. Firstly, it directs analysis towards the diversity and proliferation of bordering practices. Analyses may be shaped around, for

instance, the ways border controls are so multiplied and integrated into life that 'bordering becomes our everyday in "the world" (that place that appears to take up all available space)' (Bhattarchya 2019: 126). This is significant because it runs counter to declarations on new eras or crises of migration that portray movement as anomalous and the push to contain simply human nature. More importantly (and secondly), it shapes the register in which consequences are located. For example, without understanding the work that must be done to enact and legitimate border controls, the images and news reports of drowned and dehydrated bodies are understood as tragedies, as regretful yet inevitable consequences of natural and pre-existing borders. Similarly, without a sense of a particular environment created by the emergent properties of diffuse and interconnected processes, then the lips-sewn shut by asylum seekers protesting the conditions of their detainment (Edkins and Pin-Fat 2005) or the fingerprints burnt to frustrate biometric detection are spoken about in a depoliticised language of self-harm (Merrick 2021; Tilling 2015), as if such practices can be understood as harms enacted on oneself by oneself.

When thinking about what kind of phenomena makes the harms of bordering possible, assemblages of security and border control – techniques of monitoring, policing, and enforcing bounded space - are never very far out of the picture. If we think about the warehousing of populations, we may think of myriad technologies of enclosure – refugee camps, detention centres, removal centres, off-shoring contracts, transit zones - that multiply across the globe (Agier 2011). If we think about the lives "lost" at seas, channels, deserts, mountain passes, then we may think of the "physical" and "virtual" barriers – fences, walls, satellites, radio signals and coast guards - that monitor, constrict or forsake these passages (Butler 2004). The uprooting and persecution of those sent off to very uncertain futures may invoke the 'shadowy world' of midnight charter flights and immigration raids or the financial and logistical arrangements between governments, border police and private companies like airlines and security agencies (Walters 2021: 123). The destitution and precarity suffered by those denied access to 'paid labour, welfare benefits, health, labour protections, education, civil associations and justice' (Anderson et al. 2009) draw us to the whole host of databases,

filing systems, bureaucratic procedures, devices and technologies that track,[6] sort, ration, slow, accelerate and hold up bodies.

Furthermore, when such accounts touch on the constituent features of partitioning space, there is often an appeal to the idea that bordering produces differentiated regimes of mobility and containment. For example, critical geographers and security scholars have long argued that central to the way borders operate is a kind of permeability – a capacity to allow certain subjects to move through their various material and discursive manifestations and configurations (Walters 2006b; Bigo 2011). Indeed, the machinery of border control folds in certain subjects – for example, as part of privileged populations carrying desirable passports or as potential sources of labour into the fabric of capital accumulation – as much as they push out or impede others. In recent years much of the emphasis within these debates has been not only on differential access to mobility between groups but also for individual subjects. The latter may find, for instance, that where they previously held VISAs allowing protracted movement, they have since been pushed into undocumented status because of the intractable difficulties of navigating increasingly complex immigration laws and bureaucratic procedures. Their access to secure housing, employment, and financial safety nets may also be cut off by schemes such as 'No Recourse to Public Funds', 'Right to Rent' and 'Right to Work'. As Gargi Bhattarchya has argued:

> 'Bordering concocts a whole host of status-identities, most of them unstable… and while this process of being positioned as this or that and then finding that access to economic goods including work is determined by the manner of the positioning can seem to be fixing in the moment, there is also something endlessly undecided about this process. In part this uncertainty arises from the rise of everyday bordering and an increasingly mobile process of bordering activity'.

> (Bhattarchya 2018: 127)

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[6] Here I am thinking not only of what might be considered "hi-tech" or "digital" border devices/technologies (biometric technologies, infared sensors, cameras, surveillance drones etc.), but also things like passports and filing systems. I am cautious of what William Walters (2016) calls a masculinist bias towards the significance of the former at the expense of the latter, and even more so of the treatment of 'hi-tech' and 'low-tech' as dichotomous terms. For a similar critique on the divide between 'digital/non-digital' or 'real/virtual' see Merrill et al. (2020). I return to these arguments in Chapter 6 in relation to the atmospheric capacities of biometric technologies.

Based on the above overview, there are three themes that I would argue appear particularly prominent in debates on the constitutive features of borders. The first is the ubiquity and proliferation of interrelated practices that form the conditions of possibility for contemporary manifestations of the border. The second is the permeability of borders that enable differentiated regimes of inclusion and exclusion. Lastly, there is a growing recognition of the instability of the kind of subjectivities produced and the conditions subjects must navigate. I argue for the need to centre considerations of depth within these debates.

Ubiquity, permeability, and instability are central to how I, and many other theorists of biometric and border technologies, make sense of their consequences. However, here there is a crucial point to be made. In discussing such features and making necessary moves away from understanding borders as fixed geographical lines, we must be careful not to evacuate these terms of their politics. By this, I mean that we must be careful that a focus on the complexity of borders does not mean fundamental questions of power are, at best, treated as a secondary concern or, at worst, sidestepped entirely. What kind of subjects do the techniques of power at the heart of bordering produce? What forms of social existence and modes of being do their constitutive components create? How do they produce and maintain hierarchies of what counts as a grievable life (Butler 2004), and what does this mean for those unfolding lives at the receiving end of ambiguous matrixes of dispossession (Lancione and Simone 2021)?

This is a difficult but by no means hopeless project. One of the most compelling ways recent theorists of bordering technologies have endeavoured to make this move – to hold in tandem permeability, instability, power, and subjugation – is by stressing their more morphological aspects: their density and pressure as much as their expansiveness and ambivalence. Here I would highlight three theoretically differentiated but thematically resonant examples: Louise Amoore's (2021) recent work on the 'deep border' produced by machine learning technologies; Achille Mbembe's (2011) chapter on intensified connections and containment in a world saturated by digital and computational technologies; and William Walters and Barbara Lüthi's (2021) account of the 'cramped space' of infrastructures of mobility.

Firstly, in analysing the use of machine learning to draw up immigration models, classify immigration decisions and develop methods of exploratory data analysis, Amoore (2021) moves beyond debates on the proliferation of borders to think about the 'deepening' of

borders. Here she conceives of deep neural network algorithms as bordering devices that classify, divide, and demarcate boundaries in data mined from diverse sources (e.g., social media streams, news media, humanitarian data collection, and socio-economic data). To explore this phenomenon, Amoore uses the concept of deepening (or depth) in two ways. The first is a computer science imaginary of depth (the layering of neural networks to solve difficult problems) that coalesces with a broader political imaginary (a 'deep reach into diverse sources of available input data, and a mapping of non-linear relations in line with "output" policy objectives') (2021: 3). However, this depth is ultimately an illusion as it works through 'logics of the compression of volume and the flattening of complex problems to a single mappable function' (2021: 3). Instead, the 'truth of the depth of the deep border' (and Amoore's second use of the term) is found in 'the weight, the heaviness and the burden, the duress of border politics' (Stoler 2016; Amoore 2021: 8). The calculus of deep learning achieves 'a fleet-footed mobility' as it reorders and recombines the diverse data sources it is exposed to and carries the features generated to divergent and as yet unrealised political phenomena, but this same mobility is denied to the body in which the calculus is actualised (2021: 4).

In Amoore's account, the 'fissures and violences' of border politics endure – and are endured – long after the learning model has produced a specific output (e.g., a refused asylum claim, the data traces of a person's life clustered as non-compliant, a marriage clustered as fraudulent). In other words, the subject or subjects in question continue to bear the weight of the deep border's decision in a way that cannot be captured by treating the output itself as the sole locus of analysis. Furthermore, the calculus produced along the way by the deep learning model lodges in its algorithmic pathways to be revisited in the lives of those future others subjected to its use. For Amoore (2021: 8), what is at stake is a triple foreclosure: of material space, of the political claims made there, and the potential of future claims not yet made.

The second and third examples I highlight similarly stress the heaviness, saturation, and friction of border assemblages within scenes of entanglement, flux and instability. For example, in a chapter in *Necropolitics*, Mbembe (2011) discusses bordering as it emerges within a world 'saturated by digital and computational technologies'. He argues that entanglement is central to understanding, but not all that characterises, these intensified

connections. 'Indeed', he writes, 'wherever we look, the drive is decisively toward contraction, containment, and enclosure' (2011: 98). For Mbembe, this is not only about 'physical' and 'virtual' barriers (like fences, walls, camps, and databases), but also the contractions of a 'matrix of rules' governing the lives of those deemed in excess (2011: 96). Williams Walters and Barbara Lüthi's (2016) pose a similar puzzle. They argue that the metaphors of fluidity, flows and networks found in globalisation and mobility studies tend to neglect and depoliticise how inequality is 'systematically produced and maintained in a (global) space of flows' (2016: 361). Walters and Lüthi suggest instead that we expand our ontologies of power to include 'various atmospheres, enclosures, envelopes, bubbles and other forms that contain, insulate, nurture and protect mobile life' and use these to think through questions of friction, containment, and blockage (2016: 361). Here they introduce their use of the concept that is foundational to how I understand the harms of biometrics - cramped space.

Walters and Lüthi draw on cramped space to highlight the collective affects that emerge through embodied senses of mobility's contentious and contested infrastructures and mediations (e.g., ships, ports, trucks, motion sensors). Against the 'overly-optimistic' thrust of debates within globalisation and mobility studies on unbounded flows, the visceral language of 'cramping' allows Walters and Lüthi to address scenes of discomfort: multi-sensorial and felt characteristics of cramped transport. For example, they highlight present-day journeys of Chinese coolies in the back of trucks, as well as the Freedom Rider bus rides through segregated US states that were central to civil rights activists' navigation of the 'webs of white supremacy' in which they were caught (Walters and Lüthi 2016; Lüthi 2016). Moreover, the concept of cramped space allows them to address the historical and political dimensions of movement that cannot be reduced to linear causality and rational choices. They argue:

> 'Cramped space operates at an oblique angle towards the axes which the social sciences typically use to think about space. It is not necessarily macro or micro, global or local, public or private. Instead, it registers degrees of deprivation, constriction and obstruction, but always and simultaneously a concern for the ways in which such limits operate to stimulate and incite movements of becoming and remaking… To speak of cramped space is to read mobilities and globalisations against the grain. It is to mobilise an analytic that brings into view a different dimension of the past and

present, to better balance between historically and empirically grounded studies of mobility.'

(Walters and Lüthi 2016: 361)

In the next section, I unpack what exactly this means, how it is that cramped space operates at 'an oblique angle' towards traditional understandings of space. Like Amoore's triple foreclosure of material space and present-future political claims and Mbembe's matrix of barriers and rules that contract and enclose, cramped space is not *strictly* about physical and spatial confinement. While Walters and Lüthi focus on those 'extreme cases' of confined transport, they recognise that one can inhabit the vastest territories and still be cramped. Instead, cramped space names 'social situations where relations are saturated and passages blocked' (2016: 364). When subjects are stuck in transit, deprived of rights, held in detention, or forced into deportation, the material conditions they must navigate are not only assemblages of physical and virtual barriers, but those affective conditions these bordering devices give rise to; desolation, frustration, discomfort and even affirmation (2016: 364).

In comparing these authors, I do not mean to say that the difference between the content and historicity of, for example, Walters and Lüthi's cramped transport and Mbembe's necropolitics does not have profound implications for how the ontologies of borders are conceived or how questions of suffering and struggle are posed. The former cuts into the contested ways migrants move through borders, whereas the latter wrestles with borders as part of a gargantuan entanglement of the histories and trajectories of plantations, colonies and slavery. Nor is to say that a congruence of analytical focus on confinement should mean that their projects are not differentiated in terms of broader implications. Indeed, the remainder of this chapter explains why my research has led me to think less about the dehumanised forms of 'excess' existence that are the focus of Mbembe's 'living dead' and 'death worlds' (or related biopolitical accounts like Agamben's 'bare life' and 'spaces of exception') and more about the less exceptional, but more insidious forms of harm accessible to the language of cramped space.

Nevertheless, I start by emphasising the resonances between Amoore (2021), Mbembe (2011) and Walters and Lüthi (2016) to open onto the kind of approach to the harms of technologies this thesis seeks to take and the debates it speaks to beyond analyses of biometrics. Each account, I would argue, addresses the consequences of bordering devices as

they are constituted by material relations of power. However, what is pronounced in their approach is that materiality has a significance for the lives it enfolds that exceeds a sense of the proliferation of physical forms of containment. In this section, I have tried to illustrate how this arises from the way these scholars explore interrelated questions of density, weight, pressures, duress, and burdens. In doing so, they underscore a politics that is too often missing from discussions on the ubiquity, ambiguity, and permeability of biometric borders. The following section unpacks why I use 'cramped space' to build on these debates and address similar questions regarding biometric databases and mobile fingerprinting.

Section II: What is Cramped Space?

What is cramped space? The concept of cramped space originates from Deleuze and Guattari's (1986; 1987) rhizomatic geophilosophy, but the exact phrase makes few appearances in their work. However, the constraining historical and social conditions it describes, and the twinned politics of lines of flight and movements of becoming, are demonstrated to across Thoburn's work to a central precept of their philosophy (Heron 2020: 93). That is, it is under cramped conditions that new forms of collective subjectivities and modes of expression emerge. It is, thus, Thoburn (2003; 2016) who fully fleshes out the concept in terms of Deleuze and Guattari's argument for a minor politics. If minorities have been typically understood in terms of positionalities like class, race, gender, and nation, and appeals for radical change have sought to mobilise greater majorities through these logics, then a minor politics begins with Deleuze's claim that 'the people are missing' (Walters and Lüthi 2016: 262; Deleuze 1989: 216). 'If the people are missing', Thoburn (2003: 18) writes, then 'minor politics begins not in a space of self-determined subjective plenitude and autonomy, but in "cramped space"'.

While Thoburn's suggestion that this amounts to a lack or refusal of coherent identity hinges on an idea I would reject (that there could be such a thing as a coherent identity), what is important in Thoburn's argument for this thesis is not the subject's relation to identity as such, but rather the kind of environments it expresses and the possible modes of being it

opens up. Theorised in proximity to a minor politics, cramped space allows confining and oppressive circumstances to be understood not as conditions of asocial isolation but as 'full of social relations' (2016: 367). It describes the saturation of material and relational space that creates 'choked passages' and imposes a kind of politics that cannot be understood in a liberal register of the self-determined subject that shakes off its dependency on others. The cramped condition and the subjectivities that emerge are constituted by an *immanence to the social*: 'the multitude of constraints and commands associated with lives interlaced with and buffeted by global social relations' (2016: 370). The density of relations is both the source of unwilled proximity to a milieu of restrictions and injunctions and the necessary condition for a politics that can frustrate it.

What kind of space is cramped? Space is cramped when 'the way ahead is traversed in all directions by blockages, boundaries and limits', whether social or material (Walters and Lüthi 2016: 369). Here spatiality is 'a condition of *social existence in the round'*. It is all dimensions of social being, including 'temporal qualities, affective conditions, linguistic forms and procedures, technologies, sensory and aesthetic paradigms' (Thoburn 2016: 370 emphasis in original). Therefore, Thoburn writes:

> 'Social life presents boundaries or impasses rather than enabling possibilities or clear options…Yet, the impossibility of activity is matched with the impossibility of doing nothing if life is to be lived. As in Beckett's [1979: 382] formula, "I can't go on, I'll go on", politics thus becomes a process of "tracing a path between impossibilities", in Deleuze's [1995: 133] words—or better, of tracing a path amidst, with, and against impossibilities.'

> (Thoburn 2003: 70)

Understood as impossible but intolerable conditions, cramped space thus forces its subjects to pursue politics at the limit. Walters and Lüthi (2016: 369) describe this politics as one of fashioning 'lives with whatever materials, languages and identities' are close at hand and the actions that unfold as non-linear and saturated by 'fleeting imponderableness and moments of uncertainty'. The analysis of cramped experience thus draws thought and practice 'back into a milieu of contestation, debate, and engagement, and forces ever new forms of experimentation' and creative social solutions (Thoburn 2003: 19).

For Thoburn, undocumented migration presents a paradigmatic 'minor experience' providing clear examples of where constraints are intrinsic to the mass and flow of global relations (2016: 370). However, as may already be evident to the reader, engaging in this kind of analysis brings many risks. From the outset, the emphasis on new subjectivities ventures into the treacherous territory of projecting a specific identity onto subjects, either conscripting them into a cause they did not choose—for example, as agents of resistance – or assigning unshakable categories of victimhood (Walters and Lüthi 2016: 364). Moreover, in the context of complex migratory processes, it risks generalising from what is only one highly visible moment: as if 'a whole people could be defined at the level of this moment of capture' for example, as stowaways or boatpeople (2016: 364; Walters 2015), or as if there were one whole people to speak of. Equally, the emphasis on creativity and invention risks fetishising moments of suffering and, in turn, has the potential to lend credence to naïve beliefs that spectacles of violence will necessarily mobilise a public will to push back against systemic oppression (2016: 354). However, for Walters and Lüthi, cramped space provides a way out of this impasse if attention is paid to the ambiguous affective dimensions involved. For example, they argue that under the most cramped and seemingly impossible conditions, there may be a sense of desolation but also 'an affirmation of life', or feelings of discomfort could mark a moment of catharsis that to a certain degree 'facilitates action, or at least provocation and critique' (2016: 364). Crucially, none of these momentums are guaranteed. Instead, the promise of cramped space is framed as an attunement to 'the many inventive ways that actors have sought to negotiate and work through this problematic milieux' (2016: 354).

Throughout my discussion on the impacts of biometric technologies in the policing and management of migration, I try to make room for the possibility – and in several cases, highlight the actuality – of this kind of creativity and invention. However, the central contention of my argument – that biometrics create harm – rests more on those prior constraining conditions. While a cramped space analysis that provides a comprehensive illustration of forms of resistance to biometrics could certainly be an important contribution, it exceeds the scope of this thesis. Why? Cramped space is relatively underdeveloped in the literature and virtually absent from debates on biometric technologies. If cramped space is

not to fetishize suffering, then its application to specific political contexts entails the groundwork of showing its harm as a necessary endeavour.

Moreover, if Walters and Lüthi argue that the promise of cramped space is an attunement to the whole range of ways actors navigate an intricate affective milieu, then I tentatively position my research as trying to illuminate one part of what is an intractably complex phenomenon. To attune to ambiguity and range, I would argue, means equally to recognise that it could not be captured in one thesis and could only ever take place as part of a broader project. To more or less "skip ahead" to cramped space as a fully-fledged analysis of resistance to biometrics risks not only the dangers of generalisation and projection highlighted by Walters and Lüthi but also disregards a critical political moment of understanding how and why such struggle takes place. Thus, rather than underscoring creativity, my emphasis is on harm and the kind of *strategies* subjects are forced to devise within intolerable conditions. As Deleuze and Guattari (1986: 6) write, 'it isn't a question of liberty as against submission, but only a question of a line of escape or, rather, of a simply way out'.

Yet this thesis stays with the idea of cramped space, as opposed to other analytics that might be brought to bear on the harms of biometrics and borders, precisely because it allows for the kind of potentialities and actualities that are not its primary focus. In the following section, I explain and illustrate why this is important.

Section III: Why Cramped Space? Fieldwork and Ethics

'So, I try to begin a story about myself, and I begin somewhere, marking a time, trying to begin a sequence, offering, perhaps, casual links or a narrative structure. I narrate and I bind myself as I narrate, give an account of myself, offer an account to an other in the form of a story that might well work to summarise how and why I am. But my effort at self-summarisation fails and fails necessarily…'

(Butler 2005: 65-66)

The earliest proposals of this thesis wanted to tell a different story on the impacts of biometric technologies. Initially, the proposal was to interview authorities responsible for enrolling and processing fingerprints in EURODAC and to contact NGOs and ask to interview asylum seekers.

The aim at these embryonic stages was to analyse interviews through an engagement with Agamben's (1998) *homo sacre* and bare life. However, during the research process, each of these aims were frustrated in various ways. Firstly, while I managed to conduct preliminary fieldwork with The Netherlands' Immigration and Naturalisation Service (IND) and the Directorate-General for Migration, a former asylum casework in Sweden and a former reception centre assistant in The Netherlands, I struggled to gain further access to what Walters (2021) describes as the "shadowy world" of immigration security systems (particularly in the UK) and the interviews I set up with lawyers and judges were repeatedly postponed as they encountered their own workloads or were signed off sick under the pressure of their jobs. Secondly, I was slow to set up interviews with asylum seekers due to hesitancy around the ethics of what I gradually understood to be research practices riddled with the potential for extraction. Lastly, the redirections that followed these "roadblocks" changed how I thought about the accuracy and ethical implications of the applicationism of concepts like bare life, as I shall detail below. Why include these failures? As Donna Haraway reminds us, '[i]t matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with…[i]t matters what stories make worlds, what worlds make stories' (2016: 12). If, as Claudia Aradau and Jeff Husymans (2014) indicate, all research methods build a particular world as they attempt to describe it, then knowing how and why the approach to biometric technologies this thesis took morphed so considerably seems important in understanding why cramped space is the analytic I use to understand harm.

While still working out how to navigate the above issues, I continued to write and theorise biometric technologies based on my preliminary fieldwork and secondary sources on "proxy" indicators of harm. The latter included reports and data from other NGOs, thinktanks and researchers on things like the use of force or lack of translators in fingerprinting procedures for EURODAC; the number of returns made under the Dublin procedure; testimonies on what it was like to have a fingerprint taken and of those who had been made homeless or destitute after doing so. In particular, I gathered testimonies and reports of people who had burnt their fingertips from fear of being fingerprinted and sent back under the Dublin regulation to a country where they faced destitution, persecution, or violence. In the meantime, I started to make arrangements for fieldwork in hotspots in Greece via an academic contact who used to work with members of the processing centre's management team. I intended to see

fingerprinting processes first-hand to gain a more nuanced perspective on how registration in EURODAC worked in practice. However, when the pandemic came, these arrangements came to a halt as those same borders I had been writing about in terms of fluidity were closed, fieldwork bursary's frozen, and lockdowns put in place.

When the pandemic came, I became more active in the Racial Justice Network (RJN) as we coordinated with community "leaders" from marginalised – predominately migrant – communities in Leeds and Bradford to find out about, obtain and distribute the kind of resources they needed while facing the isolation of that first lockdown (e.g., smartphones, tablets, toys, books, hand sanitiser). I had, however, been involved in the early stages of RJN's 'Stop the Scan' campaign for approximately a year prior, having met RJN's director when she started her PhD at the same university as me. While we had been introduced primarily because of the overlap between my research's focus on biometrics and the campaign's focus on handheld fingerprint scanners, I – perhaps too hastily – settled on the idea that I would keep my involvement with RJN "separate" from my research. The campaign members were happy to include someone who genuinely wanted to offer support - (and as this project has unfolded, they have all offered me support that includes and exceeds the purview of the thesis and campaign) – but did not want a researcher to "swoop in, swoop out" of what was for many a deeply personal political struggle. I, therefore, continued to focus on researching and writing solely about EURODAC and, in the meantime, contributed what I could to the campaign on handheld scanners as a volunteer: mainly co-writing blogs and press releases; making and editing videos to be used for campaign material; and writing up minutes from strategy meetings to prepare for both engagement with people at risk of being targeted by stop and scan practices and with policing authorities at (public) Independent Advisory Group (IAG) events.[7]

However – as someone wiser might have guessed – keeping these things entirely separate proved impossible over the years. The Stop the Scan campaign shaped how I thought about biometric technologies in several ways (as I will detail below), and there seemed to be something intellectually dishonest in taking these insights and applying them only to EURODAC rather than recognising the contexts in which they had originated. I began to

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[7] I did not personally attend any IAGs or contact "at risk" individuals or communities.

increasingly write about the handheld scanners as an important part of the shifting landscape of biometric bordering. What seemed significant about biometrics was not only their actual use to identify or categorise individuals, but the implications of the potentiality of their use. Whether it was the testimonies of people burning fingertips from fear of a Dublin return or discussions unfolding in the context of RJN's community engagement work around the handheld scanners, some of the most significant political moments seemed to be located within the realm of collective affects – how communities felt about a technology that *could* be used on them, and how biometric identification bolstered that felt sense of entrenchment and proliferation of borders, of being constantly reminded that the countries in which they had sought international protection, or which they had called home, were riven with techniques of separation.

It is in this context that I began to write about the 'atmospheres of fear' I discuss in Chapter 6 of this thesis, which I understand to be the conditions of possibility for the biometric cramping of space. Here I drew on a distinction between orchestration and improvisation developed in the literature on affect and atmospheres (Closs Stephens et al. 2021) to talk about how a particular atmosphere may be intended – specifically, orchestrated – by governments to create conditions geared toward, for example, a particular social or political outcome. I intended to capture the role biometrics played in the hostile environments that pervaded Europe: as part of attempts to make many feel unwelcome (including those who had a right to reside even within the narrow confines of current legal frameworks) and as part of a specific political performance (i.e., to be seen to be "doing something" about the fantasies and phobias of "rising" immigration).

Sometime after, and as changes in the form lockdowns took meant RJN's COVID-19 response drew to a close, our focus on the Stop the Scan campaign renewed. In November 2020, we conducted an anonymous online survey of 115 members of the public to ask how the mobile fingerprint scanners were perceived, how people saw them affecting themselves and their communities, and how people saw the devices affecting policing power (Wangari-Jones et al. 2021: 2). In January 2021, I helped write a report based on this survey along with five other members of RJN and Yorkshire Resists. One of the key contentions of the report was that fear and anxiety of the scanners' connection to the immigration database isolated migrant individuals and communities by, for example, preventing victims and witnesses of crime from

reporting to the police (2021: 6). This argument was based on a thematic analysis of the (open-ended) justifications given by the 88% of migrant participants (23 of 27) who had responded (in the previous closed question) that they would not feel safe going to the police for help or reporting a crime. Included in the report were results from a Freedom of Information (FOI) request on the West Yorkshire Police's piloting of the mobile scanners (between October 2018 to March 2019), which showed the scanners were being disproportionately used on individuals defined in the FOI data as being from a "BAME" or Eastern European background.[8]

Later in 2021, a follow-up report was released in response to the national rollout of handheld scanners connecting to the Biometric Services Gateway. The report focused on FOI requests made to police forces nationwide asking which forces were using the devices, how often they were being used and how many scans were made against the immigration database, who they were being used on and what reasons for fingerprinting were recorded (for the period between March 2019 and June 2020).[9] I did not have a hand in writing this report but instead assisted with organising online public events to publicise the findings and editing recordings of the events to be published on RJN's social media channels.

In the spring of 2021, as elections for the Mayor of West Yorkshire took place and there looked to be a change in the nature of the role of Police and Crime Commissioner (PCC), we took the two reports to the (later successfully elected) Labour candidate who showed more interest in engaging with our concerns than their predecessors. As of August 2022, we remain in discussion with the Mayoral Office and the PCC. Additionally, in the summer of 2021, I attended legal training workshops run by the legal advocacy group Liberty in partnership with EQUAL (a national independent advisory group set up to tackle racism in the UK's criminal justice system). I participated on behalf of RJN with a view to grounding the campaign more firmly in legal challenges. As of 2022, we have obtained funding to bring a judicial review on

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[8] The disaggregated ethnicity data provided by the WYP showed that "BAME" people were more than 3 times more likely to be stopped and have their fingerprints scanned than those defined as "White British" or "White Irish". "Asian Pakistani" represented the highest percentage of scans in West Yorkshire at 21%. Individuals defined by officers as Polish, Romanian or Slovakian also had one of the highest rates of use of mobile scanners at 15.3 per 10,0000 people (a breakdown of this grouping in terms of Roma population was not made available).

[9] The data from this second round of FOI requests (national) are addressed in detail in Chapter 4 of this thesis.

the handheld scanners, and I will begin assisting lawyers from Liberty on behalf of RJN in the Autumn of 2022.

Much of this thesis has been written based on insights that emerged from the reports published, events held, and the experiences outlined above, as well as the conversations and informal interviews with members of RJN and Yorkshire Resists during this process. I supplemented this with additional but intertwined analyses of Privacy Impact Assessments on the Home Office Biometrics Programme, and police reports and publicity on mobile fingerprinting. While that initial preliminary fieldwork and secondary source analysis on EURODAC remains a key part of the research, the work surrounding the Stop the Scan campaign has probably been most influential in building an approach to the harm of biometrics. In what ways? I will try to clarify a few here in conclusion to this section.

Firstly, through both the community engagement work of RJN and the discussions with some of our personally affected members, it became clear that those who bore the weight of biometric bordering exceeded the category of 'asylum seeker' my initial proposal had spoken of. This is not a particularly new insight into the literature on biometric border technologies by any means. However, it did mean that I began to develop my thesis toward an analysis that could account for the expanse and ambiguity of the lives cycled through the reverberations of biometric border technologies – the 'whole host' of unstable status identities bordering concocts, as Bhattarchya (2018: 127) puts it. Secondly, what had been most striking about their impact was the creation of conditions that an analysis predicated on a form of social existence in the register of 'bare life' could not make adequate sense of. People indeed suffered forms of oppression and violence, but there was no real sense in which this could be described in terms of life stripped to its biological form without stretching beyond recognition either the concept of bare life or the empirical context from which my research had drawn. The kind of harms I had ended up writing about had little to do either with the phenomena Mbembe's necropolitics provided a language for – the production of death or (at considerable risk of vulgarising his theory) how people die. Not walking down certain over-policed streets, or not partaking in highly visible forms of protest that risk exposure to interactions with authorities, and even burning fingerprints, was fundamentally about what people *do,* even in the most confining circumstances. It was about those sites of struggle that make up the phenomena of cramped space: strategic engagement within the milieux of biometric

constraints (Thoburn 2003), tracing paths amid impossibilities (Deleuze 1997), the pursuit of politics at the limit (Walters and Lüthi 2016).

In talking in such terms, I do not intend to underplay the severity of the violence at stake. Nor do I suggest the above *cannot* be thought about as entangled with broader bordering work described in necropolitical and biopolitical registers. I do, however, want to argue for the political significance of harm beyond the most sedimented abjection. I am thus less interested in naming the forms of social existence themselves – whether as disposable or even as the figure of minority identity posited by Thoburn – than in discussing the conditions in which we begin to make these kinds of analyses in the context of biometrics and borders. Echoing Lancione and Simone, I contend that these analyses cannot just be about annihilation, and endurance of these conditions cannot be reduced to assurances of wills to survive, 'which often end up counting for little in varied body counts' (2021: 3).

Ultimately there is a question on ethics here that cannot be swept under the carpet with a footnote on Agamben or a sentence on 'ethical reservations'. As has been widely discussed in the social sciences, the way we narrate events and the concepts we use to unpack them unavoidably stage a particular "reality" to make visible what we are trying to say. Writing is a politically-charged endeavour, and as theorists, we cannot step outside of politics when we conduct research but only be aware of how we participate. What concretely this awareness entails is a deeply vexed and contentious issue. However, this much we know; the spaces within which and from which, we speak and write are imbued with relations of power/knowledge (Routledge 1996). Moreover, the ethical implications of the language we use cannot take refuge under claims of an effort towards objectivity.

While my research is not intended as an ethnography of the Racial Justice Network, some of the core arguments of this thesis have developed through their influence. There is, therefore, a particular ethical orientation that unfolds from this. It may not fall strictly within the realm of literature that starts from a place of the researcher as "scholar-as-activist", but there is an important sense in which these debates ground its ethical considerations. This research has taken place in the context of both activism and academia. This difficult and unstable space of betweenness, as Cindi Katz (1994) terms it, requires a certain degree of reflexivity and critical interrogation of the concepts and ideas that emerge.

On these matters, I am influenced by Gayatri Chakravorty Spivak's argument that an important task is to 'displace and undo that killing opposition between the text narrowly conceived as the verbal text and activism narrowly conceived as some sort of mindless engagement' (1990: 120-1). Notably, feminist research has been particularly concerned with political commitment and reflexive forms of engagement. For example, Audrey Kobayashia argues that the feminist mantra "the personal is political" entails a deconstructive engagement with the dichotomy between the academy and the lives it theorises in order to interpret and effect social change (1994: 73). Foregrounding the nuances of a similar ethical stance, Nancy Fraser (1989: 113) argues that critical social theory should frame 'its research program and its conceptual framework with an eye to the aims and activities of those oppositional movements with which it has a partisan, though not uncritical identification'.

To clarify, I would not go so far as to argue that all scholarly work must be committed to 'effecting social change' narrowly understood as forcing its programme, framework or contribution to fit the activities of concrete movements. However, in a thesis that owes much to a specific group, keeping 'an eye' to their aims and activities seems important. Furthermore, what I take from the literature on activist and academic work is not the collapsing of the distinction between the two but rather the disruption of each as pure, authentic spaces. Following Paul Routledge, I emphasise that both constitute 'fluid fields of social action that are interwoven with other activity spaces' (1996: 402) and that, therefore, each may learn to 'occupy the subject position of the other' (Spivak 1990: 121). The cultivation of this disposition entails 'the potential for unexpected encounters to flower between one site and another' (1996: 407) and the negotiation of ethical issues as they arise within the specific circumstances of a particular project.

What has this meant practically for my research? Firstly, it has meant I have tried to participate in RJN's struggles in the ways outlined above. Of course, my involvement pre-dated its direct referencing in the thesis. Therefore, at the juncture at which the shift occurred, I tried to find new ways to contribute that required greater sustained effort (e.g., writing reports) or were out of the comfort zone of writing (e.g., speaking to journalists and assisting in legal challenges). Secondly, it has meant that when this thesis quotes RJN, it only quotes material that its members have reviewed and made publicly available through media channels (e.g., videos, reports, blogs). This is an attempt to make clear that accountability for

the more experimental concepts this thesis uses is mine alone. In other words, this research is not about "giving" activists or marginalised communities "a voice". The issue of voice and representation is vexed and widely debated within the social sciences. Even if we were to accept a politics of voice or ethical listening (see Johnson 2014) at face value, I am not convinced RJN would need my intervention to do so as a well-established community-led organisation in its own right.

Moreover, the polyphony that may arise from a seamless integration of quotes reinscribed from social and personal conversations into the textual arrangements of a thesis can end up 'creating the magical illusion of the Other's coming to voice' (Crang 1996; Harrison cited in McLaren 1995: 240). As Routledge (1996: 413) argues, claiming solidarity in acting as relays for oppressed voices within social scientific discourse risks an uncritical alignment with resisters on the assumption that an academic's role is that of helping them seize the right to speak. However, Spivak (1988) cautions against assuming that any one group has a privileged insight into its history and that when confronting problems of representation, "speaking of" frequently dissimulates the political, cultural, ideological and economic relations of power imbued in "speaking for." She argues that to confront resisting others requires a speaking of ourselves rather than a speaking for them (cited in Routledge 1996: 414). This echoes Haraway's "politics of articulation", as she argues: 'representation depends upon possession of a passive resource, namely the silent object, the *stripped* actant'. She suggests we might be able to, however, 'articulate with humans and non-humans in a social relationship', which is 'always language mediated' (1992: 313 emphasis in original). In a social relationship understood as language mediated, what is articulated is the ambiguous and contested character of the reality the thesis builds – one that has changed and evolved in dialogue with the worlds of academia and activism. It acknowledges that 'intertextuality is open to critical analysis, that literary works, while legitimate sources of understanding, are only fragments of the reality they attempt to articulate' (1996: 414).

Lastly, it has meant being cognisant of the ways language can support or hinder both the research and the political struggles it is entangled with. In particular, this implies an effort to resist the temptation of forcing the latter's ethically complex character to fit the researcher's pre-established concepts (Heron 2020: 46). Therefore, it has influenced this thesis'

abandonment of the application of 'bare life' in favour of cramped space, following Edward Said's caution on what he calls 'travelling theory':

> 'The first time a human experience is recorded and then given a theoretical formulation, its force comes from being directly connected to and organically provoked by real historical circumstances. Later versions of the theory cannot replicate its original power; because the situation has quietened down and changed, the theory is degraded and subdued, made into a relatively tame academic substitute for the real thing. '

<div align="right">(2000: 436)</div>

The kind of applicationism of bare life my research initially proposed could not replicate the nuances of its original formulation by Agamben as it spoke to circumstances so radically differentiated. RJN not only opened up this thesis to that 'duress of border politics' Amoore (2021) speaks of, but also the laborious but persistent strategies communities forge and cultivate even as so much is done to make relational existence individualising, isolating - 'cramped'. These "ways out" are not necessarily predicated on an individualised disposition towards survival or self-care. In their website's own words, RJN's work (no date) is about 'Holistic, Societal, Environmental, Spiritual and Cultural Repairs to address legacies of colonialism and end racial injustice'. To apply a metric of success or failure to this "mission statement" is to miss the point of what it means to repair within, as Audre Lorde (1988) puts it, these ungovernable histories of having survived everything.

Furthermore, as this project has unfolded, the RJN and Yorkshire Resists members have all, collectively and individually, offered me support that includes and exceeds the purview of the thesis and the Stop the Scan campaign. To take all that broader context and reduce it down to an application of bare life on biometrics did not just feel inaccurate; it felt unethical. This is not to say this affective lurch towards a certain ethical stance and concept choice is necessarily more "right" or a deeper level of engagement with the world than formal academic logic. It is to recognise, however, that it has been to a large degree the product of absorbing a particular social environment where concepts like bare life provoke feelings of having had one's agency dismissed. It involves recognising that these feelings have their own ethical implications that cannot be easily screened out of a conceptual framework on the grounds of something called objectivity.

Yet I wanted to retain this sense of harm - as opposed to resistance – for the reasons I have already outlined. The broader aim of this thesis has never been to represent practices of resistance to biometrics but to understand why biometrics is so damaging in the first place. This balancing act has been a source of almost constant discomfort. Ultimately, there is no platitude, justification, or amount of reflection on positionality that would constitute an ethical band-aid to the fissures that open up between the harms of biometric borders, political struggles, and writing about them. However, as other researchers have discussed, discomfort can be a productive space for thinking (Harcourt et al., 2015: 161) provocation for critique (Walters and Lüthi 2016), and I hope that, in the context of this research, it has been. The concept of cramped space seemed like a way to stay with this discomfort. It seemed to offer a way to speak of harm not as abjection but nor as some magic act of conversion – a kind of currency that inherently enables the breaking of confinement. Instead, harm and struggle could be spoken about in in the language of - to paraphrase Lancione and Simone - mutating ensembles, 'a dance of lures, traps, bluffs', all that which piled on, brought together to generate isolation, to render exposed in a space of plenitude that 'disrupts the Euclidean arithmetic' (2021:3).

Section IV: Conclusion

This thesis explores how the use of biometric technologies for the policing and management of migration in Europe creates new forms of harm. In the previous chapter (Chapter 2), I argued that assemblage understood as the folding – or articulation (Coward 2012) – of elements represents a powerful resource for understanding the datafication of the body and the constitution of biometric subjectivity. This chapter (Chapter 3) has sought to build upon this framework by unpacking how I approach questions of harm. If Chapter 2 developed a framework for understanding biometric subjectivity as constituted by an assemblage of materialities through which they are exposed, cramped space moves this framework towards an analysis of the kind of material conditions the biometric subject is constituted by and must live within. Section I thus introduced the concept of cramped space as it has been used in critical borders and mobility literature (Walters and Lüthi 2016). In Section II and Section III,

I explained in more detail what cramped space means and how it relates to my fieldwork, discussing my involvement with the 'Stop the Scan' campaign, how it shaped how I understood the consequences of biometric technologies and the ethical issues encountered.

Of course, this is but one possible narrative structure of events – an attempt to give an account of why this thesis has unfolded the way it has, why it uses the concepts it does - an account that could only ever be partial. As may be quite clear, navigating biometrics and discomfort did not unfold according to a master plan. What may be less clear is that it did not take place either through a discrete series of private ethical reflections. At this point, we run into the limits of what is sayable in the highly generalised and professionalised space of a PhD methods section (Heron 2020: 47). As Butler writes, if we require a coherent narrative, then we may be 'preferring the seamlessness of the story to something we might tentatively call the truth', a truth that 'might well become more clear in moments of interruption, stoppage or open-endedness – in enigmatic articulations that cannot be easily translated into narrative form' (2006: 65). Extending this in an ethical direction, Butler writes that, rather than being the ungrounding of conditions for accountability, '[t]his failure to narrate fully may well indicate the way in which we are, from the start, ethically implicated in the lives of others':

> 'The purpose here is not to celebrate a certain notion of incoherence, but only to point out that our "incoherence" establishes the way in which we are constituted in relationality: implicated, beholden, derived, sustained by a social world that is beyond us and before us.'
>
> (Butler 2005: 64)

At this juncture, having narrated or failed to narrate how my research took place, I would like to illustrate in greater empirical detail how biometric identification works in practice in two situated contexts. In the following chapter, I show what happens when someone is 'stopped and scanned' using handheld fingerprint scanners that connect to the UK Home Office's immigration database through the Biometric Services Gateway. I also illustrate what this process might look like in the context of the EURODAC database. Throughout, I frame the various steps involved as 'five foldings' of biometric subjectivity – five moments where a biometric subject is constituted. While such a breakdown does not fully capture - could never fully capture – in their entirety the vast web of assemblages that make the production of the biometric subject possible, I hope it provides a helpful way of showing in more concrete terms

the kind of practices this thesis seeks to theorise. Thought alongside the relationalities of exposure and the cramping of space, it therefore lays the ground for an investigation into how biometric technologies individuate in Chapter 5 (understood as a mode of making visible) and the impacts of this individuation Chapter 6 and 7 (the atmospheres of fear that saturate and constrict environmental and relational situations).

Chapter 4: Theory in Action: Five Foldings of the Biometric Subject

To begin, I would like to provide a bit more context on the handheld scanners this thesis investigates and the wider technical and governmental assemblage of which they are part. While police forces have carried mobile devices for other law enforcement purposes for several years, their technical and legal capacity to remotely search immigration databases has only emerged under the Home Office Biometric Programme (HOB). The HOB Programme was introduced to replace existing biometric systems IDENT1,[10] IABS,[11] and NDNAD,[12] used by the Police, Border Force, United Kingdom Visas and Immigration Systems (UKVI) and HM Passport Office (HMPO). The overall aim was to 'transform the existing siloed biometrics capabilities into a technically converged, but commercially disaggregated, strategic biometrics capability'. In other words, the above three collections of biometric data (IABS, IDENT1 and NDNAD) are now held physically in one system (as opposed to stored separately) but governed by controls that only allow users to access specific data and activities depending on their role. The programme has been delivered through several sub-projects, which began development in 2014 and were completed in 2021. Those of relevance to police use of mobile scanners are:

- **Biometric Services Gateway** (BSG): Described as 'the universal "front door" to HOB services', the BSG provides 'a single gateway through which biometric data will be received and sorted' (Home Office 2018a: 8; 2017a: 5). The BSG as a system does not provide a complete service in itself. Rather it is a layer within HOB, which, when used with other layers (i.e., the Matcher and the Central platform described below),

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[10] IDENT1 - 'an identity management and scenes of crime forensic crime system, term used as a shorthand for UK's criminal fingerprint database'.

[11] IABS – Immigration and Asylum Biometric Service 'provides biometric enrolement, identification, and identity management and verification services within immigration and citizenship domains

[12] NDNAD – the National DNA Database holds electronic DNA profiles and identifies links between DNA found at scenes of crime with DNA obtained by arrestees

provides several services to different 'business capabilities' (e.g., to the Strategic Mobile project described below, but also to circumstances related to the collection of DNA at crime scenes, for example, or international data sharing for counter-terrorism under Prüm Council Decisions). The diagram in Figure 1, provided in a Privacy Impact Assessment (PIA) conducted by the Home Office, shows the BSG in the context of its wider technical estate:
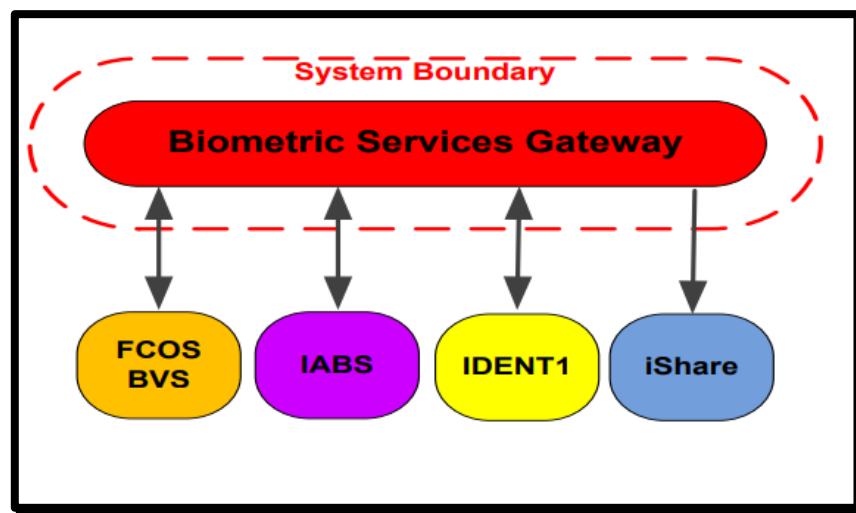

Figure 1: Diagram of BSG within its wider technical estate (Source: Home Office 2017a: 7)

- **Strategic Matcher:** The HOB Strategic Matcher project provides a Biometric Matching Service that delivers 'biometric search, identification and verification capabilities across multiple biometric modalities (initially fingerprints and face)' for multiple data sets (immigration, citizenship, law enforcement, etc.). One of the key aims of this project was to develop an algorithm that constitutes 'a new matching capability for law enforcement for fingerprints' to make matching 'faster and more accurate' (Home Office 2018a: 9). The Strategic Matcher capability was launched in 2019, late spring.

- **Strategic Front End Equipment:** This project provided front-end equipment to capture and verify biometric data. It deploys new Livescan3 machines, replacing Livescan1 and 2 machines, used in police custody suites across the UK. Figure 2 shows how this equipment connects to the HOB central platform through the BSG

- **Strategic Central & Bureau Project:** This project created a new HOB central platform, defined as 'the location of the key biometric data stores and also workflow which orchestrates all the other sub-systems' (Home Office 2018a: 9). In other words, it is

the physical system on which all the collections of biometric data are stored but 'logically separated' by role-based access controls. Moreover, as part of the same project, the 'bureau' platform enables the deployment of the tools and applications needed to manage biometric workflows (the access controls) and for fingerprint experts to intervene if errors within the system need to be corrected.

- **Strategic Mobile:** Strategic Mobile is essentially a data service, consumed within operational mobile applications, that enables Police and Immigration to access the Law Enforcement and Immigration biometric services from mobile devices. Instead of HOB providing the devices, Police Forces determine which mobile device to use. Forces may put the apps onto existing mobile devices. The biometric peripheral for capturing prints (i.e. the scanner) is a separate device attached to the mobile device. It supersedes the MobileID and RapID capabilities previously used by police for law enforcement purposes, and introduces such a capability to Immigration Enforcement and other Home Office users (Home Office 2017b: 1). West Yorkshire Police began piloting this technology in 2018, and the capability was rolled out to police forces across England and Wales in 2019/20.

Figure 2 shows a diagram provided in the overview document of the Privacy Impact Assessments conducted by the Home Office (2018) on the HOB Programme. It illustrates how the technical components developed under the different projects relate to and interact with one another.

This chapter shows how this technical assemblage is deployed in the 'Stop and Scan' practices of police forces equipped with handheld devices to search a person's fingerprints against immigration and criminal databases "on the spot" during, for example, roadside checks and street patrols. This discussion is supported by details of the process made publicly available through Privacy Impact Assessments (PIAs) conducted by the Home Office (2018; 2017a; 2017b). Additionally, I illustrate what this process might look like in the context of the EURODAC database, drawing on interviews I conducted with authorities from the Dutch Immigration Naturalisation Service (IND) and the Directorate-General for Migration and with a former asylum caseworker in Sweden in 2019 and comparing it with other researchers' insights in this context. The aim of this chapter is to show in more concrete terms the kind of

biometric identification practices this thesis seeks to theorise. Throughout, I frame the various steps, practices and processes involved as 'five foldings' of biometric subjectivity – five moments where a specific subject is constituted through the articulation of a sprawl of human and non-human elements.

Thus, the five moments of biometricisation – five foldings of biometric subjectivity - are described in each section of this chapter. This discussion is arranged as follows: Encounter, Preparation, Scanning, Processing and Interpretation. Section I illustrates the ways in which someone might encounter the controls and processes that culminate in a registration or search of their fingerprints in an immigration biometric database. Section II and Section III expand upon the steps taken to prepare a fingerprinting procedure and the way the scanning process unfolds. Section IV provides technical details of how the biometric data is processed, transmitted and compared in the EURODAC database and the Home Office Central platform. Finally, Section V describes how the results from the search are displayed on an asylum caseworker's monitor or on an officer's mobile device and the bureaucratic procedures that follow.
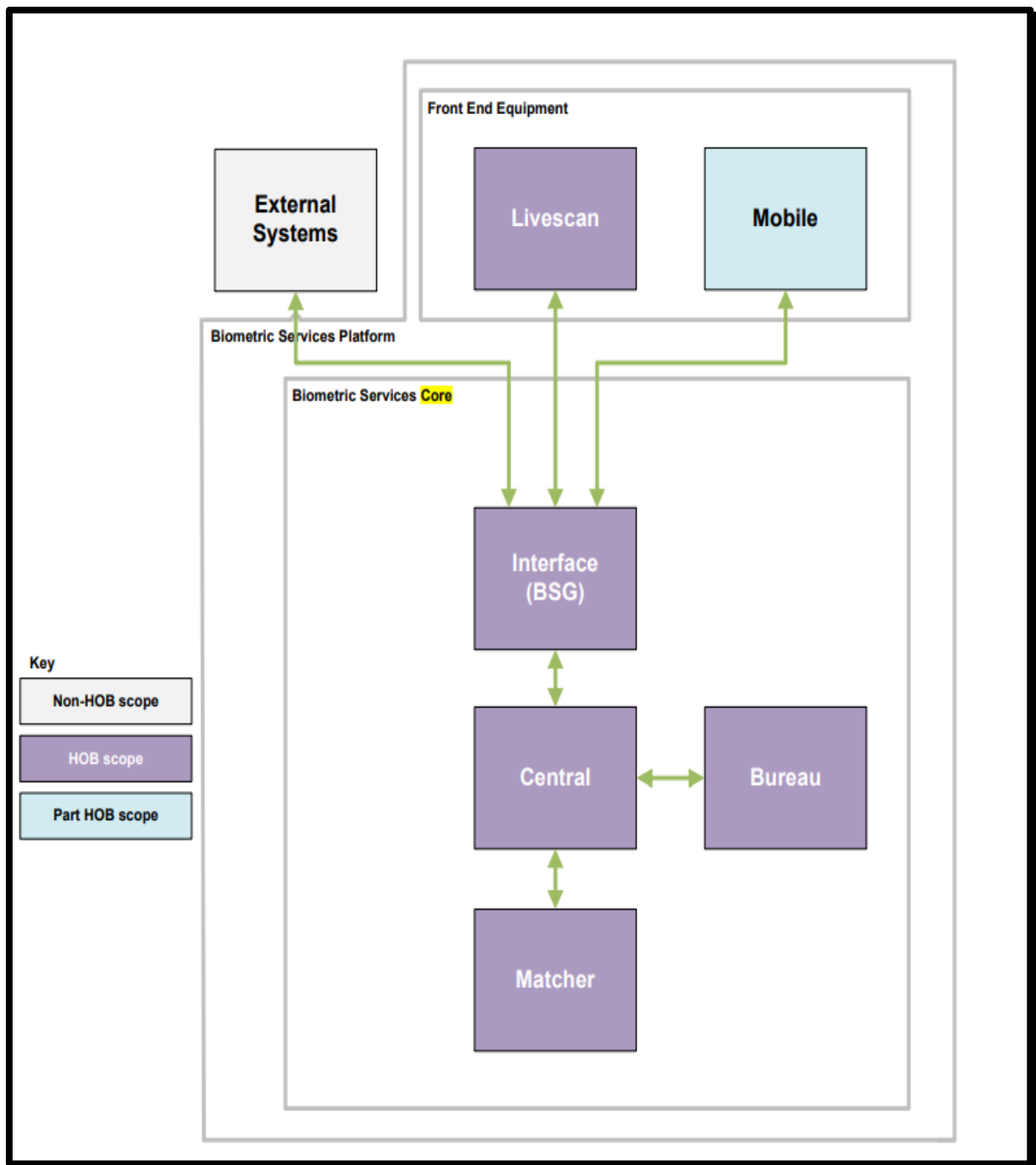
Figure 2 Diagram of sub-systems making up the Biometric Services Core and the Front-End Equipment elements (Source: Home Office 2018a: 8)

Section I: Encounter

How did the EURODAC database for registering, searching, and comparing fingerprints emerge? In 1985 in the small village of Schengen, Luxembourg, five members of the European Community signed a treaty that was to become the foundation of the 1990 Schengen Convention. As with many key steps in the European integration process, the original rationale was often expressed in economic terms (Pastore 2016: 5). In this regard, the narrative centred around the goal of the dissolution of systematic controls on goods and persons at internal borders and, to compensate for this internal liberalisation, the harmonisation of the standards of external border controls. This scope was greatly expanded under The Schengen Convention to include issues ranging from police and judicial cooperation to the sharing of security data and the responsibility for processing applications for international protection. Four days prior to its signing, a closely connected treaty had been signed in Dublin. In the opening page, the twelve signatories of the Dublin Convention set out a vision of the harmonisation of asylum policies in an area without internal frontiers, 'determined' to guarantee adequate protection to refugees in with keeping with 'their common humanitarian tradition', 'aware' of the need to guarantee efficient examination of an asylum application by at least one Member State, and 'determined' to co-operate closely through various means 'including the exchange of information' (Convention 97/C 254/01).

The system of sharing responsibility for examining asylum applications laid out in the Dublin Convention did not come into force until 1997 and in the meantime the practicalities and technicalities of how to best achieve its vision had to be worked out. Prior to the establishment of the Dublin Regulation and the launch of the EURODAC database, Member States had utilised bi-lateral and sub-regional agreements and depended on Article 15 of the Dublin Convention for standards and regulations governing the exchange of information on individual applications (Hurwitz 1999). However, these arrangements did not constitute a proper legal basis for the exchange of biometric information and Member States encountered further challenges due to differences in the techniques used for taking and storing fingerprints. Therefore, a solution was required to make information systems work together, a way to ensure the 'harmonisation' of standards such as digital codes, protocols, algorithms, fingerprinting techniques and property rights across national, technical and regulatory

boundaries. On the 3rd and 4th December 1998, agreement was reached establishing EURODAC as the draft instrument to be used for the formal legal basis for the creation of a system of fingerprints, to enable the interoperability of information systems and thus implement the vision of the Dublin agreement and a single European space with internal free movement and a common external border. Discussion on the Eurodac regulation began the following year under the Tampere negotiations towards the Common European Asylum System (CEAS) and the EURODAC database launched in 2003.[13]

What does the EURODAC database *do*? At its basis, EURODAC helps enforce the Dublin (III) Regulation, which sets out a criteria for determining which signatory is responsible for examining an application for international protection. In principle, responsibility for examining a claim lies primarily with the country in which a refugee first enters into the Dublin territory and is fingerprinted. For example, suppose a refugee arrives through a frontier state like Hungary. In that case, their biometric data will be registered in EURODAC either under Category 1: "Applicants for international protection (Art.9)" or, Category 2: "persons apprehended in connection with the irregular crossing of an external border of the Dublin territory (Art.14)". If they move onto another country, a search of their fingerprints against EURODAC will show this previous registration in Hungary and wherever else (and when) they have been fingerprinted and registered in the Dublin territory. If a search reveals a Category 1 or Category 2 match, this may start the process for a 'Dublin Return'. In other words, any claim for asylum will not be considered, and the Member State will begin negotiations with the 'first country of entry' to arrange for the subject's deportation there (e.g., in this example, to Hungry). Searches against Category 1 or 2 can also be performed under the Category 2: "found illegally present in a Member State" (Art.17), but the fingerprint data taken to conduct this search is not stored (Orav 2015: 1). [14]

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[13] Signatories to the latest iteration of the Dublin regulation (Dublin III [EC 604/2013]), include the EU's 27 Member States, and Liechtenstein, Norway, Iceland and Switzerland. On 1st January 2021, the UK was officially disconnected from the EU large-scale IT systems in which it participated (SIS II and the Eurodac) (eu-Lisa 2021-381: 10).

[14] Here I have opted for the definitions provided by the European Parliamentary Research Service (of the European Parliament) as I believe it provides the most clear explanation of each Categories function (Orav 2015).
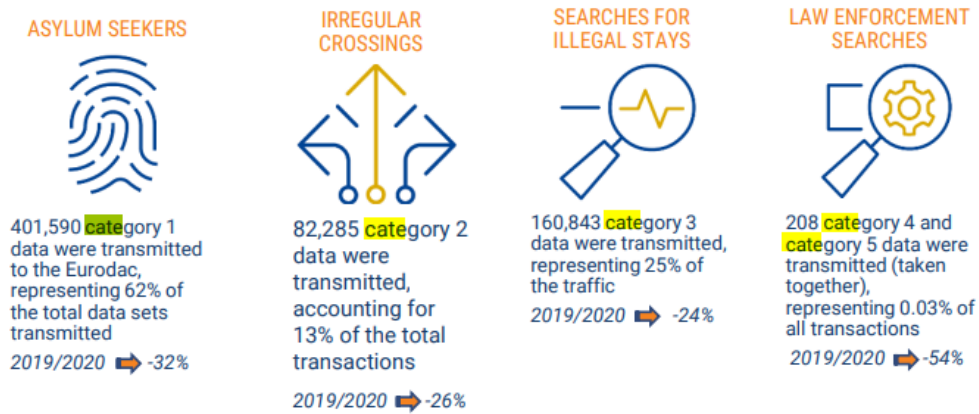
ASYLUM SEEKERS

401,590 category 1 data were transmitted to the Eurodac, representing 62% of the total data sets transmitted

2019/2020 ➡ -32%

IRREGULAR CROSSINGS

82,285 category 2 data were transmitted, accounting for 13% of the total transactions

2019/2020 ➡ -26%

SEARCHES FOR ILLEGAL STAYS

160,843 category 3 data were transmitted, representing 25% of the traffic

2019/2020 ➡ -24%

LAW ENFORCEMENT SEARCHES

208 category 4 and category 5 data were transmitted (taken together), representing 0.03% of all transactions

2019/2020 ➡ -54%

Figure 3: Breakdown of transactions processed by the Eurodac Central System in 2020 (Source: eu-Lisa 2020: 14-15)

In a group interview I conducted with authorities from the Dutch Immigration and Naturalisation Service (IND) and the Directorate-General for Migration of the Ministry of Justice and Protection of the Netherlands in 2019, I asked participants if they could illustrate what an initial encounter with the EURODAC process might look like in The Netherlands. They provided several examples of how an "encounter" with immigration controls and processes might culminate in an apprehended individual having their fingerprints enrolled in or searched against the EURODAC database. In this section, I explore these accounts and compare them with arguments made by other researchers in this context.

The interviewees provided the most detail on the operations of the *Koninklijke Marechaussee*; a gendarmerie referred to by the interviewees as 'KMar'. The KMar are the primary border control authority for The Netherlands' Schengen border. They are responsible for conducting random checks on vehicles crossing the border, often using 'migration control dogs' and motion sensors to detect concealed persons in trucks, tour buses and cars. The KMar's jurisdiction notably overlaps with the coastal sites monitored by the *Zeehavenpolitie* (the "Sea Police" unit of the National police operating in Rotterdam) and Frontex (the latter because the Dutch sea qualifies as an external border of the Schengen area). Under the Dublin regulation(s), anyone who cannot provide travel documentation requested during these border checks must have their fingerprints taken and registered in the EURODAC database as

"Category 2: persons apprehended in connection with the irregular crossing of an external border of the Dublin territory".[15]

According to IND authorities, in these circumstances, individuals are typically arrested and taken to be fingerprinted at a KMar Border Police station or, in some cases, the "Aliens unit" (*Vreemdelingenpolitie*) of a Dutch National Police station. Their biometric data is registered in EURODAC but not searched against the database for a match. Border Police stations and National Police stations also function as the primary site for fingerprinting those arrested during immigration raids (at homes or workplaces, for example) carried out by the Aliens division of the National Police. However, in such cases, the decision to fingerprint and search for a match in EURODAC is based on the authorities' discretion rather than a legal obligation. If data is taken, it is searched in the system under "Category 3: person found illegally present in a Member State". The search is performed against Category 1 (asylum seeker). If a match is found in another Member State, arrangements for a Dublin return will typically be made. If a match is found in Category 1 in The Netherlands, the person may be subject to detention or released with reporting requirements.

According to the IND authorities, there are several exceptions in these unfolding of events. In particular, authorities emphasised that those who ask to claim international protection in the above circumstances will not be taken to a police station. Instead, they are 'sent to or brought – depending on the scenario' to an application centre in Ter Apel (a village in the North of The Netherlands), or in Budel (a town in the South). Others who pass into The Netherlands 'undetected' may also report to one of these centres to apply for international protection. Another exception participants described was if someone flies directly to Schiphol Airport and applies for international protection there. In such cases, their entry into The Netherlands is "officially rejected" at passport control, and they are taken to an application centre located within the airport. Asylum can also be claimed by someone already held in a detention centre

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[15] One of the participants commented that, '[t]o be more precise, registration in Eurodac under Category 2 shall only be compulsory if all of the following conditions are met:
- there must be an illegal border crossing of an EU external border;
- this border must actually have been crossed;
- this illegal border crossing is allowed, so the [person] is not refused at the border;
- and the [person] is not kept in isolation or detention between arrest and removal after this illegal border crossing.'

or a prison. In the latter case, the application takes place within the prison. Under the Dublin regulation, it is mandatory that the fingerprints of those claiming asylum are registered in the EURODAC database under Category 1 and searched against this category to see if a match is found with a previous asylum claim in The Netherlands or another Member State. Their fingerprints will also be searched against Category 2 to see if they have previously been registered as "apprehended in connection with irregular crossing".

What does this protracted account provided by the IND authorities of the way someone might "encounter" EURODAC suggest about the production of a biometric subject, and how does this compare with accounts of other researchers? Firstly, the technology and the legal framework that legitimises its functioning enable several possibilities for discretion over when and how to deploy biometric technology before scanning a fingerprint. For example, the KMar officers conducting random border checks must assess which point of the border to patrol and which vehicle to pull over. Similarly, the Aliens Police must make a series of decisions about when and where to conduct an immigration raid and whether or not to search the EURODAC database. What might be the significance of this space of discretion?

In terms of the wider EURODAC assemblage (i.e., not specifically The Netherlands), several studies have notably argued that, in practice, whether someone entering the Dublin territory is registered for asylum (Category 1) or as illegally crossing (Category 2) is often based on an arbitrary decision made by a border control officer. Analysing data from a 2015 EURODAC Annual Report, for example, Valeria Ferraris (2017) has argued that 'the same people coming from the Western Balkan route' appeared to be registered as illegal border crossers in Greece but as asylum seekers in Sweden or Germany. 'In effect', she argues, 'the only difference between them is a click on Category 1 or 2 by the authorities in respective countries, allowing for a wide margin of discretion based on each state's attitude towards migration'. Such may be the case in contexts where a thin conception of consent is utilised, where there is a lack of available translators for the person to communicate whether or not they wish to apply for asylum, and where institutional approaches diverge on the interpretation and operationalisation of EU fingerprinting guidelines, with significant differences between countries with a higher number of arrivals.

Following accounts provided by other researchers, we might also think of, for instance, how this space of discretion holds open a site within the emergence of a biometric subject that

folds in certain visualisation practices employed by officials. For example, based on participant observation with KMar officials conducting vehicle checks, Van der Woude and Van der Leune (2017) have argued that roadside stops often take place through the employment of racialised visualisation strategies that take things like the skin colour of drivers and passengers or Eastern European number plates as proxy measures of risk. These strategies may be shaped by what Lisle and Borne describe as racialised geopolitical imaginaries on who the subjects of automated bordering practices should be and how to identify them; assumptions about which global populations are "safe" and should be allowed 'access to frictionless mobility' and which are "unsafe" and must be 'subject to increased security interventions' (Lisle and Borne 2019: 30). In the context of Van der Woude and Van der Leune's (2017) observation of roadside border checks, these imaginaries combine in striking ways with the justifications KMar officers provide for their decision-making process; of the brute materiality of motor vehicles ('smelly cars', 'Eastern European license plates', 'worn-out tires'), human attire ('business suits', "sloppy clothes", religious clothing) and embodied features ("foreign appearance", "clearly non-Dutch facial features", "black or brown skin colour", "beards"). Additionally, Van der Woude and Van der Leune (2017) argue that the operationalisation of vehicle checks is rooted deeply within discursive contexts that collapse migration and crime into one another, providing the example of how requests for travel documents are routinely accompanied by drug searches of the vehicle and its passengers.

Raids and Roadsides

The IND authorities did not discuss how the Aliens division of the National Police assess where and when to conduct the immigration raids, as policing operations were outside their area of expertise. However, a series of reports and articles published by Corporate Watch help illustrate what this process looks like in the UK.[16] In this section, I explore the kinds of practices and processes involved in immigration raids that culminate in fingerprinting at a

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[16] In 2016 Corporate Watch published a report that draws on leaked Home Office intelligence documents from 2014's "Operation Centurion" alongside other public and confidential sources, and followed this up with a series of 'briefing updates' on their website. In this chapter I draw on the website as it provided the more up to data information and analysis. (Corporate Watch 2018).

Short Term Holding Facility or, more recently, with the handheld fingerprint technology developed under the Strategic Mobile project.

Immigration raids are conducted by nineteen Immigration and Enforcement Compliant teams (ICE units) in the UK. Each ICE unit has a weekly "tasking group" meeting to plan operations. This might consider 40 or 50 potential operations, though not all will be approved. It will look at:

- o "Intelligence packages" presented by intelligence officers. Where does intelligence come from? An ICBI (Independent Chief Inspector of Borders and Immigration) published in July 2016, helps here. Between August 2014 and July 2015, for example, 74,617 allegations (or "tip-offs") were entered into a central computer system called the Information Management System (IMS). 49,109 came from "the public", including via calls to the Immigration Enforcement hotline, electronic forms from the Gov.uk website, and in-person to officers. Another 7,540 tip-offs were forwarded from Crimestoppers. 17,818 pieces of information were referred by "other Government departments". Finally, 150 tip-offs came from MPs – presumably passing on information from constituents. In short, the bulk of initial intelligence comes from tip-offs classed as low grade "uncorroborated" information from "untested sources" (Corporate Watch 2018);

- o Residential targets sent by asylum case workers and reporting centres, e.g. targeting "absconders" (those who have not met their reporting requirements) (Corporate Watch 2018);

- o Monthly priorities set by national and regional commanders (Corporate Watch 2018);

- o Priorities sent by the National Removals Command (NRC), which oversees the coordination of all deportations and also authorises detentions. e.g. to fill scheduled charter flights (Corporate Watch 2018);

- o Joint working plans with neighbouring ICE teams and with other agencies such as police and local authorities (Corporate Watch 2018).

According to Corporate Watch's (2018) analysis of leaked Home Office intelligence documents from 2014's "Operation Centurion", "removability" tops the criteria for deciding

targets. They argue that the NRC priorities play a crucial role, where some nationalities (e.g., Albanians and Pakistanis) are seen as 'easier to deport' compared to those whose governments cooperate less readily in issuing travel documents (e.g., Iranians or Russians) (Corporate Watch 2018). They provide the example of the high number of Pakistanis arrested during workplace raids and argue that this is connected to demands to fill regular charter flight deportations to Pakistan. Additionally, they argue that the nationality breakdown of those arrested during workplace raids 'reflects not just the history of British colonialism, but the types of businesses that offer easy targets' (Corporate Watch 2018).[17] The ICIBI report sampled 184 visit files and found:

> '… one hundred and seven of the 184 premises visited were high street restaurants and/or takeaways, mostly Indian Subcontinent or Chinese cuisine, with some fried chicken outlets.'

(Bolt 2015: 12)

The targeting of restaurants and takeaways for workplace raids has been evidenced elsewhere for some time. For example, an FOI request sent to the Home Office in 2013 confirmed that 'restaurants and takeaways' are primary targets (UK Border Agency 2013). A further ICIBI report published in 2019 suggests that little has changed in immigration raids being led by public tip-offs. Additionally, the report highlights that during April 2015-August 2018, nearly two-thirds (63%) of those arrested were from the same four nationalities highlighted in the 2015 report: Pakistanis, Chinese, Bangladeshis, and Indians (Bolt 2019).

It should be noted here that research conducted by the Centre of Migration, Policy and Society suggests a less orderly picture of how criteria are prioritised in the planning and implementation of raids. Based on interviews with 29 immigration enforcement officers and commanders, Franck Düvell et al. (2018: 15) argue that issues surrounding 'professional

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[17] Here Corporate Watch refers to data provided in the 2015 'Illegal Working' ICIBI report. Between September 2012 and January 2014, 75% of all people arrested in workplace raids were from Bangladesh, Pakistan or India, in that order. The top ten nationalities were: Bangladesh 27%, Pakistan 27%, India 21%, China 10%, Nigeria 3%, Afghanistan 3%, Sri Lanka 3%, Nepal 2%, Vietnam 2%, Albania 2%. In the ICIBI sample, 45% of people arrested were defined as "overstayers", i.e. people who arrived in the UK on a valid visa but then stayed after it had run out; 20% as "illegal entrants"; and 13% as "working in breach" of their visa conditions: e.g. asylum seekers or students working full time (Bolt 2015).

discretion' in immigration enforcement activity 'created significant space for confusion and tension'. According to their report;

> 'Prioritisation occurred at multiple levels around the organisation - national, local, managerial and operational levels. Priorities were not universal or clear, officers said they either generally prioritised removal/voluntary return or only removable cases, others rather prioritised identifying and removing high harm cases, some instead mentioned identifying and removing failed asylum seekers, other paid more attention to high support cost cases and cases involving fines.'

(Düvell et. al 2018: 15)

Officers interviewed also suggested that local conditions, opinion, understanding, approach, styles and 'gut feeling' informed implementation. Contested issues included deciding targets, allocating resources, and assessing the quality of intelligence (2018: 15).

After considering the "intelligence packets", the reporting centres' residential targets, and the monthly priorities, the ICE tasking group will plan its raids for the week. ICE teams typically assemble around 4 am to 5 am for morning briefings, then head out for residential dawn raids. Raids continue through the day, and into the evening, on workplaces and other targets. Each ICE unit may have two or more teams working simultaneously. They may aim to carry out around five "visits" during the day – although this could also include other duties such as "compliance visits" on employers (Corporate Watch 2018).

In theory, legal means to gain access to the target address should also be prepared (e.g., a court warrant, an "Assistant Director's letter", or claimed "consent" from the legal occupier of the property). However, Corporate Watch claims that these procedures are systematically abused:

> 'According to people involved in the Anti Raids Network, this is what really happens: ICE officers turn up at the door and ask to speak to the manager, while other officers may already have sealed off other exits to prevent people from leaving the building; the officers then ask the manager (or an available worker) for verbal consent to enter the premises, or at best to sign a paper granting written consent on the spot.'

(Corporate Watch 2018)

While substantiating these claims in secrecy of the world of immigration raids is a complex task beyond the scope of this project (Walters 2021), it is notable that an earlier ICIBIE (2016) report also noted minimal recording of how consent was established. The inspector saw no

records of how squads checked the person they spoke to was 'entitled to grant entry' and, 'in most premises visited, English was not always the first language of those encountered.' Furthermore, 'files rarely documented how officers confirmed that consent was 'fully informed' as required (2016: para. 5.22 cited in Corporate Watch 2018).

Upon gaining entry to a premise, ICE teams should only question those brought to their attention in prior intelligence reports and meetings, family members, or others whose behaviour gives specific grounds to suspect "immigration offences". They may also search the property for documents, money, and driving licenses to provide material basis for prosecution. However, Corporate Watch (2018) claims that several first-hand witness accounts suggest that, in practice, teams 'round up anyone who looks or sounds "foreign"'. This claim is supported by evidence collected by Migrant Watch (2020) and submitted to parliament, including examples from a BAM Kings Cross construction site in July 2019, and another in Battersea Power Station construction site also in 2019 (Prior 2019a; Prior 2019b). Furthermore, the reliance on forms of "low-grade" intelligence mired in secrecy (i.e., public tip-offs) means that the grounds for questioning, arrest and suspicion become difficult to prove or disprove.

In the context of an immigration raid, there are two main pathways toward a biometric encounter. Firstly, as has been typically the case, those arrested during a raid may be taken back to the ICE base (usually in a building shared with a "reporting centre", and a cell block called a Short-Term Holding Facility) and have their fingerprint searched in IABS. Privately contracted security guards handle custody, but Immigration Officers assist in processing detainees. Officers call the National Removal Command, which must authorise any detention. According to the Corporate Watch (2018a) report, this is often 'a source of tension', as officers may be frustrated if instructed to release those who do not meet current NRC priorities. Prior to the UK's disconnection from the EU-managed IT system in 2021, officers may have also decided whether to search a detainee's fingerprints against EURODAC – as described in the IND account – to provide further grounds for detention and deportation. Those detained will be transported in the evening by van to a detention centre, while others may be released with reporting requirements. 'The proportion of removals following ICE "intelligence led" raids is extremely low. Only 23% of "enforcement visit arrests linked to information received"

actually led to anyone being "removed". Many others will linger in detention for weeks, months, or even years before being released' (Corporate Watch 2018).

Secondly, the Strategic Mobile project now allows Immigration Officers to perform a search against IABS prior to an arrest and transportation back to the ICE base. According to the Home Office Biometric Programme PIA:

> 'This [allows] users to search a fingerprint provided by a suspect against both immigration and crime fingerprint databases and in both cases will speed up identification and triage of suspects and offenders, i.e. where an officer can identify who an individual who is suspected of committing an offence and providing false information about their identity through a mobile search on the street, they can in some instances avoid having to make an arrest just to confirm identity back at the custody suite - fingerprints can be taken in the field from a non-arrested person without consent only if these conditions apply. Biometric data is not recorded or stored as a result of being captured through a mobile device.'

> (Home Office 2018a: 10)

The same set of rules and guidelines governs Police Forces' use of handheld scanners introduced under the Strategic Mobile project. They may use this technology during, for example, a foot patrol or within Road Policing Units. Their use is regulated under Section 61(6A) of the Police and Criminal Evidence Act 1984 (PACE)25 and further outlined in the PACE Code D (2017). Section 61 PACE and Code D also provide officers with the power to take a fingerprint by force by virtue of Section 117 of the Act. It differs from Stop and Search in that officers can only scan the fingerprints of an individual in the case that:

• An offence has been committed or suspected to have been committed (e.g., dropping litter, traffic offence, violating vagrancy laws)

• AND: Either no name is provided by the individual OR the name provided is suspected to be false

Police officers use their own discretion to determine how authentic or reliable a given identity is (RJN and YR 2021: 10). Grounds for doubting an identity are vaguely defined and may include being unable to produce a form of ID or the officer deciding it does not look like you on your ID. In Chapter 5, I describe a real-life example of this process shown in a BBC London documentary about the Metropolitan Police Force's stop and scan procedures

In the second round of FOI requests made by RJN and Yorkshire Resists to police forces nationwide, forces were asked to confirm whether they were using the devices, how often they were being used and how many scans were made against the immigration database, who they were being used on and what reasons for fingerprinting were recorded (for the period between March 2019 and June 2020). Of the 44 territorial police forces and one special police force (British Transport Police) requests were sent to, 27 forces responded. More than half (18) confirmed their use of the devices and 4 more indicated they were in the process of acquiring the technology with the potential to launch by the end of 2021. More than 38,000 scans took place between March 2019 and June 2020 (Wangari-Jones 2021: 5).

Of the 11 forces that provided disaggregated data between checks on the immigration database and the police database, West Yorkshire made the highest number of scans against the immigration databases (1,472), while Kent had the highest proportion of immigration-related arrests (19 arrests out of 113 immigration scans). Of the five forces that disaggregated the recorded reason for executing a search, the most frequent category was 'Details doubted/refused' (between 70% and 82% for each force). Surrey police disclosed that 318 scans were made specifically for an immigration reason. Across the six police forces that provided disaggregated ethnicity data, those defined as "Arabic" consistently had the highest rates of being scanned (per percentage of resident population based on 2011 Census data), followed by "Unknown/Other", "Black" then "Asian" (the latter grouping did not include "Chinese" or "Southeast Asian", which had been labelled in the FOI data as a separate category) (Wangari-Jones et al. 2021: 14-18).

In this section, I have tried to show the ways in which someone might encounter the controls and processes that culminate in a registration or search of their fingerprints in an immigration biometric database. While the bounds of an empirically descriptive chapter risks framing a biometric encounter as a discrete moment within a linear series of events, I hope what emerges for the reader is a sense of the vast web of processes and practices that go into making this encounter possible; practices and processes that are heavily laden with fraught politics of, for example, arbitrary decision-making, contestations of intelligence and consent, and targeting based on racialised suspicion and proxy indicators of ethnicity. The point is to move away from thinking about this moment of encounter as determined solely by a strict adherence to neutral legal frameworks governing who is or is not registered or scanned (or,

on the opposite end of the spectrum, in terms of a technology inherently imbued with powers of racialisation divorced from socio-political contexts). Instead, biometric encounters emerge through the folding of discursive forces and material entities, thick with relations of power and productive of particular subjectivities. For example, officers are imbued with a certain kind of potentiality of sovereign authority that, in dialogue with the discretionary space opened up through the deployment of different automated, human, and legal technologies of exposure, propels certain bodies down operational pathways towards biometric encounters. The nuts and bolts of how these biometric encounters un/fold is the focus of the remainder of this chapter.

Moreover, this description is necessary for two of the core arguments this thesis makes. Firstly, it shows that biometricisation emerges in numerous material and relational spaces: not just borders but street corners, homes, workplaces, airports, and targeted residential areas. It, therefore, lays the ground for thinking about biometric subjectivity in terms of the atmospheres of fear engendered and cramped space. Secondly, understanding the biometricisation of the subject through the emergence of these relational gatherings helps us understand its constitutive exposure, the kind of material relations of power that render subjects vulnerable to harm.

Section II: Preparing

When someone encounters biometric technologies in the ways described above, what actually happens during the process? In this section, I explore this question through examples provided in interviews with IND authorities, a former asylum caseworker at a reception centre in Sweden, and by the West Yorkshire Police force at public Independent Advisory Group meetings. To begin, I explore how the type of machine used to scan fingerprints in specific institutional contexts shapes the practices and processes that constitute the preparations made before biometric data is registered within or searched against a database.

In 2015, The Netherlands introduced the 'Basic Information on the Establishment of Identity' (BVID) system, which integrates information subject to different legal regimes (immigration

law and criminal law). This entailed the development of the 'BVID kiosk', which could register various forms of data (fingerprints, faces, documents) and transmit them to databases designed for different purposes. The BVID kiosk takes electronic fingerprints and facial photographs and scans travel or identity documents. Both the KMar (border control) and the AVIM (aliens police) use the BVID kiosk. During the registration phase of someone claiming asylum or apprehended in connection to an 'irregular border crossing', various biometric data are captured by the BVID kiosk and may be transmitted to different connected databases (i.e. for use in both national and transnational databases). (Bolhuis and Van Wijk 2018: 48). This kiosk takes both flat and rolled scans of fingerprints and is responsible for sending the same set to several immigration and/or law related databases in The Netherlands and/or the EU.

Figure 4: Photo of BVID fingerprinting System (Source: Reiman 2018.: 9)

There are a few differences between the kiosks used in Sweden and The Netherlands, but their overall functioning is similar: capturing various forms of data to be transmitted to different databases. When shown a photo of the BVID kiosk, the former Swedish asylum caseworker commented that the one they had used (prior to 2019) was less "spaced out" and looked "more like an ATM". They provided the illustrations below (Figures 5). The annotations (clockwise) read "employee's computer"; "moves up and down according to height"; "camera for photograph"; "screen (fingerprint shows up there and on employee's computer. This screen tells you which finger to roll)"; "asylum seeker stands here"; "this bit sticks out a bit and is where you take the fingerprints"; and "employee stands here"
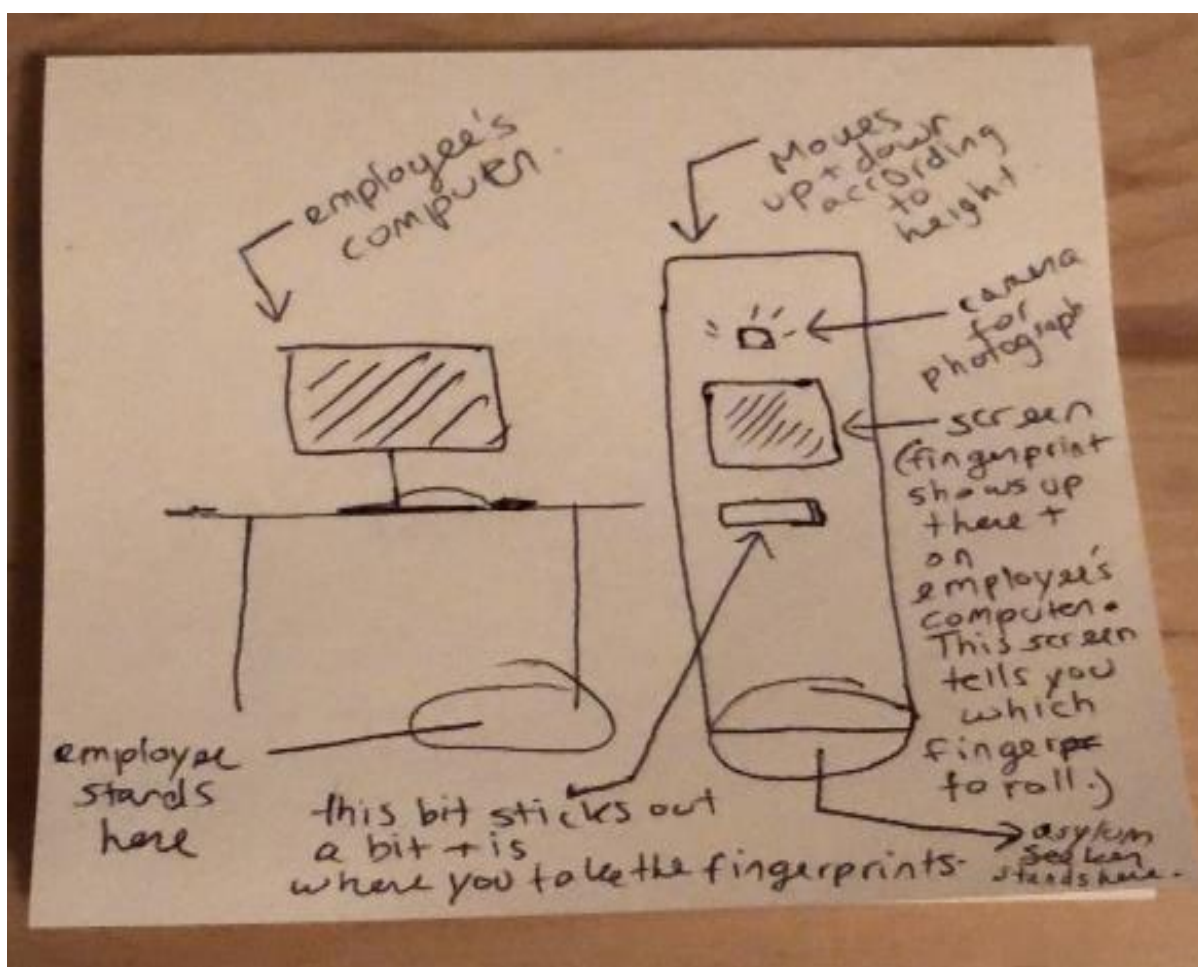
Figure 5: Drawing of enrolment process by former asylum caseworker in Sweden

The caseworker explained how the person's height and eye colour is entered manually into the system via a computer monitor to aid in the capturing of a photo. As shown in Figure 5, once the height has been entered in, the camera moves up or down to adjust itself to the individual's height and then a photo is taken. The photograph is not for EURODAC purposes but Sweden's national immigration procedures and Asylum Identity Card. Similarly, The Netherlands' BVID kiosk takes a photo for the national immigration database (*Basisvoorziening Vreemdelingen*, hereafter BVV) and Asylum Identity Cards.

As of May 2021, EURODAC still does not currently utilise photographs, but Eurodac's Recast's proposals for adding photos and facial recognition to the system are in discussion, and the technology is being piloted (Thales Group 2022). One of the key drivers cited behind the push for adding automated facial recognition is to tackle scenarios in which biometric data cannot be taken due to damaged or aged fingerprints or amputated fingers. Another driver is said to

be to address scenarios in which people must be coerced into providing their biometric data as a photograph procedure is less sensitive to movement than a fingerprint scan and, therefore, easier to undertake. While legitimate use of physical coercion for fingerprinting is legal under EU law, both the Swedish caseworker and the IND authorities responded that it is rare, if not unheard of, in their respective countries. However, human rights organisations have gathered allegations of the use of force in hotspots (Amnesty International 2018).

When asked about the kind of preparation that goes into a EURODAC registration or search, both the IND authorities and caseworker spoke about how, before scanning, the person's fingers are cleaned to remove any dirt or sweat from the fingerprints otherwise the glass scanner will not be able to read them. In The Netherlands, the cleaning and the scanning are carried out by the KMar or Aliens police officer regardless of whether the scanning takes place in an application centre or a police station. The Swedish caseworker explained that it was usually an assistant who was responsible for cleaning and scanning the fingerprints at the asylum application centre. However, on days of work overload, caseworkers would often step in to help process more cases faster – although they often felt unsure when doing so.

During our interview, the former caseworker reflected on their own experiences assisting in this part of the process for a long time. Making sense of these experiences through the language of their recent academic studies, they explicitly tried to negotiate a critical and reflexive position within the milieux of power relations and processes of Otherisation. They spoke about how things which they took to be mundane, necessary, or perhaps just a bit 'awkward" or uneasy, at the time, took on a greater political significance or complexity upon reflection. For example, they spoke about their discomfort and guilt when choosing to wear surgical gloves if it looked like the person had 'bleeding scabies' on their hands but also felt that perhaps the person may not want to touch a stranger's hands either. They also commented that the office culture cultivated a sense of hierarchy around fingerprinting, where staff who took fingerprints were at the bottom of the ladder, and more experienced (or confident) caseworkers refused to step in and assist. Additionally, they talked about being conscious of power relations. However, they were keen to emphasise what they described as 'intimacy' or 'more human moments' in their interactions with those they were fingerprinting, such as small talk or when things would go wrong, and jokes would be made.

What does the preparation process look like for the UK's handheld devices? As shown in Figure 6, the technology consists of an app on a police officer's smartphone connected to a periphery mobile fingerprint scanner (Wangari-Jones et al. 2021: 4).

Figure 6: Photo of police trial of mobile fingerprint technology (Source: Home Office 2018b)

According to the Strategic Mobile PIA conducted by the Home Office, upon deciding to fingerprint a person suspected of committing a crime and fiving a false identity, the officer should make a record of the interaction:

> 'Pocket book notes of the Police or Immigration Officer are captured including location, date, time, officer, perceived ethnicity and given name'.
>
> (Home Office 2017b: 5).

The capacity to record this data is available via an app (labelled 'Person Search' in Figure 7). When opened, a form appears for the officer to fill in (Figures 8 and 9). The below images were released by West Yorkshire Police in an Independent Advisory Group meeting in February 2019 (prior to my involvement) and published on RJN's Stop the Scan campaign website (Stop the Scan no date).
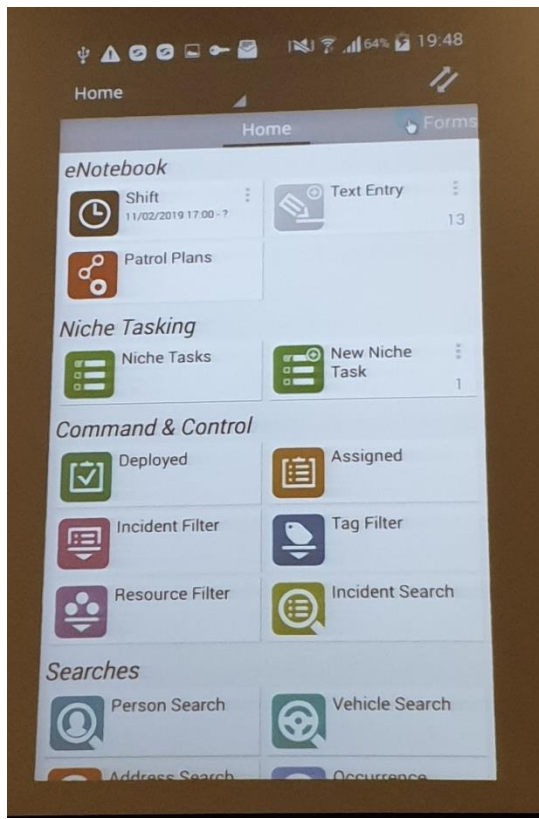
Figure 7: Photo of Person Search app on the West Yorkshire Police mobile device (Source: Stop the Scan, no date)
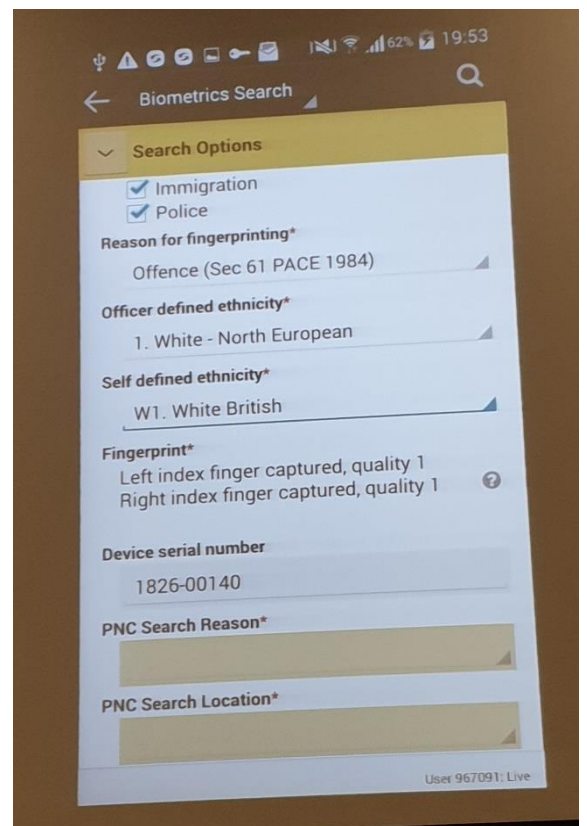

Figure 8: Sample completed search form (Source: Stop the Scan, no date)
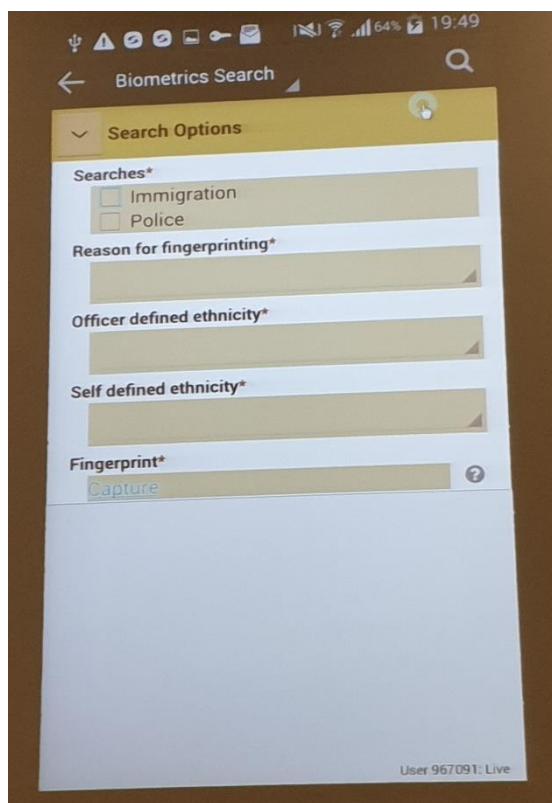

Figure 9: Empty sample search form (Source: Stop the Scan, no date)

There are notable tensions, however, between the timeline indicated in the Strategic Mobile PIA (Home Office 2017b: 5) of when the decision to record this data was taken and the account provided by the West Yorkshire Police (WYP) to RJN. RJN's contact with the WYP emerged after one of its members came across an article in the *Yorkshire Evening Post* announcing that they would be the first force to trial these updated mobile devices (Stop the Scan 2020). A series of meetings followed this initial contact to learn more about the ethical procedures, and members requested data on who had been 'stopped and scanned' so far. RJN was told this data was not being collected and could therefore not be shared, despite the PIAs indicating that it was already possible to do so at this stage (Stop the Scan 2020). A few months later, RJN was invited to attend an Independent Advisory Group meeting where WYP showed a PowerPoint presentation with photos of an app that would allow officers to record 'officer defined ethnicity', 'self-defined ethnicity' and 'Reason for Fingerprinting' (Stop the Scan, no date). The organisers credited the questions RJN had asked as the impetus for this development and agreed to share this data once it was collected. Months passed, and emails were sent chasing this data. A year passed, and this sharing never materialised.

Eventually, the data was obtained through FOI requests. However, ethnicity data was provided by only six forces out of the 18 who confirmed their use of the devices. Kent Police were the only force that confirmed that they do not record ethnicity data of those scanned, whereas others did not respond to the question. In a report written about this by members of RJN (myself not included), they explain how they found it 'alarming that given the long history of well-documented racial profiling and racial bias in police stop and search' forces either did not collect, or avoided realising, ethnicity information that could help monitor their execution of these scans (Wangari-Jones et al. 2021: 16).

Section III: Scanning

After procedures like cleaning and form filling have taken place, the process for scanning fingerprints can begin. This section illustrates how this moment of scanning may unfold and how it can involve a back and forth with the previous moment of biometricisation.

One of the key differences between the different technologies discussed so far is the number of fingerprints that need to be scanned or scanned at one time. For the handheld fingerprint scanners used under the Strategic Mobile project, only two fingerprints are needed to perform a search. The images below, screenshotted from a short BBC London (2019) documentary on YouTube, show the Metropolitan Police Forces' self-developed mobile device for connecting to IABS and IDENT1. Figure 10 shows two tabs to open to 'Capture 1st Print' and 'Capture 2nd Print'. Underneath these tabs are categories to record 'Search Location ', 'Ethnic Appearance', 'Reason for Search', and 'Subject Description' (gender). Figure 10 shows the interface displayed when 'Capture 1st Print' is pressed. At the top of the screen, it reads 'Left Index Finger' and below is a tickbox that says 'if left index finger is not available, check this box and scan right thumb instead'. There is then a diagram of two hands with the left index finger highlighted in red and a caption that says, 'Press finger down on the reader (making contact with the [text unreadable] if present) and wait until the fingerprint appears. Retake by simply lifting the finger and pressing down again'. There is then a digital representation of the fingerprint that 'appears' underneath, and a button to 'Save Scan' at the bottom of the screen. Pressing 'Save Scan' takes the user back to the first image, where the 'Search Fingerprint' button can be pressed.
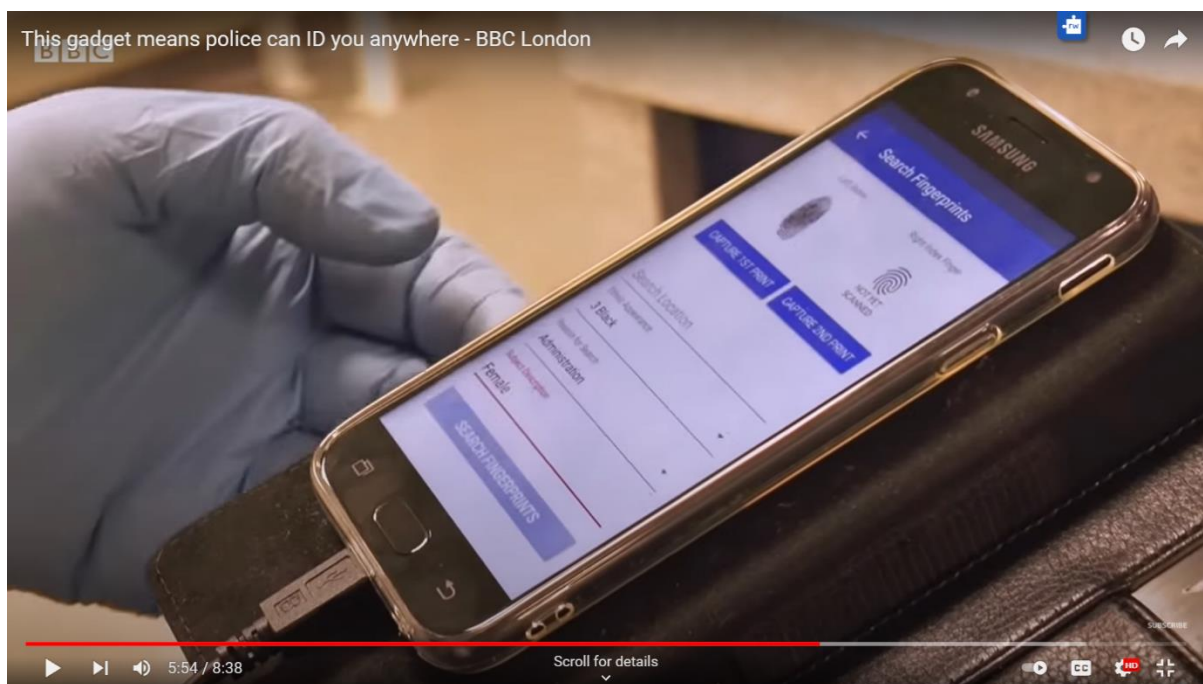
Figure 10: INK Device 'Search Fingerprint' interface (Source: BBC London 2019: 05:54)

Figure 11: INK Device 'Capture New Fingerprint' interface (Source: BBC London 2019: 05:53)

In contrast, registration in or a search against EURODAC requires a complete set of ten fingerprints.[18] For the Dutch BVID kiosk, four fingers on one hand are scanned at once and then the thumb, then the four fingers on the other hand are scanned all at once and then the

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[18] EURODAC is also satisfied with fewer for successful registration and/or search, but the reason should be stated in the transaction send to the EURODAC central system.

other thumb. According to the IND authorities, each finger is scanned separately, as are the thumbs as the BVID software demands higher quality thumbprint scans than fingerprints. According to the Swedish caseworker, the scanner they used also required each finger to be scanned separately. The monitor displays instructions for which finger to place on the scanner and relays the quality of the scan as a plus or minus figure. In both cases, a certain quality threshold must be met before the next finger or set of fingers is scanned.

Both flat and rolled prints are required for the EURODAC database. The caseworker explained that this meant that the assistant or caseworker responsible for fingerprinting had to physically place the subject's finger on the scanner, press down on the end of the finger then roll it from left to right so that the whole surface area was captured. If the fingerprints must be retaken (when the quality threshold is not met), the fingers must be re-cleaned and more pressure applied.

However, this is not a seamless moment but is disturbed by the excess of this relational gathering of embodied subjects and technologies folded into the biometricisation process. The caseworker emphasised that this was the most awkward and intimate part of the process and usually where delays took place and things went wrong. They spoke about how sweat (generated by nerves), dirt (from everyday living) and damage (from age or histories of labour) often obstructed a "clean" reading of the fingerprint ridges and valleys. They said they would often laugh nervously or try to make small talk as they re-cleaned or re-rolled with more pressure. Small talk might give way to awkward silence. Sometimes they had to ask the person to try to keep their hands steady. Either of them might grow tired or frustrated with the repetition of the instructions ("left index finger", "right thumb"), the low percentage score on the monitor, and the red flash that accompanied it.

The account provided by the caseworker speaks to what Lisle and Bourne (2019: 25) highlight with regards to automated borders; that they are 'not about rational humans confidently navigating' inert technologies, but 'partial human-tech collectives' that do not 'always "properly" control' their targets. In Lisle and Borne's terms, there is a kind of excessive corporeality, "fleshiness" (sweat, dirt, worn-down fingerprint ridges), "human-ness", affectivity (tiredness, anxiety, guilt, excitability) in the way the caseworker describes the assemblage through which subjects come together and contend with the "brute materiality" and fine-tuned quality thresholds of the scanner. As the caseworker holds up stuffed toys to

encourage excitable or confused children to look at a camera that self-adjusts to match the height entered into the device; or sees sores on someone's hands and frets over whether to wear surgical gloves for procedure, the biometricised subject is assembled by the complex entanglement of these more-than-human, material interactions.

Section IV: Processing

In the Dutch system, the biometric data is first sent to the national immigration database (BVV) where a quality check is carried out on the flat scan by the BVV's Automated Fingerprint Identification System (AFIS). If the threshold is met, then the BVID kiosk signals this to the enrolling authority by displaying a green colour. The BVV also generates a unique Aliens number and stores the flat scan when applicable. It is from the BVV database that the Immigration and Naturalisation Service (IND) later retrieves biometric fingerprint data and photos for Asylum Identity cards, which are used to monitor the asylum seeker for the duration of their stay. For example, asylum seekers must scan this card and their fingerprints every week at an accommodation centre to ensure they have not absconded. In the Dutch system, the biometric data is first sent to the national immigration database (BVV) where a quality check is carried out on the flat scan by the BVV's Automated Fingerprint Identification System (AFIS). If the threshold is met, then the BVID kiosk signals this to the enrolling authority by displaying a green colour. The BVV also generates a unique Aliens number and stores the flat scan when applicable. It is from the BVV database that the Immigration and Naturalisation Service (IND) later retrieves biometric fingerprint data and photos for Asylum Identity cards, which are used to monitor the asylum seeker for the duration of their stay. For example, asylum seekers must scan this card and their fingerprints every week at an accommodation centre to ensure they have not absconded. Seconds later, (if the BVV quality threshold is met) the biometric data is automatically sent to the Schengen Information System (SIS), the EU VIS database, and The Netherland's national criminal database.

After the scanning of the flat fingerprints, rolled fingerprint scans must be taken for EURODAC. According to the interviewees, first it is assessed which process should be started

and, depending on the process, the relevant EURODAC category for the search is then determined. The biometric data from both sets (flat and rolled) are then sent to the National Access Point for EURODAC (which in turn sends it to the Central EURODAC database held under eu-LISA in Strasbourg). The results from all these searches are displayed on the BVID kiosk's monitor screen.

Before any registration and searches are made, however, the Central EURODAC database's own Automated Fingerprint Identification System must perform a second set of more extensive quality control checks. Firstly, it makes sure the same fingerprint was not scanned twice and that the flat and rolled scans match up. Lastly, it checks that the scans meet a certain quality threshold. This threshold is much higher than that required by most Member States' national AFIS', meaning that Central EURODAC rejects a high percentage of tried registrations. An IND official commented that this rejection percentage was very high in The Netherlands prior to 2016, when only ink was used for fingerprinting, but reduced to 3% by 2019 since legal changes meant glass scanners could be used. If the Central checks are not met, the failure is relayed as an error message to the BVID monitor, and the fingerprints must be re-taken as similarly described by the Swedish caseworker.

According to IND authorities, the successful scanning, sending, checking and searching and/or registering of the biometric data takes approximately three to five minutes. The response time of the Central Eurodac system itself is forty to fifty-five seconds. If there are problems with the quality of the scans, this may take up to ten minutes. Factors affecting the quality of the scan include: the model of the scanner; any sweat or dirt on the scanner or on the fingers; the amount of experience of the officer/assistant enrolling the subject; the person's ethnicity and gender (East Asian women are most likely to have their prints classified as "unreadable"); and the wearing away of ridge detail on the fingers due to age, hard labour, trauma or contact with caustic chemicals. If the scans are rejected more than 3 times on account of damaged or "mutilated" fingerprints then the person must wait 2-6 weeks for their fingerprints to regenerate and be retaken before they can carry on with any sort of asylum process. This person is usually taken to a detention centre in the interim period.

In The Netherlands, there is no automated match acknowledgement. Any biometric match - commonly referred to as a "hit" - is first relayed as a "possible hit". "Possible hits" have to be sent to and manually verified the Centre for Biometrics, which is part of the Dutch National

Police. This verification procedure is based on the 'Four Eyes' principle meaning that two fingerprint experts from the from the CvB unit (*Centrum voor Biometrie*) of the police must agree that the match is accurate. The process is done manually and in a matter of seconds by comparing the two images on a monitor. Only then is the match confirmed as a "hit" to the officer. If the experts judge it to be an incorrect match (i.e. a false positive) then a general procedure is followed in which a request must be made to eu-LISA to unlink the records since the Central Database automatically classifies a "possible hit" as a "hit". An official from the Directorate-General for Migration commented that these "false hits" had happened six times from January 1st to 27th June 2019 (the date of the interview). There was disagreement from interviewees of the IND whether fingerprint experts were now mandatory for every country's Single Access Point under recent EU law.

For the National Access Point (NAP), The Netherlands and sixteen other countries use software developed by the company Steria. Other Members use systems bought from a different Third Party or were developed in-house, for example Germany. According to the official from the Directorate-General for Migration, where Steria software is concerned, there are some differences between the software version "patches" that are used by the Member States, because these are "downwards compatible". A patch is "an update" or a new version of the same code for performance improvements (new features or increasing speed / improving memory requirements) and bug fixes (bugs = small mistakes in code that produce unexpected outcomes). "Downwards compatible" refers to a hardware or software system's capacity to successfully use interfaces and data from earlier versions of the system or with other systems.

In order to maintain interoperability between these divergent technical contexts, all NAP software must comply with a certain message format developed by the National Institute of Standards and Technology (NIST). In other words, the NIST message format enables the outcome or the income of the complete system to be completely the same, regardless of divergences in the kind of software or coding used between different Member States. Information on how all the different messages should be configured is contained in an "Interface Control Document" produced by produced by the eu-LISA (in cooperation with a number of Member States), so that when receiving or sending message:

'You always know these are the fields there are. They are formatted in this way. Fingerprint information is always imputed in the following. It's Base64 encoded'[19]

(Participant 2).

In the context of the handheld fingerprint scanners, there is less currently available information that provides as much detail on the programming of software for the processing of fingerprint data. The 'information flows' section of the Privacy Impact Assessments on the Strategic Mobile Project, Strategic Matcher the Biometric Services Gateway and the Home Office Biometrics Programme, are redacted under the term "Official sensitive" or "restricted for internal Home Office use". One possible explanation for this may have to do with the fact that many of the technological components of these distributed projects have been developed by private third parties. As William Walter (2021) argues, private security companies are often reluctant to disclose their commercial secrets. Furthermore, I have been unable to conduct interviewees with the Home Office or the police to find out, and there is much potential for further research in this direction.

What we do know, however, is some more basic components of how the processing works. As previously discussed, officers can search fingerprints against immigration (IABS) and criminal (IDENT1) databases. They may choose to scan both, but each search must be performed separately. As shown in Figure 2, the Biometric Services Gateway provides the interface, or conduit, through which the fingerprint data is transmitted to the Central platform. Through the Bureau platform, access to the chosen database is approved or denied depending on the user's digital certificate, which is dependent on their role (e.g., an immigration officer can access IABS but not the National DNA collections). Here the new algorithm developed under the Strategic Matcher project will compare the fingerprint data with that stored on the IABS and/or IDENT1.

According to FOI responses made in July 2021, there are 91.1 million records of enrolment on IABS (including multiple entries for some individuals), and the immigration data held are fingerprint and facial images as well as data relating to the enrolment event – e.g. biographic

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[19] Base64 encoding schemes are commonly used when there is a need to encode binary data, especially when that data needs to be stored and transferred over media that are designed to deal with text. This encoding helps to ensure that the data remains intact without modification during transport' (base64encode, no date).

details, location. Fingerprint data gathered for 'Visas, and biometric immigration documents, such as the biometric residence permits' and for 'asylum/general immigration' purposes is stored for fifteen years from date of enrolement. This is unless 'the person has indefinite leave or is subject to a deportation or exclusion order, would fall to be refused entry to the UK or is of national security concerns where the fingerprints may be retained for a longer period so long as it is necessary for a function of the Immigration Acts or nationality'. Fingerprints are destroyed if a person becomes a British citizen (Home Office Biometrics 2021). If a fingerprint match is found against any of these enrolment records, the result an officer will receive is 'in effect a match, no-match response' and does not specify what kind of record a match relates to (i.e., whether a VISA, residence permit, refugee status etc.) (Home Office 2017b: 12). The following section provides more detail on what these results look like (Figure 12 and 13) and the steps that may follow.

Section V: Interpreting

Below is an image the West Yorkshire Police provided of what a search result of fingerprints searched through the handheld scanners might look like.
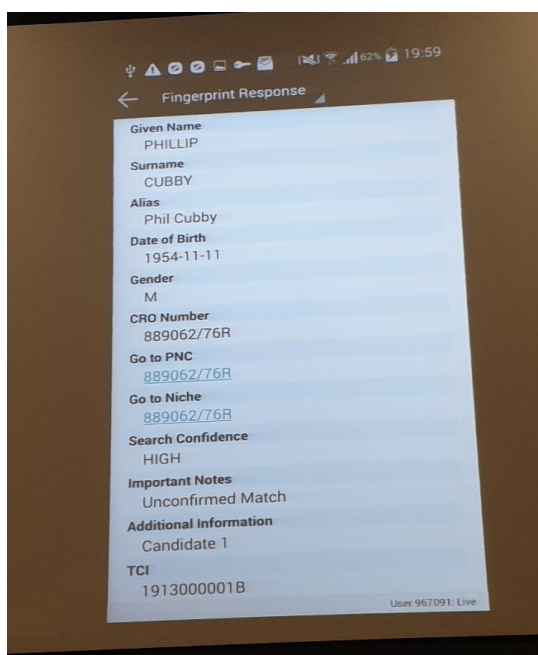

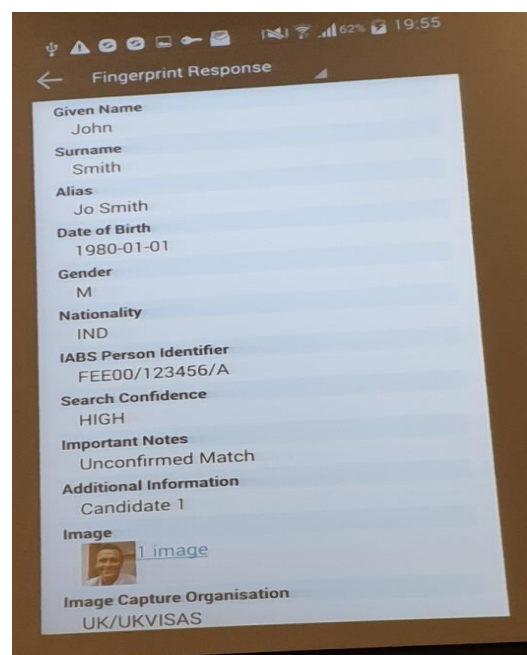Figure 12: Sample search on West Yorkshire Police mobile device (Source: Stop the Scan, no date)

Figure 13: Another sample search result (Stop the Scan, no date)

Figure 12 shows an example of a match found on IDENT1, where 'CRO Number' refers to a person's registration in the 'Criminal Records Office' and 'Go to the PNC' provides a link to the Police National Computer system. In Figure 13, we see an example of a match found in the IABS database. Biographical details such as names, date of birth, gender and nationality are provided alongside their 'IABS Person Identifier' number, a 'Search Confidence' category, information about the result itself under 'Important Notes', and a facial image and the organisation that captured it. While the latter provides some indication that the enrolment was made by UKVISAS, the information provided is in general understood to be 'minimal' (Home Office 2017b: 12). It could, for example, refer to a current or expired VISA. Therefore, if a match is found in IABS, the officer must contact the Home Office's Command and Control Unit (CCU). Established in 2006, the purpose of the CCU is to provide real-time 24/7 services 'to police forces or other law enforcement agencies when they have inquiries relating to the immigration status of arrested persons' (Home Office 2015: 32). CCU operators have access to a range of databases and will take the phone call and provide information about the individual (e.g., whether their VISA is valid or has expired) so that a decision can be made on whether to take them into custody and detain them.

Of the 11 forces that provided disaggregated data between checks on the immigration database and the police database in response to RJN's FOI request, Kent had the highest proportion of immigration related arrests with 19 arrests out of 113 immigration scans between March 2019 and June 2020 (Wangari-Jones et. al. 2021: 16).

Police force	Total immigration scans (IABS only and IABS+IDENT 1)	No. arrests from immigration scans	% arrests from scans
Kent	113	19	17%
West Yorkshire	1,472	18	1%
Gwent	39	1	3%
Lincolnshire	535	6	1%

Figure 14: Table of highest percentages of arrests made from IABS scan (Source: Wangari-Jones et. al. 2021: 16)
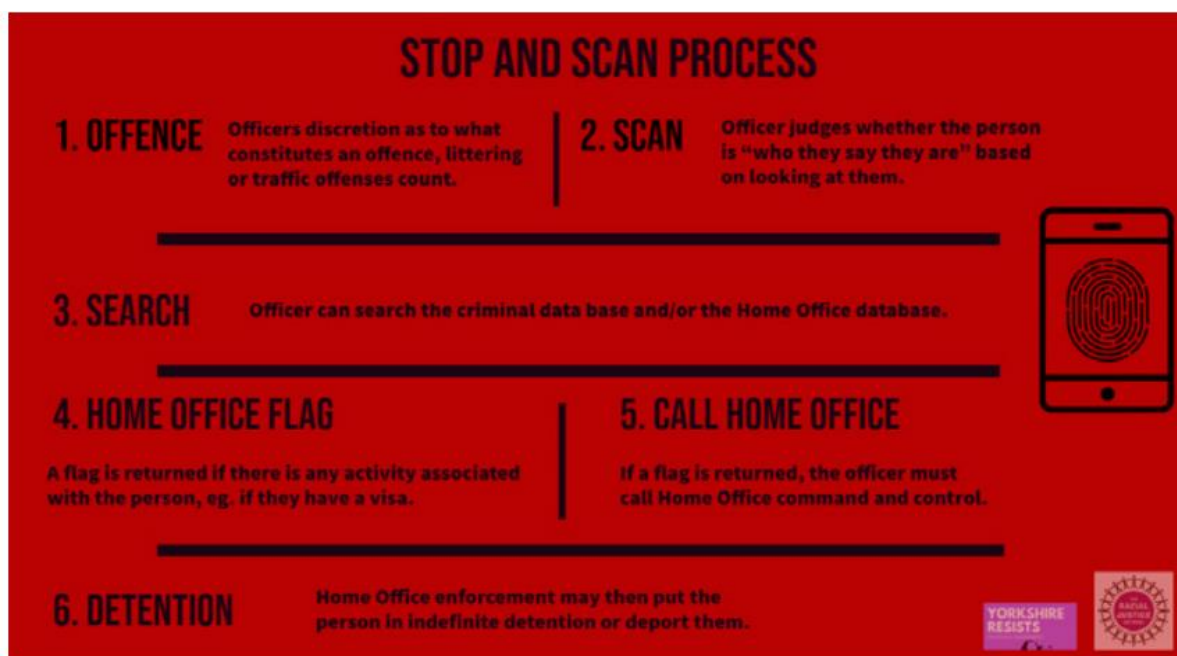
Figure 15: Infographic of Stop and Scan process produced by RJN (Source: Wangari-Jones et. al. 2021: 10)

What do the search results for the EURODAC database look like? When a fingerprint is searched against the Central Eurodac Database at an asylum reception centre, the results are shown on a caseworker's computer monitor. What is returned might be any combination of categories such as 'applicant for international protection', or 'found irregularly crossing a border'. For every EURODAC entry, the Central System configures a reference number called an MN1 number. It is in this form that any" hits" are displayed on the Immigration Enforcement officer's or asylum caseworker's monitor. The reference number is made up of the initials of the Member State (e.g., NL); the Category of the data subject (e.g., Cat.1). Individual Member States might display additional information. In the Dutch case, for example, there is a hyphen and then the Dutch unique Aliens number (followed by the date and time of the registration). In all Member States there is also a hyphen and then the date and time reference. For data subjects with multiple "hits", each MN1 number appears chronologically on the monitor. The alphanumerical displayed and stored alongside the MN1 number and the biometric data is a name and an 'M' for male or 'F' for female. Since a new system update in 2016, the monitor also automatically displays whether any asylum applications were rejected or accepted (as opposed to only that there an application was made). These classifications and their combinations are represented as a series of lines of

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code that provide a truncated visualization of the subject's movements within the Schengen Area.

Interviewees from both Sweden and The Netherlands commented that multiple "hits" or the use of different names were regarded as suspicious. In particular, an official from the Dutch Ministry of Security and Justice commenting on the importance of biometric said that:

> "If you have a hit and somebody is known with a different name, that is of course indicative of fraud, misuse or maybe also tells you something about what the real person is. So in that sense biometrics are very important, also in relation to terrorism of course. You want to select the right or wrong person if that is the case".

> (Participant 1)

As previously outlined, if a search reveals a Category 1 or Category 2 match, this may start the process for a 'Dublin Return'. In other words, the Member State will begin negotiations with the 'first country of entry' (considered to be responsible under the Dublin Regulation) to arrange for the subject's 'Dublin transfer' there. The asylum caseworker I interviewed explained that in Sweden, however, an initial interview must still take place at a reception centre, regardless of the results. In the Swedish case, if there are no matches that indicate the need for a Dublin return, then this interview will largely consist of explaining the asylum process, gathering some preliminary case notes and arranging for the process of application to begin. If the caseworker determines that, on the basis of previous registrations in other Member States, the application for asylum will not be considered, then the aim of this interview is to explain why.

However, the Swedish caseworker told me that in their training they had been told that protocol was to not explain that the application would not be considered until near the end of the interview. Before doing so they were supposed to allow individuals to explain their journey into Sweden in their own terms and ask questions to "catch out" individuals whose "stories" did not match up with the results shown from the EURODAC search. The caseworker described the process involved in terms of finding patterns, solving puzzles and figuring out the person's story before speaking to them when interpreting the lines of code on their monitor. They spoke about working like a detective with the gaps between the lines of code, using the relations between the categories to make hypothesis about the person's "story", which would then govern how the interview unfolded. For example, if the screen showed that

someone had sought asylum in France three years, then the interview would focus on what kind of residency they were or were not granted in France. However, this line of questioning, they said, was ultimately performative:

> 'You'd think in that moment, you'd try to be like "figure out" the person's story before you spoke to them. Because the fingerprints become like this type of "truth", right? It's treated as this like ultimate truth. And I found that a bit odd as well, because I was like, "Okay, well it doesn't really matter what this person says". For some questions it matters what this person says, but Sweden's still going to ask France to check out their case and see what's happened in France and see if they're going to be accepted back. So sometimes it felt a bit like a performance.… I felt sometimes that you were fooling people, in a way, in that they maybe could affect their cases.'

> [Former asylum caseworker]

They explained that eventually, after working at the centre for a while, they would often try to reverse this official script, explaining from the start that the claim would not be considered. They said they did this in the hopes that it did not back people into a corner of denial that could result in a note in their case file that labelled them 'uncooperative'.

Section VI: Conclusion

This chapter has sought to illustrate how biometric identification works in practice in two situated contexts. I have tried to show what happens when someone is 'stopped and scanned' using handheld fingerprint scanners that connect to immigration and criminal databases through the Biometric Services Gateway. I have also illustrated what this process might look like in the context of the EURODAC database. Section I explored the ways in which someone might "encounter" the controls and processes that culminate in a registration or search of their fingerprints in an immigration biometric database. Section II and Section III expanded upon the steps taken to prepare a fingerprinting procedure and the way the scanning process unfolds. Section IV provided technical details of how the biometric data is processed, transmitted and compared in the EURODAC database and the Home Office Central platform. Finally, Section V described how the results from the search are displayed on an asylum

caseworker's monitor or on an officer's mobile device, and the bureaucratic procedures that follow.

While such a breakdown does not fully capture - could never fully capture – in their entirety the vast web of assemblages that make the production of the biometric subject possible, I hope it provides a helpful way of showing in more concrete terms the kind of practices this thesis seeks to theorise. Thought alongside the relationalities of exposure and the cramping of space, it therefore lays the ground for an investigation into how biometric technologies individuate in Chapter 5 (understood as a mode of making visible) and the impacts of this individuation Chapter 6 and 7 (the atmospheres of fear that saturate and constrict environmental and relational situations).

Moreover, I argue that the various steps involved can be understood as 'five foldings' of biometric subjectivity – five moments where a specific subject is constituted through the articulation of a sprawl of human and non-human elements. As these diverse entities are articulated they create a subjectivity that is embodied and unstable, always open to re-fragmentation, re-configuration and re-securitisation. The biometricised subject is not simply a 'data double' nor a body that is "read" at single moment of biometric scanning, but rather constituted by a diverse set of practices and processes; entanglements of machines, bodies, discourses and materials that stretch across different temporalities and materials that are articulated at five moments: encountering; preparing; scanning; processing; and interpreting. Put differently, the production of a biometric subject is not simply about the apprehension of an individual whose fingerprint is read in order to be tied to a specific identity. Instead, it becomes a question of how a biometric subject emerges from a heterogeneous multiplicity of human and nonhuman elements. What must happen for there to be an emergence of a kind of individual that can be acted upon and made to act within this sprawl of constitutive elements? How does singularity arise from a multitude? This is the question of biometric individuation that I explore in Chapter 5.

Chapter 5: Understanding Biometric Individuation

This thesis investigates the impact of biometric technologies in the policing and management of migration in Europe. It seeks to address how they create new forms of harm. This thesis argues that harm is created in two ways. Firstly, through a form of biometric individuation that makes people visible in ways that would expose them to isolation, confinement, and violence. Secondly, through the creation of atmospheric conditions of fear in which people must attempt to escape this visibilisation. This chapter explores the question of how to understand how biometric technologies individuate. If individuation is the process by which singularity arises (how a thing comes to be distinguishable from other human and non-human "things"), the question of biometric individuation is the question of how a biometric subject emerges from a multiplicity. What must happen for there to be an emergence of a kind of individual that can be acted upon and made to act within the biometric assemblage of migration policing and management? Moreover, what are the implications for these processes on the kind of subject produced?

In the previous chapter (Chapter 4), I provided empirical detail on the technological components and security practices and processes that constitute biometric assemblages. I would like to briefly remind the reader of what this looked like the context of the Biometric Services Gateway, specifically police access. Officers may carry mobile devices equipped with a peripheral scanner for capturing prints and software that connects to the HOB Central platform (the location of collections of biometric data separated by roles-based access controls). This connection is enabled through a portal called the Biometric Services Gateway. In practice, this means that officers can stop someone (during a foot patrol or roadside check, for example) on grounds of 'suspicion of committing a crime' and then remotely scan their fingerprints if they have 'reason to doubt their identity'. While each check against a database must be performed separately, an officer may decide to scan the individual against both IABS (Immigration and Asylum Biometric Service) database and IDENT1 (the law enforcement

database). If a match is found in the IABS database, the device flags the officer *without* specifying what form of immigration status the person has (i.e. VISA, refugee status, residence permit, etc.). The officer may then report them to the Home Office by contacting Home Office Command and Control. If reported, Command and Control will then instruct the officer whether to detain the person who has been 'stopped and scanned'.

In this chapter, I begin with an empirical vignette of the Biometric Services Gateway. Section I describes three scenes of biometric encounter (and truncated moments of preparing, scanning, processing, and interpreting) that unfold within a BBC documentary on the London Metropolitan Police's use of the mobile fingerprinting devices. Notably, while the INK device publicised in the documentary has been developed by the Met, most other UK police forces use mobile fingerprint scanners provided by contracted private security firms. All, however, have been rolled out as a consequence of the introduction of the Biometric Services Gateway and the accompanying Strategic Mobile Project under the Home Office Biometrics Programme.

Why start a chapter on biometric individuation in this way? If my discussion in Chapter 4 was thick with description of a whole host of biometric and bordering elements and entities – all that which comes together and is piled on to produce a biometric subject - then my aim in this Chapter is more localised. My reasons for this are two-fold. Firstly, to provide the reader with a more immediate and tangible sense of the foldings of the biometric subject. Secondly, to move the thesis towards an investigation of harm. Thus, having laid this foundation, Section II clarifies my understanding of biometric individuation. Section III then seeks to frame this discussion in a more explicitly political register: biometric individuation as a technology of visibilisation that exposes. Central to this discussion is the work of Amoore (2020), Deleuze (1992), and Butler (2005).

Section I: The Biometric Services Gateway: An Empirical Vignette

A short ten-minute documentary posted on BBC London's (2019) YouTube account follows officers from the London Metropolitan Police as they patrol the streets of Westminster and

the roads of Embankment, exhibiting the capacities of their self-developed mobile fingerprinting device and extolling its virtues. The INK device ("Identity Not Known") connects to the Biometric Services Gateway (Burt 2018).[20] Over a series of close-ups of fingers placed on the mobile scanner counterpointed to the old ink-and-roller technique, shots of the station's old 'large, cumbersome machine', birds-eye views of the city and shaky footage following constables as they round the corner of a busy city street, a voiceover opens with the following words:

> 'In the battle against crime, the police have had to adapt. With more people moving into the city, it's important to find out potential criminals' identity quickly, and that's by fingerprinting. It used to be a long-drawn-out process using ink and roller. Now the police have modernised and are using a mobile digital device called 'INK on the Streets'

> (BBC London 2019: [00:00-00:30])

The footage is cut with a series of interviews with police constables, traffic officers, sergeants, and 'Biometric Tech Leads,' giving their insight into how the extensive use of the devices has meant far more quick and efficient procedures, safer streets, and better use of taxpayers' money. The viewer is shown the device "in action" in five (heavily edited) instances, through a series of abridged moments of encounter, preparation, scanning, processing, and interpretation. The documentary thus constructs a particular narrative - gives its own account – of what biometric devices do, who their targets are and what kind of societal conditions they create.

The first person the documentary shows stopped in the street is a woman wearing a headscarf with her face blurred out. The BBC voiceover tells the viewer that, as two police constables begin their patrol of Westminster, 'they spot a beggar'. We are told that the one of the constables decides to fingerprint her because he 'can't be sure she is who she says she is', despite the fact she has produced an identity card. The camera then zooms in on her finger being pressed onto the scanner by the second constable. The voiceover informs the viewer that in the past she would have been taken into custody, but 'a quick check' reveals that her

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[20] To refresh the reader's memory; this is the portal that can be accessed through an app on the officer's smartphone and enables fingerprints to be checked remotely against the Home Office's Immigration and Asylum Biometric Database (IABS) and IDENT1 (the law enforcement database) (in separate searches).

'credentials check out' and she is let off 'with a warning' (BBC London 2019: [00:30 – 01:00]). The first constable is then shown saying to the woman:

'This is a verbal warning, okay? From me to you. If I see you again….'

(BBC London 2019: [01:00-00:10])

The documentary does not show the rest of the interaction, but the constable's sentence appears to trail off. A warning for what? We are not told exactly. However, the voiceover has particularised the subject as "a beggar" and the supposed offence is implied. Since the first iteration of the Vagrancy Act in 1824 there have been various laws in the UK that criminalise modes of life and living for those made destitute or homeless, including restrictions around sleeping or asking for money in public spaces. Those charged under these laws face the potential of up to £1000 in fines, which would of course make escaping homelessness impossible (Day 2020). In reality, such fines are impossible to pay for those imagined as their subjects. Thus, in practice "vagrancy laws" are more often utilised as warning, or threat, to coerce the homeless and the destitute to "move on". But move on to where? It is nothing short of a vicious cycle (Day 2020).

Furthermore, this impossible reality is faced by hundreds to thousands of non-UK nationals each year who encounter systemic barriers to housing, welfare, and legal aid (Crisis 2019). Speaking at a public event held by RJN and Yorkshire Resists to protest the use of mobile fingerprinting, Mary Atkinson (a Campaigns Officer at the Joint Council of Welfare for Immigrants) provides some background to this point:

'If you were designing a system that sets up people to fail and pushes them out of status, you would probably design exactly what we have now: really long routes to settlement and people trapped in precarious states for years, even decades, before they can get Indefinite Leave to Remain… and having to pay thousands of fees every 30 months just to renew a piece of paper.'

(RJN 2021: 00:28:40 – 00:29:20).

For Mary, the significance of mobile fingerprinting lies in circulation of the circularity of hostile environment logics. That is, she positions mobile fingerprinting as symptomatic of an accumulative harm where many are pushed into undocumented status through barriers built

into the immigration system and then 'punished in really inhumane ways' for failing these barriers (RJN 2021: [00:29:20 – 00:29:40]).

The BBC documentary does not tell us the immigration status of the first subject of biometric power it constructs (the woman reprimanded for asking for asking the public for financial aid). Nor does the documentary tell us whether this particular scan was made against the IABS (immigration) or IDENT1 (criminal) database, or both. It does, however, shed light on fragments of the reality Mary describes through the kind of discourses drawn upon and fed into. Firstly, it provides a clear example of the type of low-level "offences" that may provide the grounds for a stop and scan, as well as illustrating the way its application might be used to pressure targets to "move on". From here, we can begin to think about how this discourse might be experienced directly or indirectly by those with precarious forms of migration status (I return to specific examples in Chapter 6). However, the documentary reveals more than the unfolding of biometric power within the space and time of a particular encounter. More importantly, it points to biometric power as a matter of publicity – something that occupies the streets people walk down and even the documentaries one might come across. The documentary reveals and is itself a constitutive part of those biometric discursive-material arrangements that threaten (or promise) exposure. The subjects of exposure imagined in the documentary are 'potential criminals'. For those who live their lives at the interstices of forms of dispossession, the threat of this ambiguity is made clear.

The documentary shows the viewer more examples of biometric encounters. Shortly after following street patrols, we are introduced to Road Policing Units. In one instance, the camera follows a traffic officer carrying the INK device who has been contacted by his colleagues to provide assistance with biometrically identifying a moped driver who has been pulled for reasons unspecified in the documentary. It takes the officer fifty minutes to drive to the location in Embankment and, when he arrives at the scene, the camera shows a number of authorities milling around the moped driver. The voiceover tells the viewer that the device is used to check out the driver's insurance who 'does not have the right paperwork'. The traffic officer then speaks to the camera and provides a somewhat jumbled summary of the situation:

> 'I used four people to establish identity and any immigration status, so any moving traffic offences will be put on the INK device to enhance or confirm their identity to see if there is any wanted, missing or immigration status… He had the results in under two minutes.'

<div align="right">(2019: [04:12-04:30]).</div>

Is it people or devices establishing identity and immigration status? Is it offences or devices that confirm or enhance identity? The constable's exposition leaves us in the dark. What he does seem to want to make clear is that (despite the fifty-minute drive), it was all very fast. Identity enhanced and confirmed. This is another prevalent dimension of biometric discourses: the seduction of efficiency. What is routinely framed as virtue of the handheld scanners is that it short-circuits any need to provide grounds for an arrest and take someone back to the station. Sometimes this even takes on the language of care or, at least, convenience, for the targeted.

The documentary then takes a slight but noticeable shift in tone as officers seemingly respond to actual or anticipated questions around ethics and responsible use of the devices. The Met's Biometrics Tech Lead reassures viewers:

> 'Ethical usage of biometrics is really important to the Met. We've appeared before ethical panels. We follow a whole load of rules. We make sure people's human rights are complied with. Today we've used this device thousands and thousands of times, and we've not had a single complaint'.

<div align="right">(2019: [05:00-05:18]).</div>

The documentary then shows a final example of how and where the device might be used (much less on the why). This time it is in a custody suite at the police station, where the Sergeant is shown placing the fingers of a woman on the scanner, her hands handcuffed behind her back. A subsequent camera shot of the mobile app shows that a search form where her 'Ethnic Appearance' has been selected as 'Black'; 'Reason for Search' recorded as 'Administration'; and 'Subject Description' as 'Female' (Figure 11, Chapter 4). As she stands immobile, the Sergeant says, 'please, don't resist'. Then, he tells the camera how the device can help vulnerable people get the help they need, quickly and efficiently:

> 'We've had it six to eight months, and it's been invaluable already. People really buy into it. It's not just a gimmick. It's not just a toy. People realise it's actually really useful and it does save us a lot of time. We can immediately get the person the right sort of help they need, whether it be medical help, the

mental health side of things. We can use this to address those issues early rather than waiting six, eight, twelve hours, whatever it might be, for someone to calm down enough for us to deal with.'

(2019: [05:30-06:00])

The officers interviewed make few references to the device's ability to scan immigration databases – although we know that they do, and that Surrey Police had *only* used the devices against IABS at the time of RJN's second FOI request (Wangari-Jones et al. 2021: 5).[21] However, nor is their emphasis exclusively on "catching criminals", which instead seems to be the framing of BBC London's production team. Their emphasis is instead on efficiency and how this helps not only police but also apprehended individuals. This notion of 'efficiency' comes up time and time again in police tweets, press releases, and interviews about the scanners, as well as in front of public scrutiny panels (Ffrench cited in RJN 2021: [00:20:00 – 00:20:45]). As when the old cumbersome livescan machine replaced the long and drawn-out ink-and-rolling technique as the primary feed for Automated Fingerprint Identification Systems (AFIS), and as when the latter replaced ink-and-paper storage and comparisons, the mobile scanner is revered for uncovering targeted people even quicker. No *waiting for people to calm down*.

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The BBC documentary is one of several instances in which key actors involved in developing the "on the spot" identification have worked with online media to publicise mobile fingerprinting. For example, the private security firm who helped develop the Biometric Services Gateway - BAE Systems Digital Intelligence (2019) - calls The Home Office Biometrics Programme a 'project of national significance' for 'catching criminals'. This forms part of the publicity for their latest joint-venture, the 2025 UK Border Strategy, which centres around creating 'the most effective border in the world, one that embraces innovation' as the UK seeks to both "Build Back Better" after the COVID-19 pandemic and 'carve out a new role on

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[21] Of the 318 scans made by Surrey Police between 2019-2020 (the period of the FOI requests made by the Racial Justice Network and Yorkshire Resists), all were recorded as specifically for an immigration reason. For Kent Police, 17% of the arrests made using the device were for an immigration reason (Racial Justice Network 2021: [03:45-04:55]). Some police forces either did not record or did not provide in the FOI a 'reason for fingerprinting' even though the app provides an option to do so. Of those that did provide this data, 68% recorded the reason as doubting identity (Racial Justice Network 2021: [04:55-05:45]).

the world stage' for Global Britain following the EU-Exit (Langley and Gogna 2021). Alongside these familiar performative nationalistic, security and innovation framings of biometric borders, we see also the influence of financial service circles ("Know Your Customer" as the guiding approach for "knowing" identity and risk levels [Langley and Gogna 2021]) placed alongside videos on 'caring about fellow man…people in this country, people all over the world' (BAE Systems, no date). Similarly, officers in the documentary discuss 'identity enhancement', ethical use of handheld fingerprint devices and its benefits for apprehended individuals.

This clearly not the whole story. That is, such discourses – appealing to various collective senses of security, resilience, even care and community – are not experienced evenly. They have a darker underbelly. What happens to those identified/confirmed/enhanced as 'immigration history'? What is the outcome of biometric identification not just for the moped driver, for example, but also those past and future targets of stop and scan? As we know, some will be sent to detention centres and cut off from friends, families, and communities. They will be held indefinitely in places where - as detainees have protested for decades and as NGOs and prison inspectors have reported - access to legal support is further restricted, adequate healthcare denied and where, in centres such as Yarls Wood, investigations into racial and sexual abuse are barred (Edkins and Pin-Fat 2005; Shaw 2015). After detention, some will be deported back to a country where they are imprisoned, executed, persecuted, or left to die in poverty. Some will be housed in "squalid, ill-equipped" and "unsafe" conditions (Hickman QC cited in BBC South East News 2021). Some will have already been denied asylum, housing, welfare and made destitute. All of this is to say that, as the Sergeant tells us that mobile fingerprinting is about getting individuals the help they need, we are haunted by the question of the radical isolation, confinement and exposure to violence that would follow were the call to Home Office Command Control to say, "detain them".

As Butler writes, 'reality is not conveyed by what is represented within the image, but through the challenge to representation that reality delivers' (2004: 146). Neither mine nor Butler's argument here is for discourses that reveal, see or show better. Neither a biometric device nor a biometric documentary could ever reveal the 'reality of the suffering' of the circumstances described above or represent the fullness and complexity of the interrupted lives (Butler 2004). As Judith Butler reminds us, it would 'be a mistake to think that we need

only find the right and true images and that a certain reality will then be conveyed' (2004: 146). For representation to convey the human, Butler agues, 'representation must not only fail, but it must show its failure' (2004: 144). However, as political theorists we might try to disrupt these discursive abstractions. We might also try to show the work that must go into the organisation of this darker underbelly. We might also try to open up the sphere of appearance (what we can see and what we can know) to their material consequences (Butler 2004: 146). For the purposes of this the remainder of this thesis, my first step in this direction is to understand how biometric individuation as a technology of visibilisation. So, what is individuation?

Section II: What is Individuation?

As I clarified earlier, individuation is the process by which singularity arises from a multiplicity. It is the question of how a thing comes to be what it is such that it can be distinguishable from other human and non-human "things". Notably, however, the conception of individuation I draw on (i.e., the approach to this question of how singularity arises) differs radically from classical ontology. The most important of these ways is that individuation must be understood as a process, as ontological primacy is given to the relations by which something is formed rather than a pre-given individual. Thus, any singularity – whether human, object, or data - is never fully individuated but continues to be formed within and through those shifting material and relational assemblages. Running against the grain of popular criticisms of Deleuze's tendency towards metaphysical engagements as overly abstract, I would like to highlight Deleuze helps bring questions of individuation to bear directly on the social and political world and thus help think through biometric individuation.

The first of these is in *Difference and Repetition* (1994: 246), where Deleuze writes that individuation emerges as the actualisation of potentials and the 'act of solving' the problem of establishing communication between disparate entities. Of further significance is Deleuze's use of the term 'communication' to reword what Gilbert Simondon had called 'information'. Here Deleuze can be read as seeking to avoid the trap of cybernetic terminology that would

reduce information to a transaction of 'sender → message → receiver' (Illidias 2013: 98). Rather, communication makes us think about the co-constitutive nature of that relation, relations which themselves comprise the very formation of reality. In fingerprinting, for example, there is not simply an attempt not to exchange information on an individual. Biometric data is *produced* by relations as a specific way of knowing the world and its subjects, solving problems between datapoints, establishing communication between different times and spaces.

 The second notable Deleuzian reformulation of individuation is in *Postscript on Societies of Control* (1992). Here Deleuze looks at the principle of modulation as a power that deforms and readapts itself 'from one moment to another' to create a continuous system of control (1992: 4-5). Writing in the context of the rapidly increasing influence of information technologies in structuring daily life in the early 1990s, Deleuze argued that we are gradually moving from Foucault's disciplinary societies (that take the individual-mass dyad as their object of power) to 'societies of control' where the focus is no longer on individuals as wholes but on '*dividuals*', which are 'masses, samples, data, markets, or 'banks" (1992: 5). In other words, the individual is broken down into pieces of data and what Deleuze calls the 'dividual' comes to be figured as a code that enables or impedes access to, for example, resources and spaces (1992: 5).

What is at stake in Deleuze's societies of control is that the continuous process of individuation has been adapted in such a way that makes subjects amenable to control. Whereas in disciplinary societies, one is constantly moving from one space of enclosure to another (school→ factory→ prison), control mechanisms are inseparable variations, forming a 'variable system of geometry' or an immersive 'gas' (1992: 4). As an example of a control mechanism, Deleuze points to Felix Guattari's imagining of a (dividual) electronic card that raises a given barrier to allow access to different areas of a city, but that could quickly be rejected on certain days or between certain hours (1992: 7). Here Deleuze is trying to shift emphasis away from the barrier itself as the primary means for governing subjects and towards the immanent diffusion of informational properties and the computational techniques that track dividual markers (here, the electronic card) and thus effects a ubiquitous and almost inescapable modulation.

From the outset then there are striking similarities between this example and the tracking of migrant bodies through fingerprinting. Rather than the border assemblage being characterised by physical barriers at territorial borders, biometric identification is continuous and ephemeral. For example, fingerprinting may allow someone to stay in an accommodation centre while their asylum application is being processed, but if they fail or refuse to attend a weekly scan – if they oversleep more than once as one former Dutch accommodation centre assistant told me – they can be kicked out of the system and any future claims for asylum rejected. Similarly, in the UK the Application Registration Card an asylum seeker is issued with following biometric enrolment can be used to allow access to a GP or work but can be cancelled following an asylum rejection or the information changed to restrict access to work (Home Office, no date). In other words, a clustering of data attributes contingently enable or impede someone's ability to move within and between countries, cities, public services, and spaces; to access work or claim asylum; or to be provided with basic systems of support.

From the pattern emerging from the folding of these attributes a dividual emerges in as much as there is a collection of datapoints signified by different categories (and, in the case of EURODAC, timestamps,) that are acted upon as a singular entity. That is, certain legal and procedural meanings are attributed to these data points and a decision made about the person's future, whether that decision be to detain, deport, to reject or accept responsibility for examining an asylum claim, or to allow that person to contingently carry-on accessing state support. In addition, recent developments in the principles governing the use and expansion of EURODAC under the New Asylum and Migration Pact mean that these data points will be gathered, aggregated and analysed, and used in cross-system statistics with other EU immigration databases in order for EU bodies to 'assess such phenomena' and draw up 'the appropriate policy response' (COM/2020/614). There is an expanded function then in establishing a kind of story between these disparate events folded together by a biometric marker, putting these different events into a tenuous communication with each other to give them meaning – to use statistical calculations to extract patterns, to produce a kind of structure, despite these events being in themselves unstructured. Thus, biometric individuation is not simply a transaction of information where an identity is sent from one location to another or a 2D mapping scheme an identity is imposed onto this transaction. It is

instead more of a 3D topology, a knotting and folding together future and past, immanent to that reality rather than on top of it.

This conception allows us to talk about the multiple in a way that moves away from the logic of division underscoring methodologically individualist accounts of security assemblages, which in turn treat biometricisation as something which is *done to* a body understood as discrete and neatly bounded entity that biometrics somehow fail to adequately represent. For example, K. F. Aas (2006: 155) critiques EURODAC on the basis that 'technological systems no longer address persons as "whole persons" with a coherent, situated self and a biography, but rather make decisions on the bases of singular signs, such as a fingerprint'. The problem with such accounts is that they assume that there are such things as a pre-existing identity/body or a coherent self. This an assumption which many critical scholars have sought to overturn (see for example: Deleuze 1994), and one that the above conception of individuation problematizes. Moreover, in the literature on processes of biometric identification, there is a vast body of work that shows how biometrics technologies are less geared towards establishing identity (and then succeeding or failing to properly read it) and more about actively producing that identity and authorising mobility (Van der Ploeg 1999; 2003) despite the therefore alienated subject's claims and permutations (Browne 2015), and about actively remaking the body through fragmentations, dissections and visualisations (Amoore 2006; Amoore and Hall 2009).

More specifically, my understanding of biometric individuation follows the work within this literature on that emphasises the mutability (as opposed to the rigidity) of the classifications produced. The subject that emerges from biometric individuation is not a fixed entity but something that is continuously being modified in a way that makes it responsive to the complex laws and procedures that govern migration. For example, someone's "data double" (Lyon 2014) can be updated every time they are 'found irregularly crossing' a border of a Member State or make an asylum claim and this governs their access to resources or ability to enter a country. Thus, when we think about how, when someone is fingerprinted, they are made to appear as a category returned by a biometric device, this category does not merely hold the ideological function of making essentially contested norms of normalcy and difference (Van der Ploeg 2011) appear as fact but gains much traction within security circles because of the pliability and flexibility of the categories, bodies and identities produced.

In the following section I would like to explore the tension between biometric individuation as the emergence of a kind of individual that can be acted upon and made to act within a biometric assemblage and the breaking down of individuals into pieces of data. The latter, Deleuze argues shapes not only the societies in which we live, but also 'our manner of living' and 'our relations with others' (1992: 5). In other words, I would like to explore the consequences of Deleuze's idea of a *dividual* on the idea of biometric individuation that produces a certain kind of individual.

Section III: Technologies of Visibilisation

In her work on the ethical terrain of the algorithm, Louise Amoore (2020) warns against the primacy of the visual register that has been prevalent in the critical literature on algorithmic technologies. She argues that crucial aspects of these technologies operate not on the terrain of human vision but rather 'harness perceptual power on a horizontal threshold of connection and correlation' (Amoore 2020: 40). Contemporary algorithms engage what Amoore calls a 'subvisible world' by making inferences from traces and trajectories that condense at indeterminate points (2020: 44). For Amoore, this is about thresholds of perceptibility, or 'rendering perceptible and actionable (almost seeing) that which would otherwise be beyond the threshold of human vision' (2020: 41). Thus, she proposes we think about algorithmic techniques within a paradigm of 'perception, recognition and attribution' rather than 'observation, representation and classification' (2020: 41). In an important sense, I agree with Amoore that attributing to biometric technologies powers analogous to the capacity for human vision is grounded in a profound misunderstanding of the nature of algorithmic reason. Indeed, in Section II, I aimed to show that biometric technologies do not bring an abstract and obscure world into vision but rather make that world. I showed how biometric individuation is a knotting and folding together of future-past, immanent to reality rather than on top of it.

However, I want to argue that the process of biometric individuation I have described in Section II can be conceived of as a technology of visibilisation as a dividual. The question is

begged then, in what sense do I mean "visibilisation" if not in terms of the kind of visuality grounded in a paradigm of observation? In using the term, I am not trying to talk about ways of representing – a body, an identity, or even a convergence of data points – in ways amenable to human vision. To "make visible" does not mean only to visualise migration trajectories and data traces on a screen so that the relevant authority can "see" (or "obscure") the person that stands before them. However, nor is it really about Amoore's conception of algorithms that 'make something or someone perceptible and available to the senses' of a given actor such as the caseworker or police officer (2020: 14). The interpersonal phenomenological tie between the enrolling authority and the fingerprinted person is not the kind of visibility I am interested in here. Instead, I would like to think about visibility in terms of exposure. To do so, I turn to Judith Butler.

Judith Butler's (2005) postulation that a primary opacity of the self follows from the fundamental relationality of being is a key part of Amoore's critique of the limits of the visual register. Any demand or attempt to give an account of oneself, Butler (2005) argues, must necessarily fail since "I" cannot account for the conditions of my emergence. I am always constituted in relation to others in ways I cannot know or narrate, to a sociality that precedes and exceeds me. There is, therefore, an 'uncertain boundary' connecting 'an impression from outside that I register' and a 'sense of "me" that is the site of that registering' (2005: 81). This connection is what "I" am - a site of exposure to others that constitutes my singularity - as it is that without which I cannot come into being or survive. From the beginning, I am 'given over to the other', Butler argues, 'enthralled, even if to a scene of violence, abandonment, a destitution, a mechanism of life support' (2005: 81). These others impinge upon me, 'interiorised in ways for which I can give no account', and thus opacity is the consequence of this fundamental relationality (2005: 80). In other words, our collective existential condition is a constitutive incompleteness, which interrupts any attempt we might make to provide a coherent and clear-sighted account of ourselves.

For Amoore, the opacity of the subject extends into algorithms which, she proposes, give partial accounts of themselves as they generate themselves in relation to a world of data (2020: 19-35). Scholars thus err not only when they understand algorithms as revealing the truth about an observable world but also when they criticise technologies for somehow "incorrectly" observing or obscuring a 'real world of politics' (2020: 41). In response to

demands to open up black-boxed algorithms, for example, Amoore implores us to reflect on how all forms of self are unrecognisable (2020: 151). Instead, she concludes, critique must begin with 'the opacity, partiality, and illegibility of all forms of giving an account' (2020: 8), whether human or algorithmic. However, I want to draw on Butler's work here in a slightly different way. I apply it not to the account algorithms give of themselves but rather the account given of the biometricised migrant subject in and through algorithms.

As Butler argues, giving an account is also 'a kind of showing of oneself' (2005: 131). To be clear, such a showing is not necessarily voluntary or freely willed. Rather we are compelled to give an account in the face of a query or attribution ("Was it you?" "Who is this you?") from those unchosen others who impinge upon us and constitute our being. Nor is it quite as simple as this demand being made by a concrete other who stands before me and to whom I impart information as they stand 'over there… waiting to know' (2005: 82). Instead, the telling performs an action that *presupposes* an other who represents the prospect that fragments of my being 'might be linked somehow, that some part of that opacity might be brought to light' (2005: 80-2). It is in this sense that I would like to think about biometric individuation as way which someone is made visible as a dividual. When someone is fingerprinted, they encounter a demand show parts of themselves in a specific way. However, what is exposed is not a singular concrete body that is not fully captured (that could never be fully captured). Rather, what is brought to light are fragments of data and material of the always already constitutively incomplete subject. Brought into a domain of appearance and constituted as a social manifestation of the body, these fragments are part of the very sociality of the body. Thus, as with anything constitutive of the subject, these fragments, and the relations between them are avenues and sites of exposure through which one can be harmed.

In Section II, I described a process of biometric individuation through a number of examples that illustrate how people are made visible in ways that expose them to potential manifest harms. In one example, we saw how people are stopped and subjected to racially biased data seizures (that feed into a discourse of threatening potential 'offenders' with public humiliation); that the seized data is brought into relation with other data traces through the Biometric Services Gateway; and that someone is individuated as a collection of these data traces. The handheld device may flag someone as "immigration status", which is followed by a call to the Home Office where instructions are issued based on the account that unfolds

from the relations drawn between the fragments of data. In other words, they are visibilised to the Command and Control unit as a gathering together of attributes that are or are not issued permission to carry on. In another example, we saw a similar process where the data traces were articulated as lines of code on a caseworker's monitor. We saw how the relations between these data points are attributed particular legal and procedural meanings, which allow for intervention and the shaping of the futurity of both the dividual (as a rejected or accepted claim to asylum) and migration patterns (as a statistical pattern to feed future migration policy and fortification of borders).

These examples illustrate how singularity arises in biometric individuation. We get a sense of how a biometric subject emerges from the convergence of a multiplicity of fragments of data and material. Whether it is a handheld scanner wielded by a team of police officers at the side of the road, or a caseworker piecing together lines of code on a computer monitor at a reception centre, the material traces left by the fragments of matter that constitute a body are folded together to produce a biometric subject that can be acted upon as a subject of migration law and procedures. You are individuated, that is, as a dividual: an intersection of these data points. What then are the harmful implications of this kind of process? In Deleuzian terms, the way these fragments of data and material converge constitutes a powerful mechanism of control. Their formation holds a paradoxical status as, in the words of the caseworker, 'ultimate truths' even as they 'readapt from one moment to another' (Deleuze 1992: 4-5). This paradoxical status makes subjects amenable to control: denying and allowing access, isolating, confining, and exposing people to violence.

Section IV: Conclusion

This chapter has explored the question of how to understand how biometric technologies individuate. I argue that biometric individuation makes people visible in ways that would expose them to isolation, confinement, and violence. In this chapter, I considered Louise Amoore's (2020) critique of the visual register for understanding algorithmic technologies and seek to situate my understanding of individuation in relation to this critique. To do so, I draw

on Butler's (2005: 131) understanding of what happens when the existentially relational, and thus opaque, self is compelled to undertake 'a kind of showing of oneself'. I apply Butler's argument to the fragmented accounts biometrics give of migrant bodies through an engagement with Deleuze's (1992: 5) notion of societies of control where the focus is no longer on individuals as wholes but on '*dividuals'*, which are 'masses, samples, data, markets, or 'banks". Drawing these two thinkers together, this chapter explored how, when someone is fingerprinted, fragments of the material traces left by a fingerprint are brought into a domain of appearance and constituted as a social manifestation of the body. I argue that the way these fragments converge constitute a powerful mechanism of control and, as part of the very sociality of the body, are avenues and sites of exposure through which one can be harmed.

The argument I have outlined thus resonates with Amoore's work on machine-learning programmes. Amoore explains how an entity of interest 'emerges from the correlations and patterns of condensed data' but that this process is indifferent to the naming or identification of an individual (2020: 54). Instead, what matters is 'the generating of a set of attributes that could be latent in any other entity' and the capacity to derive future propensities from these relational attributes so that a sovereign decision can be made to, for example, 'stop this person at the border… to approve or deny this asylum claim' (2020: 90). Similarly, biometric individuation is not really about identification understood as the matching of one identity to another. Biometric matching algorithms do not simply equate one singular entity to another singular entity. Instead, Amoore highlights how biometric matching algorithms work) through a 'malleable arrangement of weighted probabilities' (2020: 134-5). They, therefore, contain a multiplicity of possible correlations to other entities as the weights of the model can be infinitely adjusted. However, Amoore writes, biometric matching algorithms nevertheless condense this intrinsic multiplicity to a single output at the point of action and 'a decision is placed beyond doubt' (2020: 134). It is here that Amoore locates the 'principal source of harm' in algorithmic governance: the foreclosure of potential futures (2020: 80). In Amoore's account, the very capacity to make a political claim is at stake, effaced by algorithms that condense multiple potential futures to a single output and generate the bounded conditions of what a border-crossing could be in this world (2020: 4). If we apply Amoore's argument to

how a biometric subject emerges from a multitude, then what is effaced might be the capacity to claim refuge, for example, or the capacity to enter a country to make that claim.

What if we thought further the readaptation of the bodily traces of fingerprint templates such that harm does not stop with the sovereign decision? Amoore does not neglect this question but approaches it in terms of how the output will be taken up in other computational architectures. 'Every output of the algorithm', she writes, 'even when it leads to wrongful detention or racialised false positives, is productively reincorporated into the adjustment of the weights of a future model' (2020: 145). Profound violences become lodged within algorithms that will go on to identify other fingerprints (2020: 4). Indeed, 'the one' produced by a biometric encounter will go on to become part of 'the many' through which a future 'one' emerges. However, we might also ask where and how else these outputs become lodged. In other words, I would like to think about this as more than just a data process and instead think about how the materiality of the body gets into this process and forms part of the actual material world the subject inhabits. For now, we can take as a point of departure Deleuze's idea that ephemeral control mechanisms form an 'immersive gas' that shape not only the societies in which we live but also 'our manner of living' and 'our relations with others' (1992: 4-5). From here, I want to show how the fragments of data and material bleed into that world and constitute the material, spatial and relational dimensions of the social and political environment within which the biometricised migrant subject must navigate and go on living.

Why is this important? Amoore can be read as part of a wider critical effort that seeks to bridge an important gap in the literature on the politics of technologies that shape and govern contemporary life. On the one hand, some critiques show the harmful outcomes of technologies but depoliticise the technologies themselves as mere tools in the hands of malevolent actors. On the other hand, some critiques unpack the agentic capacity of technologies but formulate an abstract notion of harm that fails to capture the sense of suffering and oppression that arguably served as the impetus for critique in the first place. I suggest that a way to bridge this gap further is to not only think about how the materiality of the body gets into data processes but also think about the affective capacity of this materiality.

To do so, in the following chapters I turn to recent work on 'atmospheres', which helps think through the dynamics of an ephemeral form of power that targets and works through

affective life (Anderson 2014; Closs Stephens et al. 2020). Drawing on this literature, Chapter 6 shows how governments orchestrate atmospheres of fear as a tool for migration management through a complex and interweaving range of socio-material and spatial interventions. I focus on how the rollout of handheld fingerprint scanners to UK police forces makes this atmosphere of fear more pervasive and insidious.

Chapter 6: Atmospheres of Fear

This thesis investigates the impact of biometric technologies in the policing and management of migration in Europe. It seeks to address how they create new forms of harm. This thesis argues that harm is created in two ways. Firstly, through a form of biometric individuation that makes people visible in ways that would expose them to isolation, confinement, and violence. Secondly, through the creation of atmospheric conditions of fear in which people must attempt to escape this visibilisation. The aim of this chapter is to substantiate the overall argument by exploring what I mean by atmospheres of fear, how they are created and what they do. In the previous chapter, I argued that when someone is fingerprinted, fragments of the material traces left by a fingerprint are brought into a domain of appearance and constituted as a social manifestation of the body. I argued that the way these fragments converge constitute a powerful mechanism of control and, as part of the very sociality of the body, are avenues and sites of exposure through which one can be harmed. The way they converge denies and allows access, isolates, confines and exposes people to the violence of deportation and detention.

In this chapter I would like to explore the concept of atmospheres that is central to the arguments this thesis makes. Section I begins by revisiting the kind of narrative of how I came to engage with the literature on atmospheres in order to help ground this chapter's discussion. Section II then turns to recent work on 'atmospheres', which helps think through the dynamics of an ephemeral form of power that targets and works through affective life (Anderson 2014; Closs Stephens et al. 2020). I explore what atmospheres are and what they do. Drawing on this literature, Section III shows how governments orchestrate atmospheres of fear as a tool for migration management through a complex and interweaving range of socio-material and spatial interventions. Section IV then focuses on how the rollout of handheld fingerprint scanners to UK police forces makes this atmosphere of fear more pervasive and insidious as officers can now remotely scan a person's fingerprints against

immigration databases at roadsides, street corners, and public parks, for example, on ill-defined grounds of 'suspicion'.

Section I: "This Would Merely Add to That"

In February 2018, members from the Racial Justice Network (RJN) and Yorkshire Resists - two intertwined community-led anti-racist charities – read an article in *The Yorkshire Post* that the West Yorkshire Police (WYP) force would begin trialling handheld fingerprint scanners. In attempt to find out more about the ethical use of the devices and retrieve data on who these scanners were predominately being used on, RJN and Yorkshire Resists contacted the West Yorkshire Policing and Crime Commissioner (PCC), which kick-started a series of meetings with the PCC and WYP. Initially, WYP and the Crime Commissioner seemed open to engage with RJN in order to address the ethical concerns we had raised. However, despite holding several meetings with the Police and Crime Commissioner for almost a year and being repeatedly promised answers and data in response to our specific concerns, this ultimately never materialised.

At the same time as all this was unfolding, RJN – as a network of organisations, communities and individuals concerned with issues of racial justice and migrant solidarity - heard increasingly from the communities they work with and support about their fears surrounding the introduction of the Biometric Services Gateway (BSG) and how it interacted with past experiences of discrimination and targeting at the hands of the police and the Home Office. One of the core concerns was that the mobile devices, equipped with the capacity to access the BSG, radically extended the police practice of reporting of suspected immigration 'offenders'. Data-sharing between the Home Office and police had recently been an issue that RJN had been documenting in relation to the broader problem of the treatment of victims of hate crime from racially minoritised communities and the dampening effect on its reporting. At the Stop the Scan campaign, we were therefore keenly aware of how mobile fingerprinting would exacerbate these problems.

We were also cognisant of the fact that its impacts could not be understood as an isolated phenomenon but interacted in insidious but powerful ways with the pervasive and accumulative challenges migrant communities encountered throughout their life. For example, those on visas, seeking asylum, refugees or with precarious status have No Recourse to Public Funds (NRPF). This means, among other things, that they may be turned away from homeless shelters despite belonging to a demographic at considerable risk of destitution owing to policies such as 'Right to Rent' checks, which imposes obligations on landlords to check the immigration status of prospective tenants and deny housing to those whose documentation is deemed inadequate. Considered alongside police and immigration enforcement use of handheld fingerprint scanners, the landscape of living conditions for those in this position becomes something approaching a maze of denial and potential entrapment. For instance, as other research has shown, Immigration Enforcement teams have utilised data gathered from homelessness charities to target areas where migrants sleeping rough are most likely to be found (Townsend 2017). The handheld devices enable their officers to remotely carry out real-time checks of immigration biometric databases on the spot and, as such, hold the potential to further facilitate such practices.

Beyond this kind of compressed contact with Immigration Enforcement, someone in this position must now also face a similar encounter with police officers in any public space such as a roadside, a street, a park, or a city centre. Here their biometric data will be seized based on little other than an officer's suspicion that they have committed a crime and are providing a false identity. Moreover, as European judges have stated in relation to the comparable practice of 'Stop and Search', an element of humiliation and embarrassment is intractably wrapped up in the decision to stop someone 'based exclusively on the "hunch" or "professional intuition" of the police officer' and subject their body to state-sanctioned surveillance powers contrived to catch-out forms of criminality (Travis 2010). In other words, regardless of whether fingerprinting culminates in a match or an arrest, such obtrusive and public manifestations of biometric power can feel deeply alienating and demeaning for those subjected to a 'Stop and Scan'. In ways such as these, mobile fingerprinting layers upon and compounds those incremental bordering techniques that saturate "the world"; that place that appears to take up all available space (Bhattacharyya 2019: 126).

Pushed into undocumented status by the Byzantian demands of shape-shifting immigration law, the precarious migrant is further pushed out of housing by Right to Rent checks, pushed away from access to food and shelter through NRPF measures and pushed into streets made increasingly hostile through the threat of a public data seizures that could be applied to them at any moment. This is just one illustration of how someone may be affected by the radical expansion and feeding of bordering techniques marked by mobile fingerprinting. It is by no means, however, the only – nor even paradigmatic – example. As an organisation that works closely with migrant communities, often supporting migrant-led mobilisation initiatives, and whose membership includes those with lived experience of both racism and hostile environment policies, there were several versions of the ways in which these blockages and threats might manifest themselves that troubled and drove the Stop the Scan campaign.

For instance, someone on a visa or with refugee status may acutely feel that their own sense of the precarity of their status – the possibility of being penalised for minor infractions or errors in paperwork, for example – is amplified by those discourses of public humiliation and data seizures writ large by mobile fingerprinting. Furthermore, working with RJN throughout the COVID-19 response and the Stop the Scan campaigns, exposed me to people and communities that worked in tireless ways to support one another. They engage in small and large forms of struggle against the oppressive conditions they had been thrust into, and yet still have to exercise caution when negotiating this landscape of governmental attempts to instil the fear of biometric visibilisation. This might involve, for instance, having to think twice about participating in something that risks exposure to mobile fingerprinting such as attending a public protest or engaging is some of the publicly visible forms of direct action we had planned in West Yorkshire before lockdown took place. In other words, the form their struggle and resistance took had to be constantly worked out alongside the very public and real threat the BSG posed to their well-being.

It was for reasons such as this that, in 2020, five members of RJN and Yorkshire Resits – myself included - decided to write a report on public perceptions of the Biometric Services Gateway (hereafter, the BSG), focusing on police use of the mobile devices. The hope here was two-fold. Firstly, that we might shed light on how members of the public felt about the national rollout of the technology, particularly those from marginalised communities most likely to be adversely affected. Secondly, that the findings of the report could be used to lobby those in

positions of power to intervene in, and potentially end, the mobile devices use. Between October 29th and November 12th 2020 we therefore encouraged members of the public to fill out an anonymous online survey. The survey consisted of 7 open questions and 6 closed questions around prior knowledge of and support for the BSG, opinions on police access to immigration databases, and perceptions of the impact of the devices on community relations with police forces. 115 people responded to the survey, with the greatest number of participants (54) coming from West Yorkshire (notably the region where the devices were piloted and in which RJN is based). Between November 2020 and January 2021, we wrote a report that compared these findings with data from Freedom of Information (FOI) requests on how often and on whom the devices were being used, which revealed their disproportionate use on people in the FOI data as from 'BAME' or 'Eastern European' background.

It was through this collaborative analysis and writing process, and the teams discussions around it, that some of the previous insights into the impacts of biometrics working with RJN had illuminated began to solidify. In other words, the process of analysing the survey data and writing the report consolidated the sense that the use of biometric technologies produced a restrictive climate of fear, at once deep and difficult to pin down. Moreover, it highlighted the fact that these ideas had been thoroughly shaped by the influence of RJN and reinforced that ethical and intellectual obligation to recognise and work with the context in which these ideas emerged.

Analysis of the survey data consisted of identifying key themes in the answers and grouping them accordingly. While each theme included several intertwined sub-themes and issues, they were broadly grouped under:

- 'Extension of Racist Stop and Search'. This referred to participants concerns that the 'Stop and Scan' techniques employed by police, though protected under different legislation from 'Stop and Search', would encourage similar discriminatory practices by police officers (RJN an YR 2021: 5).
- 'Privacy, Civil Liberties, and Safeguards'. This theme captured a broad range of concerns participants had articulated in terms of individual rights, legality, and reliability of the technology (2021: 6)

- 'Scope of Police Powers and Fear of Reporting to the Police'. This referred to the concerns participants had about the extension of police powers to immigration issues and the fear and anxiety the BSG would create for already marginalised communities (2021: 6). While I intend to focus on those who described themselves as having migrated to the UK, this theme notably included participants who felt that the BSG "further alienates and marginalises Black and Brown communities" [Leeds, non-migrant participant], who "are already disproportionately affected by police initiatives to our detriment" [Sheffield, Non-EU migrant participant] , and contributes to a system that "degrades us as humans" [Birmingham, non-migrant participant]. (RJN and YR 2021: 25).

- 'Criminalisation of Migrants'. This referred to participants' perception of fingerprinting as a practice associated with historical forms of punitive control that stigmatised and alienated its targets (2021: 7).

With a view to illustrating how someone's positionality might affect these answers, we also asked participants if they would be willing to disclose a broad description of their migration status. Notably, we did not ask participants to specify their exact status (i.e., on a visa, seeking asylum, precarious etc.) as we felt that being prompted to provide this kind of information could be a source of anxiety for some, and that the open-ended questions provided an opportunity for respondents to volunteer this information if they felt comfortable doing so. Respondents were therefore asked to identify themselves as either:

A) Having migrated to the UK from a country not belonging to the European Union (EU) (19 participants, hereafter 'Non-EU migrant');

B) Having migrated to the UK from a country belong to the EU (8 participants, hereafter 'EU migrant');

C) Not a migrant to the UK (83 participants), or;

D) Prefer not to say (5 participants, hereafter 'immigration status unknown').

In this chapter I draw upon answers from groups A and B to help illustrate the issue of central interest to this thesis: namely, the impact of biometrics on migrant communities and individuals. In particular, I would like to highlight these participants' responses to the

questions of whether they supported the introduction of the BSG (in which they were asked them to give reasons explaining their answer), and how they felt it affected their sense of safety in seeking help from the police.

Almost all migrant participants surveyed expressed opposition to the Biometric Services Gateway. This is perhaps unsurprising given the fact that the survey was publicised through RJN's website and social media channels and therefore received by an audience likely to be sympathetic towards broadly anti-racist and/or "border abolitionist" aims. However, the responses provide important illustrations of how biometric surveillance is perceived within targeted communities and the way in which people articulate their experience of such measures. These participants felt, for example, that the introduction of the BSG and handheld scanners was "massively harmful to migrants" [Leeds, Non-EU migrant], and opposed it on the grounds that it "augments the Hostile Environment" [Wales, Non-EU migrant participant] or constituted an "overreach" of the policy [Bristol, Non-EU migrant participant] (cited in RJN and YR 2021: 30). In addition, 88% of migrant respondents (23 participants) reported that they would not feel safe to ask for help from the police or report a crime in the context of these expanded powers. As one participant explained,

> 'For years I have been fearful of accessing public services, including the NHS or the police, because of their association with the Hostile Environment. This [the BSG] would merely add to that.'
>
> [Wales, Non-EU migrant participant]

Based on responses such as this, the report goes on to identify fear as a primary theme and frequently used word in the reasons migrant participants gave for both their opposition to the BSG and its affect on their confidence in reporting to police (RJN and YR 2021: 4). In this vein, some communicated a sense that a fingerprinting encounter with an officer carrying the device could result in unfair or punitive treatment, even in scenarios where they had not knowingly infringed upon immigration law:

> 'They might be less trusting and use the data against me… Many people lawfully here as migrants get tripped by misleading data that puts their status at jeopardy'
>
> [Leeds, immigration status unknown]

'I would worry they would investigate my immigration status and become hostile or/and unjust.'

[Sheffield, EU migrant participant]

These fears were amplified for some by the association of fingerprinting practices with first- or second-hand experiences of discrimination, which fed into a sense of unease and danger that the reporting of a crime could be turned against them (2021: 31). For example:

'I do not know that I will be protected by the police. I would rather reach out to an NGO.'

[Reading, Non-EU migrant participant]

'Police have never helped me when I needed it.'

[Glasgow, Non-EU migrant participant]

'I have experienced racism from police before in a work setting. There is no evidence to suggest that they would protect me.'

[York, Non-EU migrant participant]

Although 6% (7 respondents) felt safe to report a crime to the police as migrants, one participant's explanation of their answer illustrates how this may be conditional on the individual's particular circumstances and sense of, for example, racial identity:

"I am a white woman and my immigration status is not precarious"

[Greater Manchester, Non-EU migrant participant]

Participants' responses thus spoke to the concerns expressed prior to the survey by members of RJN and the communities it works. What the survey provided, however, was data and examples that could be taken to PCCs and to MPs to persuade them of the damage to their constituents. Amongst the most worrying developments was that people who had migrated (particularly those seeking asylum, refugees, or those with precarious status) were sharing that the BSG greatly reinforced their refusal to seek help in times of need from public bodies and that they therefore continued to suffer in silence out of fear of being reported to the Home Office (RJN and YR 2021: 31). This was especially the case for victims trapped in some

form of abusive or exploitative relationships who, as explained by the participant below, are often threatened with being reported to the Home Office:

> "Abusers/traffickers etc. often use precarious immigration status as a tool of abuse. E.g., you will be detained, sent back etc. Abusers use systematic racist system in UK to control and continue abuse."

> [York, Non-EU migrant participant]

Although many of the sentiments expressed were symptomatic of the long-standing damage wrought by Hostile Environment politics, there was a general recognition that the BSG would exacerbate these tensions and further entrench existing harmful practices by heightening fear and mistrust in police forces (RJN and YR 2021: 34). Furthermore, biometric visibilisation materialised in the deployment of mobile fingerprint scanners deepened that sense that the country in which one had sought international protection, or called home, was riven with techniques of separation and exposure in increasingly more public and more intimate areas of life.

How, then, to make sense of this in terms of the wider politics of biometric bordering? How does this resonate with the issues that arose in the early stages of my research concerning EURODAC? When analysing testimonies gathered by other researchers and journalists of people who spoke about the process of being fingerprinted or their experience of navigating their journey within the Dublin territory, what had been particularly striking was a three-fold problem. Firstly, the prevalence of research arguing that their interviews were permeated with the language of fear, anxiety and frustration specifically around 'fingerprinting' or 'scanners' (as opposed to say 'the Dublin regulation') (Kuster and Tsianos 2013; 2016; Grant and Domokos 2011). Secondly, that much of this work provided testimonies and accounts of people burning their fingertips – using acid or oven hobs, for example – to escape being transferred to another country. Thirdly, that – even in work with a somewhat critical orientation to biometric bordering regimes – many of the researchers and journalists involved still spoke about the burning of fingerprints in the depoliticised language of self-harm (FRA 2018; Merrick 2021; Tilling 2015).

While the final chapter examines these testimonies in more detail, for now, I would like to highlight the following. Across the work with RJN concerning mobile fingerprinting and

secondary data analysis concerning EURODAC, what seemed increasingly significant about biometrics was not only their actual use to identify or categorise individuals. Instead, some of the most significant political moments seemed to arise from how communities felt and were affected by a technology that *could* be used on them. Moreover, rather than understand this as a set of individual reactions to inert biometric technologies, there seemed to be something more to say here about these phenomena as intertwined expressions of a fundamentally alive, encompassing and coercive form of biometric power.

 The following sections respond to this problem by drawing on the concepts of atmospheres and affect, where the former describes a way of experiencing and feeling the latter. As Peter Adey (2014: 838) argues, the notion of atmospheres encourages us to consider complex forms of enveloping spatialities that shape and guide feelings and behaviours through architectural, ergonomic, and visual cues to achieve, for example, certain security goals. Doing so enables attunement to the relationship between feelings and the environmental qualities of biometric security assemblages so that even something like biometric visibilisation might be considered as atmospherically distributed. As such, it invites us to consider how the kinds of affects, feelings and emotions explored thus far matter politically (Merrill et al. 2020: 549; Closs Stephens 2016: 182).

Section II: What are Atmospheres?

Faced with the empirical context outlined above, a series of questions unfolded. Firstly, how to make sense of this in-between space - the relation between, on the one hand, the webs of biometric practices and processes I had been researching (which I had spoken about in terms of individuation) and, on the other hand, the consequences I had identified as politically significant but under theorised in the current literature. Put differently, this question had to do with how to conceptualise the relationship between biometric individuation and its impacts - the burning of fingerprints and the way in which people were encountering barriers, restrictions or threats to their sense of safety and well-being in in their day-to-day life. One promising response seemed to lie in questions around how we understand the agentive

capacity of fear. If biometric individuation was a form of exposure, could these consequences be said to be caused by fear of this material vulnerability? How would we understand the way in which fear could be said to be some form of complex causal mechanism? Who, or what, might be said to be responsible for the stimulation and manipulation of this fear? Was it possible to identify 'fear' as a dominant, or particularly significant, actant within a milieu of different processes and experiences of biometricisation and, if so, how could we draw out its political significance?

In our everyday language and speech, it is not uncommon to speak about fear as having the capacity to make something happen, effect change, or provide some kind of bridge between a phenomenon and an outcome. Additionally, the politics of fear is far from neglected in the humanities, and many have explored directly or indirectly the mechanisms through which fear is stimulated, mediated, and conditioned. As Ben Anderson argues, we might think of the related popular and academic claims about the existence of 'an age of fear' in liberal democracies, for example (see Wilkinson 2001; Swyngedouw 2010; see Pain [2009] for an overview of this literature and critique cited in Anderson 2014). Underlying these claims is an implicit sense that the way modern liberal subjects encounter and engage with the constituent components of social and political life is conditioned by a certain shared feeling that infuses diverse public sites and mechanisms, often through the manipulations and co-ordinations of various actors (Anderson 2014: 108). In such accounts, this shared feeling connects those who may otherwise have little to do with one another and furnishes a common ground from which modes of public life, speech, organisation and action unfold (2014: 108).

While my intention is not to speak of fear in the epochal register of such accounts, they nonetheless provide a useful entry point into this chapter's discussion of how those subject to biometricisation may share a particular relation – a kind of generalised background sense of fear – to the assemblages that constitute biometric bordering technologies. Firstly, they attend to fear as more than an exclusively individual phenomenon and encourage us to think about how lived experience may be connected to distinct processes through which collective moods emerge, are cultivated and sustain. Elsewhere we find accounts that highlight how a public sense of fear may not only be a medium exploited by wilful actors, but also a constitutive part of social life with its own efficacy. For example, Zygmunt Bauman's (2006: 133) description of the contemporary as a 'time of fear' provides an incipient sense of how fear infuses multiple

dimensions of life and becomes a 'self-propelling and self-intensifying' part of the societal conditions through which life is lived.

By highlighting these examples, I mean to appeal to the reader's sense of how an individual's lived experience of fear may both reflect, and contributes to, some form of complex, changing, relational field. In other words, what is felt to be personal can be understood as a symptom of particular collective relations and modalities of power (Anderson 2014: 105). The point here is to attend to fear as a form of collective affect that is imbricated with, but not reducible to, personal emotions and sensations. Beginning from fear in this register allows us, as Patricia Clough (2007: 3) puts it, 'to grasp the changes that constitute the social and to explore them as changes in ourselves, circulating through our bodies, our subjectivities, yet irreducible to the individual, the personal and the psychological'. For the purposes of this project, this means that the testimonies and survey responses where fear is named tell us something important about the affective environment people are inhabiting. Moreover, they provide hints that a shared sense of fear may form the backdrop of everyday life and living and, in doing so, confine what Brian Massumi (2002: 212) calls the 'margin of manoeuvrability' in a situation; that is the 'freedom' that follows from asking 'where we might be able to go and what we might be able to do' in every present situation' (2014: 82). We therefore get a sense of how a restrictive climate of fear provide conditions that affect the ways in which biometricised subjects encounter and engage with the world.

In this thesis I follow the definition of affect offered by Closs Stephens and others. Here they expand upon Sara Ahmed's descriptions of affect as 'an impression, or trace of the contact between the world and the body' (2014: 6) or a sensory relation in which 'we are touched by what we are near' (2010: 30). Affect is therefore intrinsically related to, yet different from, what we commonly refer to when we speak of emotions. They are those 'visceral forces' that operate 'beneath, alongside, or generally other than conscious knowing' (Gregg and Siegworth 2010: 1), contrasted to 'personal, conscious, emotional experiences often identified as "feelings"' (Åhäll 2018: 4 cited Closs Stephens et al. 2020: 25). Affect names the bodily capacity to relate that precedes subjective emotional states. A bodily state may be altered through these sensory relations, and thus affect is mutually imbricated with what Anderson calls its 'expressions' as feelings (sensations that have been "checked against

previous experiences and labelled") and emotions ("the projection/display of a feeling") (Shouse 2005 cited in Closs Stephens et al. 2020: 25).

Affect is not, however, reducible to the physiological or chemical responses of an individual body. As a concept, it is more interest in the way those responses emerge through the body's relation to the world that surrounds it. Capacities to affect and be affected are therefore relational as they emerge only in encounters between bodies (or between bodies and objects). Of course, the world is not composed of singular encounters, but of complex environments and heterogenous, shifting ensembles that prompt us to act differently according to the combinations encountered (Buchanan 1997: 77). In Deleuze and Guattari's imagination, for example, subjects move amidst a world of a swirling and infinite sea of materials and bodies, and these manifold compositions impact upon what a body can do; its capacity for moving, or being affected (Adey 2008: 440).

To clarify this point; affect is a sensory relation to the world that is deeply imbricated with but precedes conscious emotional experiences. Collective affects are therefore shared sensory relations to the world with which the emotional experiences of individuals may be differentially aligned (Ahmed 2004). We can therefore explore how collective affects shape and circumscribe bodily capacities for movement and experience, without necessarily determining individual emotions. In this chapter I want to think about fear in terms of collective affects that become fragile and transient conditions of living for those who are, or would be, biometrically individuated in ways that render them intolerably vulnerable to harm. In keeping with this line of thinking, I am interested in fear as a vague and diffuse, but integral, part of the complex conditions for the processes, events and relations that unfold from and within biometric assemblages. To make this exploration, I draw upon Ben Anderson (2014) and others understanding of 'affective atmospheres' to talk about the ways in which fear forms 'part of the ubiquitous backdrop of everyday life'' that is at the same time forceful and affects the ways in which subjects inhabit material and relational spaces (Bissell 2010: 272). More specifically, I use the term 'atmospheres of fear' to name the way in which fear becomes an immersive and pervasive environment within which those subject to the threat of biometric visibilisation practices must dwell.

Thus, my aim is to expand upon this latent sense of fear traceable across the accounts described in Section I in order to analyse the mechanisms through which the visibilisation

practices outlined in previous chapters – distributed and imbricated across diverse sites and locations – give rise to such resonant effects. Focusing on these mechanisms is important because these impacts exceed the strict managerial aims of biometric identification and the more obvious harms we are familiar with (i.e., identification for the purposes of management, deportation, or detention). However, nor can they be divorced from the biometric assemblages that make such aims possible. In this regard, the concept of an atmosphere of fear invites an examination of these consequences that affords less intentionality and oversight to the responsible actors, while keeping firmly in view the way in which they are the products of the affective interventions of centres of power.

What, then, are atmospheres? They are 'something distributed yet palpable, a quality of environmental immersion that registers in and through sensing bodies while also remaining diffuse, in the air, ethereal' (McCormack 2008: 413).   Atmospheres can also be defined as a distributed arrangements of objects, presences, voices and sets of intensities - an 'intensified and distributed presence of sound, warmth, and force' (Adey 2014: 839). They are an ephemeral something or pressure weighing down on bodies and things (Anderson 2009). Many of these definitions find their inspiration in the work of Gernot Böhme, who describes atmospheres' complex material and relational spatiality in the following way:

> 'Atmospheres are indeterminate above all as regards their ontological status. We are not sure whether we should attribute them to the objects or environments from which they proceed or to the subjects who experience them. We are also unsure where they are. They seem to fill the space with a certain tone of feeling like a haze.'

> (Böhme 1993: 114)

An atmosphere belongs not an individual subject or object, nor to a set of subjects or objects, but rather envelops them, inhabiting the space between and around. In other words, as a concept, it offers a way of attending to the relation between assemblages and a particular ambiguous and immersive quality that emanates from them; 'like a sort of spirit that floats around' (Michel Orsoni 1998 cited in Preston 2008: 70).

An atmosphere is composed of elements and entities, but its singular quality exceeds them, irreducible to a series of interacting, component parts (2014: 143). Here, Anderson is worth quoting at length:

> '[I]t is the very ambiguity of affective atmospheres – between presence and absence, between subject and object, between subject and subject, and between the definite and indefinite – that enables us to reflect on how something like the affective quality, or tone, of something can condition life by giving sites, episodes or encounters a particular feel'

(2014: 137)

In other words, atmospheres condition how that which makes up a particular formation of material-affective relations is perceived- or "*sensed*" - and expresses a kind of overall tone of the formation in question. Therefore, they offer a way of understanding how subjects' encounters with biometric assemblages may be characterised by an overall immersive, diffuse, and pervasive quality that emerges from the constitutive gathering.

Furthermore, the literature on atmospheres helps conceptualise the agentive capacity of fear without resorting to a deterministic or strictly causal understanding of its consequences. Atmospheres surround and envelop bodies and objects, pressing upon them from all sides. In doing so, they exert a kind of pressure or influence that conditions – rather than dictates - the action that takes place within them. Taken in their meteorological sense, for example, atmospheres press with a certain material force. However, this materiality is strange – constituted by a 'turbulent zone of gaseous matter' (McCormack 2008: 413) that is 'vibrant, constitutive, aleatory, and even immaterial' (Coole and Frost 2010: 14). Atmospheres are ephemeral fields of 'moving materiality' registered by sensing bodies in different ways (McCormack 2008: 415). As Dyson notes:

> ''the atmospheric suggests a relationship not only with the body and its immediate space but with a permeable body integrated within, and subject to, a global system: one that combines the air we breathe, the weather we feel, the pulses and waves of the electromagnetic spectrum that subtends and enables technologies, old and new, and circulates...in the excitable tissues of the heart''.

(2009: 17)

In short, atmospheres affect the bodies they envelop by literally getting into the individual 'physically and biologically, something is present that was not there before' (Brennan 2004: 1). They do not simply exert force on an inert object but touch and transmit through their porous surfaces, inducing changes that are contingent on the particularities and capacities of the affected body.

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Atmospheres are responsible for bodily changes by altering the biochemistry or neurology of the sensing subject immersed within them (Brennan 2004: 1). Sometimes these changes are only for an instant, as when someone walks into a room and 'gets a whiff' of the room's atmospheres (2004: 1). Sometimes changes last longer, as when low levels of atmospheric pressure and oxygen are sensed by a mountaineer's sensory receptor cells and generate an increase in depth and rate of breathing. Sometimes changes are more gradual and long-term, as with the increase in red blood cells after prolonged exposure to high altitudes. Crucially, in all examples, the bodily changes not pre-determined. Rather, they are contingent on several complicating factors and the particularities of the subject apprehending them. That is, different bodies may respond to the same atmosphere in different ways.

For example, while someone might walk into a tense boardroom meeting and experience a spike in anxiety, someone else might find the same tense atmosphere simply irritating. In the high-altitude example, one body may take longer to acclimatise to the atmospheric shifts than another, and one may experience altitude sickness where another may not. Yet while these bodies are experiencing different things, they share an atmosphere. They share a sensory relation to a particular assemblage of elements within a given situation even as they are impacted in different ways. An atmosphere *is* this shared relation. To frame this in a more explicitly affective sense: if affect describes the way in which the body registers its sensory relation to the world, then atmospheres are shared ways of experiencing and feeling collective affects. Bodies immersed in a particular atmosphere are affected by a particular sensory experience which, by changing the intensities of bodily states, 'implicates it in an experience of that affective relation shared with others that are similarly affected' (Closs Stephens et al. 2020: 4). Atmospheres are therefore a shared ground from which feelings and subjective states unfold.

Finally, faced with the indeterminacy of how a shared atmosphere articulates itself as a specific emotional experiences, the researcher encounters methodological challenges. Atmospheres name those collective affective forces that remain ever precarious, dynamic, and shapeshifting and, as such, 'hover on the edge of semantic availability', never fully articulated (Williams 1977 cited in Anderson 2014: 134). From this ambiguous and unstable ground, how does one begin to locate the presence of an atmosphere? Firstly, rather than strictly distinguish affect from emotion, I follow scholars who observe that sensations,

emotions and feelings are largely inseparable in practice (Ahmed 2014; Closs Stephens et al. 2020: 25). We can therefore look to named feelings and emotions as manifestations of an atmosphere, or the way in which an atmosphere impinges on a sensing body with a 'vague sense of associated meaning' (Elis et al. 2013: 719). While doing so, however, we must keep in mind that what is being apprehended, described and analysed is the traces of the *forming* structure of the atmosphere- its activity registered in its resonant effects - rather than a fully formed, temporally and spatially stable, totality.

What does this mean for the purposes of this project? It means that, while the survey responses and testimonies where fear is named tell us something important about the affective environment people are inhabiting, they are not the whole picture. Instead, we can think of them as traces of a more complex whole. That is, they are a specific articulation of a more general climate that has qualified as a certain intensity and made its way onto paper in the context of particular circumstances (e.g., questions contrived by a researcher to prompt further explanation). This does not mean, however, that they are inconsequential ways of understanding what is at stake in the use of biometrics in migration. Understood in terms of an atmosphere of fear, accounts of burning fingerprints, not seeking help in times of need, and refraining from entering certain spaces may not be representative of everyone's experience but nor do they reside solely within said individual's subjective experience of biometrics. Rather they provide clues to the organisation of the power relations that constitute the biometric assemblage. As such, they are a significant phenomenon that requires that we unpack the more complex whole of which they are part.

At this juncture, the issue therefore becomes less about identifying fear within each person's experience and more about studying how relations of fear between subjects and a biometric assemblages are organised and mediated at the level of the collective. How then might we embark upon this study? Moreover, how might we take the concept of atmospheres of fear further to politicise the questions of affective life that emerge from accounts of biometric technology? It is to this question the following section now turns, illustrating its argument through the example of the mobile fingerprint scanners and their extension of the Hostile Environment.

Section III: "A Really Hostile Environment"

In an interview with *The Telegraph* in 2012, the then Home Secretary Theresa May declared that she wanted to create "a really hostile environment for irregular migrants" (Kirkup and Winnett 2012). In the same year the Coalition Government created the "Hostile Environment Working Group" (later renamed "Inter-Ministerial Group on Migrants' Access to Benefits and Public Services) to devise new forms of hostility, which acted as the basis for both administrative measures and legal measures, the latter of which became law in the Immigration Act 2014 and were tightened and expanded under the Immigration Act 2016 (Yeo 2017). Since its introduction, the hostile environment has seen the co-ordination of measures designed to be as far-reaching as possible in their attempt to shape migrants' behaviour. They include - but are not limited to - data-sharing between a vast range of public services and the Home Office; vastly reduced financial, legal and material support; and vans, speeches and leaflets telling undocumented migrants to "go home". There has also been an expansion and intensification of hard-line immigration policies that echo the prison-like infrastructure of the detention estate (McGregor 2012): dawn raids in homes and immigration raids at work; midnight charter flights; confinement in detention centres spanning years; and other punitive measures for "rule-breakers". The aim to make the hostile environment as pervasive as possible is illustrated clearly in the range of ministers appointed to the group (as listed in a hostile environment inspection report (Bolt 2016: 11):

- Minister of State for Immigration
- Minister of State for Care Services
- Minister of State for Employment
- Minister of State for Government Policy
- Exchequer Secretary to the Treasury
- Minister of State for Housing and Local Government
- Minister of State for Schools
- Minister of State for Foreign and Commonwealth Affairs
- Minister of State for Universities and Science
- Minister of State for Justice

- Parliamentary Under-Secretary of State for Health

- Parliamentary Under-Secretary of State for Transport

Although the former Home Secretary Sajid Javid has since spoken out against the term 'hostile environment' in favour of "compliant environment", and revoked a number of measures, the key tenants of the policy remain intact: to reduce annual net migration by activating a range of mechanisms co-ordinated with third parties that cumulatively encourage people to "self-deport" or regularise their stay (Watts 2018).

Furthermore, while the UK is notable for its explicit use of the term "hostile environment", the elements that compose it are not singular to the UK. As other scholars and political commentators have argued, a generalised 'atmosphere of hostility' can be seen across Europe, with several countries passing legislation to make work, housing, and other public and private services increasingly inaccessible and with populist forces using the scapegoating of migrants as a cornerstone of public discourse and action. Lorenzo Pezzani (2019), for example, argues that the border control practices in urban areas of the UK and those operating in the Mediterranean Sea are 'intimately related expressions' of the same hostile environment logic. This is a logic with an expansive, multiscalar reach that 'subtracts life-sustaining resources' (e.g., water, food, rescue and healthcare provisions) and 'exposes migrants to harsh socio-natural conditions' (e.g., extreme temperatures, food and sleep deprivation, lack of access to social support) (Pezzani 2019). Similarly, Juan Pablo Aris Escarcena (2019) examines how the term "hostile environment" helps explain the co-ordination of strategies at different levels of governance in France that aimed at the expulsion of refugees in the aftermath of the destruction of the "Calais jungle" by targeting capacities to access food, sleep and shelter. Likewise, Kim Rygiel (2011: 14) argues that multi-scale deprivation was weaponised prior to the camp's destruction to prevent its communities from forming the kind of presence that would enable them to 'make claims to rights to the city'. Thus, in Rygiel's argument, the subtraction of life-sustaining resources within hostile environments is not simply a question of brute survival but of establishing a sense of control around migrant communities' very presence in an area, the possibility of being in a community and the possibility of living a certain kind of life.

In the remainder of this chapter, I use the UK's hostile environment as a case study to

illustrate three things. Firstly, to show how the socio-material configurations comprising bordering assemblages give rise to a certain affective sense of something – a generalised atmosphere of fear – across, mutually reinforcing, spatial-temporalities, and through that sense exert a palpable pressure from multiple sides on the apprehending bodies within it. Indeed, as Anderson notes, affect provides an "object-target": that is, '[s]tates, institutions and corporations…target and work through affective life …by setting up possibilities for action [and acting] indirectly on subjects by shaping the affective quality of' environments (Anderson 2014: 26 – 31). other words, affect can be an object that is targeted for manipulation in order to achieve certain aims. In this direction, the hostile environment also illustrates how an atmosphere of fear may be intended - specifically, orchestrated - by governments as a tool for immigration control. Lastly, I use the hostile environment to illustrate how biometric technologies extend and deepen atmospheres of fear as those who have migrated (particularly those seeking asylum, refugees, or those with precarious status) face the pervasive threat of the kind of practices of visibilisation and exposure outlined in previous chapters.

Here I draw on a distinction developed by Angharad Closs Stephens and others (2020), between 'orchestrated' and 'improvised' atmospheres. The terms capture the tension between, on the one hand, the way affect may be a resource for techniques of power and security (orchestration), and, on the other hand, how affective life ultimately exceeds attempts at engineering and 'can, momentarily at least, seem outside attempts at control' (improvisation) (Closs Stephens 2016: 185). To explain orchestration, Closs Stephens et al. (2020) point towards scholarship that examines how affects and emotions are organised and manipulated by states and other centres of power. They point to Joseph Maco (2014: 18), for example, who documents a '[n]ational security affect...based on fears that are officially sanctioned and promoted as a means of coordinating citizens as members of a national security state' (cited in Closs Stephens et al. 2020: 25). Furthermore, as Van Rythhovenn (2015; 2018) highlights, the study of international relations often rests on the assumption that states can utilise fear as a mobilising force (cited in Closs Stephens et al. 2020: 25). Similarly, much of Adey's work (2008; 2014) explores how spaces such as airports, warzones and financial markets are securitised through the modification of material environments that intervene in and mould affective life.

These interventions focus on affect as part of the governmental technologies that seek to train and prompt the excessive sensations of the targeted populations (Closs-Stephens et al. 2020: 26). However, Closs Stephens et al. (2020: 26) highlight that excessive sensations are ultimately 'unpredictable and mark the excess of life over discourses seeking to organise that life. They therefore utilise the term "improvisation" to capture those moments in which there is no script for social and cultural life' (Ingold and Hallam 2007: 1 cited in Closs Stephens et al. 2020: 26). Thus, the tension between orchestration and improvisation is not so much a strictly spatial distinction between 'top-down' and 'bottom-up' modes of organising affect but a temporal distinction between affects 'scripted and planned in advance' and those that exceed attempts at organisation 'insofar as they are spontaneous and transitory' (2020: 26) Drawing on this distinction, I examine how the hostile environment can be understood in terms of an *orchestration* of an atmosphere of fear. Here, I would argue, we see concerted efforts to script action in advance through a broad range of material-affective interventions. Following this, I draw out the role biometrics technologies play within this milieux.

From the outset, the term "hostile environment" and its accompanying discourses evokes conditions that constrain the modes of life and living that can emerge and thrive within a particular space. An environment can only be described as hostile (or not hostile) in terms of the way in which it supports, harms or neglects certain bodies (Butler 2004). Moreover, an environment is not simply "environs of humans" (that which is around and outside of us)" but rather a 'dynamic, socio-natural space' (Pezzani 2019). It is constituted by relations between heterogenous ensembles, and human bodies are constitutive – rather than ontologically separate - parts of this. What the concept of atmospheres brings to understanding this relational and complex form of spatiality is a more intimate and affective understanding of such conditions. On this account, hostile environments are not defined in terms of an *absence* (e.g., of resources, space and forms of support). Rather they are defined in terms of a *saturation* of space with palpable and immersive material relations of fear and its derivatives (anxiety, frustration etc.).

Peter Adey (2014) highlights how security comes to perform a cloud-like morphology as its techniques are increasingly attuned to meteorological associations (e.g., risk scores or in financial markets) (see for example De Goede 2012 or Amoore 2020). However, he argues that the concept of atmospheres allows us to take this further. What he calls 'security

atmospheres' seeks to think of security's 'continual weaving of a multiplicity of bits and pieces: the techniques, machinery, practices, objects and people' as more than a meteorological and flat networked topology of disparate and contingent relations and associations (Anderson and Adey 2011: 1100; Adey 2014: 838). Understood as something simultaneously meteorological *and* affective, Adey's security atmospheres are something *felt*. Weighing down and pressing upon bodies from all sides, security atmospheres mark the manner in which the emergent quality of the security formation gets into the sensing body. Something is present within us that was not there before its encounter. Thus, security atmospheres loosen our grip on the traditional analytic divide between bodies and their hostile environments. Moreover, they collapse that distinction between what we understand to be "personal" and the material conditions that shape it. They therefore help foreground those pressing questions of weight (see Chapter 3).

The language of a whole landscape of governmental reports is suggestive of an imagination of lives lived under conditions that immerse subjects, and press and push them in particular directions. For example, an FOI request on the purpose of the Interventions and Sanctions Directorate (ISD) - a key player in the operationalisation of the hostile environment - revealed that:

> "The unit has overall responsibility for removing incentives for people to stay illegally and encourage those who are in the country unlawfully to regularise their stay or leave the UK. This is achieved by ensuring a range of interventions and sanctions are systematically applied to deny access to services and benefits for those who are unlawfully in the UK. The unit works closely with government departments and a range of other partners across the public and private sectors to identify those migrants accessing such services and benefits to which they are not entitled."
>
> (Intervention and Sanctions Unit 2013)

Corporate Watch (2017) has framed that the rationale behind the policies as follows: 'if the government can't actually seal tight the external borders, it can push unwanted "illegals" to leave, or deter others from coming in the first place, by making it near impossible to live a normal life'. In other words, in the context of apparent difficulties in meeting immigration targets through deportation and border checks alone, the aim becomes to shape behaviour (e.g. encourage "voluntary return") through a range of sanctions and interventions co-

ordinated with third parties.

Take, for example, the requirement for banks to make documentation checks on existing account holders and the Secretary of State's powers to freeze accounts. When these measures were introduced, the then Home Secretary Amber Rudd justified them on the grounds that 'money drives behaviour...and cutting off its supply will have an impact' (Rudd 2016). More importantly, in an inspection report of these banking measures, Home Office senior managers 'stressed the importance' of the '*cumulative impact* on an individual of the various interventions and sanctions' (Bolt 2016: para. 4.12 emphasis added). They described how the banking measures were envisioned and should be assessed as part of the broader 'framework of compliance, deterrence and industrial scale data sharing' which aims 'to increase the number of voluntary returns... By *shaping the person's behaviour*' (2016: para. 4.12 emphasis added). This is echoed in the 2015/16 ISD business plan:

> 'Individually these interventions may be seen as just a nuisance but collectively, as we have already seen, they have the ability to encourage illegal migrants to voluntarily leave or never attempt to come to the UK illegally'

(cited in Yeo 2018).

Thus, contrary to the way border controls are often traditionally understood, hostile environment logics do not simply deny or allow differential access at or within discrete sites and temporalities. Rather, interventions, policies and strategies are orchestrated and experienced at the level of the collective (as collectives i.e. "cumulatively" and by collectives i.e. communities) and target migrants as bodies with the capacity to be affected by the overall quality of the formation. In other words, hostility is made possible through the emergence of these things together and the prevailing sense of threat, fear and control that emanates from them.

What the discourse found in these reports, speeches and FOI requests illustrates then, is a) something of the more complex whole alluded to in the BSG survey responses; and b) the orchestration of a background climate of fear achieved through the manipulation and modification of material environments. To clarify, while these modifications may take on an ethereal form in as much as they may be organised out of direct view of daily life, they are nevertheless fundamentally matters of the material organisation of relations power. Their discursive logics are realised in 'the regulating principles and actions of institutions, in forms

of everyday practice, in actual material arrangements' (Hook 2007: 179) and have tangible impacts on those who find their bank account frozen, their data shared with the Home Office, or their access to housing and welfare frustrated.

We can, however, also think of how that atmosphere of fear inhabits a particular site of a hostile environment with greater intensity through modifications based around more visible, infrastructural, or concrete manifestations of power. As Shanti Sumartojo (2016: 545) argues, atmospheres may take on discursive and political aspects through 'spatial interventions such as lighting, the built environment, sound and other aspects of design'. Joanne McGregor (2012) makes a similar point when she argues that detention centres cultivate depressing and 'hot-house' atmospheres through the arrangement of infrastructures (barred windows, barbed wire, austere decor, CCTV cameras) and regimes of surveillance and control (body searches; handcuffing for centre transfers; isolation for misbehaviour). Additionally, while not described in terms of an atmosphere, Aris Escarcena's (2019) description of the 'theatricalisation of control' in Calais provides a particularly disturbing account of the arrangement of elements that target migrants as affective beings through the culmination of sensory and symbolic intimidations techniques. In his analysis of the police surveillance of the sites in which refugees could access food, clothing and camping equipment distributed by voluntary organisations, he describes witnessing how officers – rarely able to make actual arrests – would slowly advance in rows backed up by riot vans and loudly radio-wire calls for reinforcements, demand identification from volunteers and/or give them parking fines (2019: 230). He also describes how police would prevent refugees from sleeping by shouting through megaphones, flashing the lights of their torches and vehicles, hitting sleeping migrants with truncheons, and scattering or destroying their belongings (2019: 231-232).

Returning to the orchestration of atmospheres of fear within the UK's hostile environment, we find comparable (if less physically violent) examples of threatening and sensory discursive-material arrangements. For example, 'Operation Vaken' saw the piloting of widely criticised intimidation tactics in 2013 before they were revoked following public pressure. Under this scheme, vans with the words 'In the UK illegally? GO HOME OR FACE ARREST' emblazoned on their side were rolled out in parts of the UK, and posters with similar messages were distributed in newspaper shops and charity and faith buildings. The evaluation report on the pilot claimed that 60 'voluntary departures' could be 'directly attributed to Operation Vaken'

and identified a further 65 cases that were 'currently being progressed to departure' as a result of the scheme (Home Office 2013: 2). Understood in terms of an orchestrated atmospheres of fear, however, the so-called voluntary nature of these departures is called into question. Rather they are revealed to be the highly pressurised outcomes of an accumulative exposure to the background threat of arrest and deportation achieved through a diffuse set of material intimidation tactics planned in advance.

Crucially, the socio-material composition of one site of a hostile environment is not encountered or experienced in a vacuum. That is, each is by no means an isolated or discrete event but overlaps with those myriad bordering techniques that saturate material and relational space. Put differently, while a researcher may have good reason to make an artificial cut into the messy reality of border assemblages (whether in terms of biometrics or otherwise), the same privilege is not afforded to those on the receiving end of their matrixes and hierarchies of dispossession. Instead, the orchestration of acute relations of fear and hostility mediated by something like Operation Vaken amplifies the accumulative challenges those who have migrated may have faced throughout their life. What I would like to argue in the following section is that the same can be said of the Biometric Services Gateway and the deployment of mobile fingerprint scanners. That is, the latent sense of fear traceable across the survey responses (and that threaded throughout the broader research and activist spaces) are expressions of the way in which biometric surveillance interweaves with – bolstering, deepening – the affective impacts of a more complex whole (of which even fear is just one part). This more complex whole includes but is not limited to: multi-scalar data-sharing and frustrated access to healthcare and welfare provisions, shelter, rest and food (Pezzani 2019); the undermining of possibilities of co-ordination and organisation of migrant communities (Rygiel 2011); discourses of control, threats of deportation and even public shaming; and the latter's materialisation in sensory intimidation techniques and visual and sonic displays of power (Aris Escarcena 2019). The over-lapping socio-material compositions 'reinforce and strengthen one another' to produce a 'sympathetic coordination between elements' and a kind of "total effect'' or prevailing affective tone: an atmosphere of fear (Anderson 2014: 154).

What the concept of an orchestration of atmospheres of fear is trying to capture, then, is the way in which hostile environments are more than just a wide-ranging set of discrete policies

and strategies. Understood as a form of collective affect moulded and manipulated by centres of power, it helps name and politicise that emergent quality of the relations between the vast sprawl of bordering machinery that has haunted much of critical academic thought on bordering regimes. The emergent quality of these relations is ethereal and difficult to pin down to a singular time or place. Yet, it is also dense and heavy – contracting movements, systematically producing inequitable forms of blockage and constraint, and mediating historical, present and future forces of discrimination and violence (Mbembe 2011; Walters and Lüthi 2016; Amoore 2021). As such, atmospheres of fear carry a certain burden and duress which, as we shall in the remainder of this thesis, gains much of its momentum and force from the use of bodily data to track and identify those forced to live within such oppressive conditions. I argue that there are two ways in which biometric technologies feed into atmospheres of fear: by making them more pervasive and deepening them. In the following section, I turn to the former before unpacking the latter in terms of cramped space in the final chapter of this thesis.

Section IV: From 'Stop and Search' to 'Stop and Scan'

What I have tried to show in the previous section is the way in which a background sense of fear pervades the environment that migrants (particularly those seeking asylum, refugees, or those with precarious status) have to navigate. What I would like to show in this final section is essentially the way that is made worse – gains momentum and force – through the use of biometric technologies. In line with the unpacking of my argument in the context of the UK's hostile environment, I illustrate this through the Biometric Services Gateway and mobile fingerprinting. If Section I explored localised expressions of the collective affective force of biometric devices, and Section II and III expanded upon these expressions as intractably part of a more complex whole orchestrated (moulded and manipulated) by centres of power, then this section focuses on the space between the two and examines mobile fingerprinting as an acute mediation of the atmosphere of fear (the emergent quality of relations of fear and hostility).

As previously outlined, underlying hostile environment discourses is a logic that the accumulative and emergent effect of diffuse socio-material interventions has the capacity to exert pressure on individuals to make so-called "voluntary returns" or regularise their stay. Central to the above is the legal obligation (and sanctions if failing to do so) to conduct immigration checks and share the data of "offenders" with the Home Office. This obligation is imposed on, for instance, landlords, employers, banks and building societies, NHS workers, charities and community interest companies, and the Driver and Vehicle Licensing Agency. Additionally, many local authorities employ immigration officers to sit in on interviews with families applying for support under Section 17 of the Children's Act; reportedly to "conduct real-time immigration status checks" on applicants (Liberty 2019b). Such data-sharing practices also extend to police forces. In reality, what this means is that police are reporting victims and witness of crime to the Home Office. This has been widely document, with numbers as high as 3500 in 2015, and notably including victims of domestic abuse, hate crime and human trafficking (Atkinson 2020; Oppenheim 2020; McIlwaine et. al. 2019; Bradley 2018). Amongst the most harrowing documented cases include a woman who, after reporting her kidnapping and rape to the Metropolitan Police, was later detained at a rape crisis centre on immigration suspicions (Dearden 2017).

Furthermore, the National Police Chiefs Committee guidance recognises that 'some individuals are deterred from reporting to the police that they have been the victim of crime by the fear that their details will be provided to the Home Office' (Sawyer 2020: para. 2.5). However, the rest of the guidance sets out why and how officers should still report victims and witnesses if they are a suspected "immigration offender". This dysfunctional double-bind can also be seen in relation to discourses on human trafficking. For instance, in a conference speech in 2016, the then Home Secretary Amber Rudd (2016) spoke of the 'barbaric crime' of modern slavery, the 'state of extreme fear it induces', progress made towards its eradication and the need to do more by bringing 'vulnerable, unaccompanied children in Calais' to the UK. However, many of those identified by Modern Slavery Units are forcibly detained and/or deported.[22] Thus, precarious migrants are caught in this liminal space between, on the one

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[22] Between April 2017 and December 2020, of 5,088 recognised victims of trafficking from outside the European Economic Area, only 260 were granted discretionary leave to remain (Taylor 2021). Between 2019 and 2021, 2,914 potential victims of trafficking who should have had access to safe housing, counselling, and medical intervention were locked behind bars due to their immigration status (Taylor

hand, a rhetoric that alludes to the need to address the harms and injustices suffered and, on the other hand, discursive-material arrangements that make it clear they will be treated as a criminal first and a victim with rights to 'see justice done', in the words of Rudd, second.

With the Biometric Services Gateway and the handheld devices, the underbelly of the dysfunctional hostile environment rhetoric gains momentum and force. This can be illustrated by revisiting the way in which police forces have framed mobile biometrics on Twitter.[23] Using the hashtag #MobileBiometrics, policing road and street patrol units frequently post tweets about those 'telling lies' or 'fibs' who have been 'caught out' by the 'fingerprint scanner of truth' because 'fingerprints don't lie'. They mock those who 'sang like a canary', for example, or make jokes about them having 'a cold walk home' or 'doing site-seeing' after their vehicle is seized, sometimes using emojis to add insult to injury (e.g. a face with a "Pinocchio" nose or sunglasses). Following this hashtag illustrates a discourse of threatening potential offenders with public humiliation and data seizures

> This Kebab delivery machine is up to its old tricks again!
>
> Driver tried giving false details, then pretended to not speak English…but as the fingerprinting scanner came out remembered he could speak fluent English again! 🤥
>
> #Seized
>
> #RepeatOffender
>
> #MobileBiometrics

> One of our patrols en-route to an incident on the A38 in the early hours luckily sees female walking at the edge of the carriageway using her mobile phone torch.
>
> Female is evasive with her details.
>
> #MobileBiometrics reveals wanted for immigration offences.
>
> #Detained

The mocking of the man in a 'Kebab delivery machine' who 'pretended to not speak English' further opens up onto those discourses that often racialise the targets. Indeed, it reflects the

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2021).

[23] Tweets have been anonymised on ethical grounds (see Merrill et al. 2020)

racial bias shown in the FOI data on the disproportionate use of the devices (Wangari-Jones et al. 2021). Furthermore, as Samuel Merrill et al. (2020: 550) highlight, what has been falsely dichotomised as 'digital /non-digital', or 'real/virtual', are mutually permeable and hybrid realms. They argue that a focus on atmospheres can help think through a 'more mutually constitutive flow through which materials acquire digitality and digital logics acquire material form' (2020: 550). In other words, these kind of tweets do not more than just reveal how the scanners are deployed. They are themselves constitutive parts of the atmosphere of fear. They mark a kind of leaking onto, and utilisation of, the online space that is as much a part of the material-affective conditions people navigate as city streets.

Furthermore, faced with such discourses, we can question the extent to which mobile fingerprinting is pursued as a form of border control strictly because it achieves the stated aims of identifying potential immigration offenders (or "speeding up" the process). This question becomes particularly pertinent given the FOI data obtained by RJN indicates that only a small percentage of the scans made against immigration databases (and contact with Home Office Command and Control) resulted in an arrest.[24] Kent Police overwhelmingly had the highest proportion here at 17% (19 arrests of 113 IAB scans) and Gwent Police trailed far behind at second with 3% (1 of 39), followed by West Yorkshire at 1% (18 of 1,472) and Lincolnshire also at 1% (6 of 535) (Wangari-Jones et al. 2021: 16). Of these arrests, it is not clear how many (if any) led to detention or deportation.[25] This hints towards, I believe, how the devices have a strategic function that exceeds the identification of potential immigration "offenders". This, I would argue, lies in their affective capacity to extend and deepen atmospheres of fear.

We can ask the same question of the orchestration of atmospheres of fear more broadly. That is, we can question the extent to which the emergent quality of the hostile environment (and its extension through biometric technologies) is pursued as a form of migration control strictly because it achieves "voluntary returns". As Stuart Hall and his collaborators (1978; 1988) show, organised moods can serve multiple functions. In their study of the emergence of

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[24] Between March 2019 to June 2020

[25] As the mobile device does not show the officer details of the subject's status (only that a match has been found in IABS) and the decision to arrest is made at Command and Control, the FOI request does not provide data on what grounds arrests were made nor what the consequences were.

mugging as a 'problem', Stuart Hall and others (1978) explore the systems of signification (ideologies or discourses) through which fear was attached by politicians and the media to young black men in UK inner cities in the seventies and eighties. They argue that this moral panic was part of the precipitating conditions for the 'authoritarian mood' central to the populism of 1980s Thatcherism and that stretched across spheres of law and order as well as welfare and education (Hall 1988: 27 cited in Anderson 2014: 111). In other words, if threats of punitive control across spheres of law and order targeted certain racialised bodies, this was in part because the emergent mood helped mobilise populist forces. In a similar vein, we can consider whether there is something more here with the atmosphere of fear, which has to do with the capacity of displays of power that appeal to populist forces or other ideological and material interests. This is important because it underlines how technologies of the state (broadly defined) gain force not purely from directly disciplinary capacities but through their capacity to affect apprehending subjects, and affect them in differentiated ways.

Furthermore, we might think of the above as analogous to Amoore's (2021) security imaginations of depth; the pursuit of a deep reach of security has as much to do with fantasises of a totality of control as it does its realisation. Put differently, we might think of biometric devices reach further into life as feeding the creation of a public sense of being "tough on migrants" used as a public spectacle by governments seeking populist credentials or policing bodies seeking to ground their legitimacy in the eyes of certain segments of the population. Of course, this does not make the impacts of an imagination or spectacle any less real. For instance, in Amoore's (2021) argument, while the imagination of depth proves unable to achieve the penetration it envisions – to render all life as data –another form of depth emerges in its wake; 'the weight, the heaviness and the burden, the duress of border politics', Amoore 2021: 8). Thus, rather than attempting to single out or pin down a "true" motivation, what I would like to emphasise is this. Handheld scanners as a threat to certain targets or handheld scanners as a public spectacle both speak to a different dimension of – or sensory relation to - an atmosphere of fear; affective charges derived from the way in which different subjects and objects of its work are positioned within it.

Furthermore, one thing is clear. The orchestration of an atmosphere of fear, whatever its motivations, involves the operationalisation of a deeply coercive form of power. Moreover, it is coercive not despite, but because of, its ambience: its pervasive and immersive affective

capacity. Biometric visibilisation – the capacity to individuate in ways that exposes to isolation, confinement, and violence – is increasingly an integral part of this. It marks atmospheric coercion through acute mediations of relations of fear and intimidation in one of its most intimate and palpable forms. Intimate as much as fragments of the material traces left by a fingerprint are brought into a domain of appearance and constituted as a social manifestation of the body. Palpable in as much as visibilisation has its own force that, while not neatly separated from that more complex whole, touches and leaves an impression on the body and confines where that body might go and what that body might do in every present situation. It is revealed in its expressions as those feelings and fears named in testimonies and survey responses, and its activity is registered in those resonant effects (accounts of burning fingerprints, not seeking help in times of need, and refraining from entering certain spaces).

How might we understand the way in which this is mediated through modifications and manipulations in the environment? In equipping police with handheld scanners, the hostile environment harnesses a powerful and well-established set of governmental techniques for intervening in material-affective environments in ways that shape the conditions through which various kinds of subjects encounter and engage with the world. The techniques to which I refer find their logic in two interrelated discursive-material arrangements. Firstly, the discourse on 'policing by consent', through which UK police forces differentiate their role. Secondly; 'broken windows' style of policing which grounds models that currently operate in the UK (The Police Foundation 2015). The former originally referred to the perceived lack of armed coercion (i.e., that traditionally UK officers are not routinely armed). The latter enables a distributed and pervasive from of coercion in absence of arms.

To expand upon this point; "broken windows theory" was first developed in 1982 by criminologists James Q. Wilson and George Kelling who presented existing behavioural research claiming that 'when a car is left unattended on a street it is usually left alone, but if just one window of the car is broken, the car is quickly vandalised' (Vitale 2017: 10). Underpinning Wilson and Kelling's work was a view of biology and cultural as determinants of criminality that made "the poor" (and ethnic minorities) immune to government assistance. Their proposed solution was punitive forms of social control in order to regulate those 'inherently destructive human urges' (Vitale 2017: 12). Their theory was popularised as

a basis for policing techniques by Mayor Bratton in New York in the nineties but gained traction in the UK when the government sought Bratton's advice in the wake of the August 2011 riots and the police shooting of Mark Dugan (The Police Foundation 2015). With broken windows policing, the police are used to 'remind people in subtle and not-so-subtle ways that disorderly, unruly, and antisocial behaviour' is not tolerated by targeting low-level infractions for 'intensive, invasive, and aggressive enforcement' in order to create 'crime free' neighbourhoods (2017: 11). Stop and Search powers, for example, are explicitly included as part of this style of 'intensive enforcement' (The Police Foundation 2015).

Notably, various policing resources present the merits of such techniques not in terms of their ability to lower crime rates, but through their capacity to communicate to the public a ubiquitous sense of police presence. A review of this literature published by The Police Foundation (2015) (an independent think-tank) and commissioned by the Thames Valley Police is instructive here. The report claims that such a presence helps the public feel reassured. However, it also claims that it is widely recognised that this reassurance is not evenly distributed and that broken window techniques create fear and resentment among 'black and minority ethnic and marginalised groups, particularly [with] stop and search' (The Police Foundation 2015: 38 -39). The authors are also cognisant of the fact that 'there is little evidence to support the effectiveness of stop and search in tackling crime', and that 'a single negative interaction can reverberate across a whole community, destroying trust and legitimacy in its wake' (The Police Foundation 2015: 39). Furthermore, they highlight that the '*with reasonable grounds*' safeguard in Stop and Search powers is not routinely applied by officers, who may instead 'construct such grounds *post hoc* in order to justify their actions' (2015: 39 emphasis in original). Here, they point to another Police Foundation study (Graham and Karn 2013), in which consulted officers stated, 'it was easy to find such a justification' and that 'stop and search was often used to demonstrate that officers were "doing something" to justify their existence to the community or assert their authority' (2015: 39). Additionally, the study found that an officer will find 'a relatively easy target' if they are under organisational pressures to increase their arrests (Graham and Karn 2013). Nevertheless, the 2015 report – echoing the literature it reviews – supports the "broken windows" based models and techniques if they are used 'fairly' and 'effectively'. Fair and efficient practices, it claims, can be 'enhanced by the intelligent use of new technology' (2015: 6).

What does this mean for mobile fingerprinting? Firstly, there are notable comparisons to be made between Stop and Search and 'Stop and Scan'. Both are surveillance powers where the decision to stop is based on the discretion of an officer; where there is little evidence to suggest they achieve their purported aims (e.g. to biometrically identify offenders or discover a concealed illegal possession); and where the impact is experienced directly and indirectly by already marginalised, often racialised, communities. In making this comparison, however, my aim is not to suggest that the kind of racism and racial profiling in Stop and Search is collapsible into the racially biased use of the handheld scanners. Rather it is to highlight a) that mobile fingerprinting is employed within the organisational context of policing models based around broken windows theory; and b) how this involves very public interventions to orchestrate an emergent sense of control to which subjects relate in differentiated ways.

Finally, there is a longer history that is worth briefly noting here. Stuart Schrader (2019) details how a textbook used to guide police-assisted counterinsurgency in the Vietnam war drew on British police-led counterinsurgency in Malaya, in particular the use of "stop and frisk":

> "The quick search is one in which the searcher runs his hands over a person's body to determine whether any offensive weapons—pistol, hand grenade, knife or other— might be concealed within his clothing. It is the same search that a police officer uses as part of a routine arrest.'

(cited in Schrader 2019: 159)

Schrader argues that Stop and Frisk was key in the development of broken windows policing as it provided a logic through which the theory could be applied: policing as, in the phrase of Albert Wohlstetter's (of the RAND Corporation), 'the discriminate art of indiscriminate counterrevolution' pinpointing individuals for coercion in 'scattershot, population-wide fashion' as if each were a potential threat (cited in Schrader 2019: 258). Additionally, accompanying this practice in South Vietnam was the compiling of population statistics and data (including fingerprints) and the production of tamper- and forgery-proof identity cards, the technological advances of which proved 'valuable for corporations in the US engaged in similar efforts domestically' (2019: 159).

Schrader's argument here is not that counterinsurgency practices used in foreign territories were subsequently repatriated as policing practices. Rather he highlights that an arc of prominent neo-conservative experts (many of whom were affiliated with the RAND

Corporation) were involved in developing both and did so simultaneously.[26] That is, they mobilised 'a unified field of vision' that did not distinguish between the subjects of those practices (2019: 258). Thus, it is in this context that the racial bias evident in Stop and Scan can be seen; as applied through policing techniques ingrained with racialised assumptions about who the targets are and inextricable form colonial legacies. Put differently, it as an effect of years of policing cultures in which the 'potential threat' can be attached to various conflated subject positions, but particularly though more visible or audible markers of difference – those 'relatively easy target[s]' (The Police Foundation 2015: 39).

Section V: Conclusion

This thesis investigates the impact of biometric technologies in the policing and management of migration in Europe. It seeks to address how they create new forms of harm. This thesis argues that harm is created in two ways. Firstly, through a form of biometric individuation that makes people visible in ways that would expose them to isolation, confinement, and violence. Secondly, through the creation of atmospheric conditions of fear in which people must attempt to escape this visibilisation. In this chapter I have tried to substantiate this argument by exploring what I mean by atmospheres of fear, how they are created and what they do. The aim here has been two-fold. Firstly, to show the way in which a background sense of fear pervades the environment that migrants (particularly those seeking asylum, refugees, or those with precarious status) have to navigate. Secondly, to show the way that is made worse – gains momentum and force – through the use of biometric technologies. I unpacked this argument in the context of the UK's hostile environment, illustrating the pervasive threat of visibilisation through the Biometric Services Gateway and mobile fingerprinting.

Section I began by grounding this debate within the activist work that left an indelible mark on how I understood the impacts of biometric identification (or rather its affective threat) on migrant communities and individuals. I explored, for instance, survey responses that

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[26] These individuals include Gary Becker, James Q Wilson and George L. Kelling, Nathan Leites and Charles Wolf Jnr., and Albert Wohlstetter.

emphasised the impact the BSG would have on their sense of safety in seeking help from police and how it compounded the accumulative challenges faced through out the hostile environment; how this spoke to the concerns that had emerged from members of RJN and the organisation's work with communities with lived experience of the hostile environment. I also examined the caution that many are forced to exercise when negotiating forms of resistance and struggle within this landscape of governmental attempts to instil the fear of biometric visibilisation. Finally, I highlighted how this resonated with some of the prior secondary-source analysis I had undertaken, which had been striking in the way that the depoliticised language of self-harm had been used to describe the burning of fingerprints out of fear of being fingerprinted. What I tried to show in this chapter is that these phenomena are more than a set of individual reactions to inert biometric technologies; that they are intertwined expressions of a fundamentally alive, encompassing and coercive form of power.

To this end, Section II argued that the literature on affective atmospheres helps examine the mechanisms through which an individual's lived experience of fear may both reflect, and contributes to, some form of complex, changing, relational field (Anderson 2014: 105). That is, it helps attune to the relation between the feelings emerging from the threat of biometric visibilisation and the emergent qualities of security assemblages and encourages us to consider what is at stake politically. Section III therefore expanded upon the localised expressions of the affective force of biometric devices as intractably part of a more complex whole orchestrated (moulded and manipulated) by centres of power: an atmosphere of fear.

Finally, Section IV illustrated how biometric technologies extend and deepen the atmosphere of fear. Here I argued that biometric visibilisation marks atmospheric coercion through acute mediations of relations of fear and intimidation in one of its most intimate and palpable forms. That is, fragments of the material traces left by a fingerprint, and constituted as a social manifestation of the body, expose the biometricised subject to isolation, confinement, and violence and this visibilisation is not only material, but affective. It constitutes a pervasive threat registered in sensing bodies in ways that impinge, frustrate and constrict where that body might go and what that body might do in every present situation. Throughout this discussion, I explored several material-affective interventions through which collective sensory relations to this threat are mediated: public discourses of threatening potential offenders with public humiliation and data seizures that are racially bias; the harnessing of

policing techniques that pressure unruly subjects to conform through distributed and pervasive forms of coercion in the absence of arms; and the operationalisation of these techniques through logics ingrained with racialised assumptions about who the targets are and inextricable from colonial legacies. These discursive-material arrangements pervade and penetrate the affective environments those subject to the threat of biometric visibilisation must navigate and, in doing so, exert palpable pressures and limits on the possibilities for how life can be lived.

To conclude, I would like to return to how we might make sense of this argument within the broader landscape of the use and impacts of biometric technologies in the policing and management of migration. In this regard, Achille Mbembe (2011) and Simone Browne (2015) provide compelling accounts for teasing out the role biometric technologies play in atmospheres of fears at the "global scale". To clarify (and reiterate); the global is not so easily distinguished from its local manifestations in both the interoperability and lived experience of biometric assemblages. Nevertheless it is this very intractability that compels us to consider the phenomena explored in this chapter as sutured to a wider politics of biometric bordering, myriad and overlapping atmospheres of fear.

Mbembe (2011) compares the technologisation of borders to manhunts in which colonial Others were tracked and hunted. In Mbembe's account, technological borders become an advanced datafication of these historical practices as they allow those bodies deemed to be in excess to be tracked for detention or deportation even if out of the direct view of the "hunter". Similarly, Browne (2015) argues that the history of using the body to track movement is moored in branding the body of slaves, where they would be returned to the slave "owner" in the event of their escape. Following Mbembe and Browne, we might think about biometric surveillance as kind of hunting of othered bodies deemed out of place that seeks to reassert sovereign control; the hunter needs to put the hunter back into a specifically bounded space. From here, we get an idea of how the use of biometric information is not only "virtual" in the sense of being electronic, but in the sense of having an atmospheric quality: ever-present and yet not always localisable (the biometric assemblage is vast and co-constitutive), embodied and material (emerging at the articulation of bodily data, hardware, software, algorithms and all kinds other machinery) and yet ethereal (located within and beyond particular times, spaces and databases), and orchestrated through the multiscalar

reach of dispersed global and local governance.

More importantly, we get a sense of how the kind of conditions the idea of an atmosphere of fear is trying to describe is something more than an abstract argument on the spatialities of bordering. In this regard, what we must be constantly reminded is that the outcome of a search or registration is by no means the end point of biometric power. For many, the threat of biometric exposure is also the threat of being sent to a country in which you may have been brutalised or persecuted (cite); where your shelter has been destroyed (cite); where you had to sleep rough even with the asylum status; or where your avenues for finding work or some form of social support have already been frustrated. Thus, an atmosphere of fear tries to describe the affective sense of the material consequences of biometric bordering in all their weight and violence, as well as the ethereal potentiality of their encounter. On such an account, any attempt to understand something like the burning of fingerprints as some variation of self-harm, or perverse form of so-called 'asylum shopping', for example, fails and fails dramatically. The alternatives we have for understanding this and related forms of harm are the focus of the final chapter; an atmosphere of fear deepened by biometric visibilisation as the necessary condition of cramped space, a form of social existence in the round in which minoritized subjects are forced to engage in strategies to survive intolerable conditions.

Chapter 7: Cramped Spaces and Conclusions

What I would like to examine in this final chapter is how biometric technologies deepen atmospheres of fear. To make this examination requires revisiting the arguments I have made within each chapter of this thesis: the lens through which I understand the datafication of bodies and borders (i.e. assemblage thinking explored in Chapter 2); the emphasis on questions of weight and depth in understanding the impacts of bordering technologies (Chapter 3); the constitution of the biometric subject through the articulation of a sprawl of human and non-human elements (Chapter 4); how, from this multitude, biometric technologies individuate in ways that would expose them to isolation, confinement, and violence (i.e. the technologies of visibilisation examined in Chapter 5); and how the threat of biometric visibilisation is expressive of and feeds atmospheres of fear orchestrated by governments as a tool for immigration control (Chapter 6).

This thesis started from the premise that the algorithms used to decode, translate, and cross-reference fingerprints are not free-floating entities devoid of matter and infrastructure but involve a fundamental materiality (Marenko 2015; Ash 2012; Ash et al. 2018). That is, it is through material relations of power that the meanings of algorithmic discursive logics are woven and that they come to have an efficacy and impact in the world. Moreover, threaded throughout these chapters has been the idea that the use of biometric data should be understood as a social constitution of the body, rather than as merely a representation of, or information about that body.

Thus, in showing how the chapter's arguments fit together, I hope also to show how atmospheres of fear – in part constituted by and constitutive of the threat of biometric visibilisation - atmospheres of fear – in part constituted by and constitutive of the threat of biometric visibilisation - mark the affective breakdown of the boundaries between the social and personal characteristic of the cramped condition. In doing so, I aim to demonstrate how

the kind of phenomena that have formed the backdrop of this thesis – the burning of fingerprints, not seeking help from public services, exercising caution in walking down over-policed streets or partaking in highly-visible forms of protest – reveal much more about the kind of affective oppressive conditions those subject to the threat of biometric visibilisation are inhabiting than they do about the intentions or character of a person. Thus, rather than understanding these phenomena acts as self-generated acts of will or deception or forms of self-harm, they can be understood as strategies to survive in impossible conditions; the formation of subjectivities in choked passages.

Section I: What Have I Argued? The Story So Far

This thesis investigates the impact of biometric technologies in the policing and management of migration and seeks to address how they create new forms of harm. I argue that harm is created in two ways. Firstly, through a form of biometric individuation that makes people visible in ways that would expose them to isolation, confinement, and violence. Secondly, through the creation of atmospheric conditions of fear in which people must attempt to escape this visibilisation. This thesis began by unpacking the theoretical and methodological underpinnings of this project, before putting these ideas to work in a three-part analysis to answer the research questions:

- How do biometric technologies – as distributed systems – individuate?
- What are the harms created by this form of biometric individuation, and what do they do?
- How do people navigate these harms?

To this end, Chapter 2 began by introducing the literature within feminist and critical security studies that help respond to the following questions: "How do biometrics constitute borders?" and "How do biometrics constitute bodies?" Here I argued that invocations on rights to privacy imagine a body that ends at the skin - neatly spatially and temporally defined – and critique the use of biometric data as if it were information about that body. What I tried

to argue in that chapter, however, was that bodies are not merely engaged with, but produced through, the relation between human and nonhuman elements (Hobbs 2020: 39). To make this argument I drew on the wealth of literature assemblage thinking (Deleuze and Guattari 1987). I paid particular attention to work examining body and technology assemblages (Puar 2017; Hayles 2016; Haraway 1990; Amoore and Hall 2009), which problematise traditional understandings of where the limits of the body lie by highlighting their intertwinement with various forms of technology. I therefore grounded my theoretical framework in literature that provides this critical sense of the relationship between bodily matter and bodily "information" (Van der Ploeg 1999; 2003; Amoore 2006; Mbembe 2019b). This literature, I argued, has been essential in invigorating our understanding of what a border is and what a border does and, thus, how we might understand their impacts.

From here I drew on other relational accounts of bodies and subjectivities to flesh out my understanding of biometric subjectivity. In particular I drew on Coward's (2012) argument that all subjects, in one way or another, are exposed to each other at the material surfaces where they touch. In short, exposure was therefore understood an existential condition of subjectivity. I clarified, however, that the kind of material relations a subject is exposed through, and what forms of otherness they are exposed to, is an empirically and historically situated question. In other words, the kind of material conditions through which certain subjectivities emerge are often radically inequitable. I contended that biometric subjectivity is one such instance. This discussion therefore formed the basis of my argument that biometric subjectivity can be understood as a kind of discursive-material arrangement of 'making visible': relationalities of exposure that render intolerably vulnerable to harm.

If Chapter 2 examined the theoretical lenses through which this thesis understands the datafication of bodies and borders, Chapter 3 emphasised the importance of centring questions of power within these debates rather than allowing a focus on the complexity to dominate analyses. I pointed to Amoore (2021), Mbembe (2019b) and Walters and Lüthi (2016) as compelling examples of scholars who addressed the impacts of bordering devices as they are constituted by material relations of power. I argued that these accounts approached bordering materiality as that which exceeds the proliferation of physical forms of containment and, in doing so, underscored a politics of density, weight, pressures, duress and burdens too often missing from debates on biometric bordering.

I then explained why I use 'cramped space' to build on these debates and address questions of power in terms of harm and struggle. I examined this as a response to the interrelated ethical and analytical issues that arose in my research on the impacts of biometric technologies. What the concept of cramped space offered, I argued, was a way to speak of harm and struggle in a way that broke with tendencies to focus on subjectivities formed under oppressive conditions in terms of the most sedimented forms of abjection and isolation, or through liberal discourses of emancipation in which the self-determined subject that shakes off its dependency on others (Deleuze 1989: 133), or as some kind of currency that inherently enables the breaking of confinement (Lancione and Simone 2021). Cramped space allows us to speak about harm and struggle against the grain. That is, as a concept it understands confining and oppressive circumstances not as conditions of asocial isolation but as 'full of social relations' (Thoburn 2016: 367). It encourages a redirection of analysis towards a disruption of the Euclidean arithmetic; all that which is piled on to render exposed in a space of plenitude (Lancione and Simone 2021: 3). It invites an understanding of politics as that which is pursued at the limit; saturated by 'fleeting imponderableness and moments of uncertainty' (Walters and Lüthi 2016: 369) and within 'a milieu of contestation, debate, and engagement' that forces creative, strategic, or practical solutions (Thoburn 2003: 19).

If Chapter 2 developed a framework for understanding biometric subjectivity as constituted by an assemblage of materialities (through which they are exposed), and Chapter 3 moved this more explicitly towards questions of power, harm and struggle (the kind of material conditions the biometric subject is constituted by and must live within), then Chapter 4 aimed to show in more concrete terms an example of the vast web of assemblages that make the production of the biometric subject possible. Faced with this disorientating sprawl of constitutive elements, the question then became what must happen for there to be an emergence of singularity that can be acted upon and made to act within a biometric assemblage? This was the question of biometric individuation addressed in Chapter 5. Here I drew on Butler (2004) to conceptualise biometric individuation as a technology of visibilisation. I argued that, when someone is fingerprinted, they encounter a demand show parts of themselves in a specific way. However, what is exposed is not a singular concrete body that is not fully captured (that could never be fully captured). Rather, what is brought to light are fragments of data and material of the always already constitutively incomplete

subject. Brought into a domain of appearance and constituted as a social manifestation of the body, these fragments are part of the very sociality of the body. Thus, as with anything constitutive of the subject, these fragments, and the relations between them are avenues and sites of exposure through which one can be harmed.

Finally, Chapter 6 examined the conditions that those living with the threat of visibilisation and exposure must navigate. I explored the role biometric technologies play within what I called the orchestration of atmospheres of fear. Here I contended that biometric visibilisation mark atmospheric coercion through acute mediations of relations of fear and intimidation in one of its most intimate and palpable forms. I argued that there are two ways in which biometric technologies feed into atmospheres of fear: by making them more pervasive and deepening them. Chapter 6 illustrated the former by exploring several material-affective interventions through which collective sensory relations to the threat of biometric visibilisation are mediated. This included a discussion of public discourses of threatening potential offenders with public humiliation and data seizures that are racially bias; the harnessing of policing techniques that pressure unruly subjects to conform through distributed and pervasive forms of coercion in the absence of arms; and the operationalisation of these techniques through logics ingrained with racialised assumptions about who the targets are and inextricable from colonial legacies. These discursive-material arrangements layer upon and compound those incremental bordering techniques that saturate "the world"; that place that appears to take up all available space (Bhattarchya 2019: 126). They pervade and penetrate the world those subject to the threat of biometric visibilisation must navigate and, in doing so, exert palpable pressures and limits on the possibilities for how life can be lived. To conclude this thesis, I now turn to the question of how biometric visibilisation deepen atmospheres of fear and how people navigate these harms by revisiting the concept of cramped space.

Section II: "A Whole Other Story is Vibrating"

Cramped space describes the constraining historical and social conditions under which new forms of collective subjectivities and modes of expression emerge. As I explained in Chapter 3 of this thesis, if class, race, gender, and nation are the logics typically used to understand minority conditions and mobilise greater majorities, then a minor politics begins with the claim that 'the people are missing' ((Walters and Lüthi 2016: 262; Deleuze 1989: 216). 'If the people are missing', Thoburn (2003: 18) writes, then 'minor politics begins not in a space of self-determined subjective plenitude and autonomy, but in "cramped space"'.

As Thoburn writes, cramped space aims to conceptualize the way subjects in oppressive social and historical conditions experience 'the interplay between the individual and the social, the personal and the political' as a breakdown of these boundaries with ramifications 'across a range of linguistic, aesthetic, and political phenomena'. The cramped condition and the subjectivities that emerge are constituted by an *immanence to the social*: 'the multitude of constraints and commands associated with lives interlaced with and buffeted by global social relations' (Thoburn 2016: 368-370). The density of relations is both the source of unwilled proximity to a milieu of restrictions and injunctions and the necessary condition for a politics that can frustrate it. As such, to find oneself in cramped conditions is to experience the imposition of the "public" or "political" throughout one's day-to-day life to such an extent that the social ceases to be a mere background and is felt as a constraint on one's actions' (Heron 2020: 94).

To clarify, the public and political impinges on all subjects and no one acts "autonomously" but - as I have argued in Chapter 2 by way of Butler's (2004) and Coward (2012) - in and through relations to the social, political and material world around us. As Butler (2004) describes in her relational account of existence, the very nature of the body – its physical requirements and injurability – means we are dependent on others from the moment we are born. Even when that need for support is not met – when we are abandoned, neglected, or abused, for example – the *need* itself remains. Situations of abandonment, neglect and abuse do not signify a lack of dependency, but rather that there is a dependency that someone (or a set of someones) has exploited or refused responsibility for (2004: 26-32). We are born into

a condition where our emergence and formation is contingent on others around us and the relationships that may support or harm us. We are born into a world where we are in relation to others regardless of whether we choose to be. To be precise, choice does not come into it. Relations are not possessions we can choose to 'have' to or 'not have' (Butler 2004: 22). Rather they are constitutive of who we are as they are what fundamentally sustain and shape our lives. Furthermore, as Butler writes, conditions do not "act" in the way that individual agents do, 'but no agent acts without them' and we must therefore consider not only how conditions are experienced, but also how the material relational fields (and their emergence) that constitute conditions enter into the formation of the subjectivities that dwell within them (2004: 11). Thus, relations – whether named "public", "political", "social" or "material" - constitute various constraints and limitations in as much as they mould our subjectivity as such, circumscribing certain realms of possibility. In conditions of cramped space, however, this imposition in pushed to the extreme. 'The way ahead is traversed in all directions by blockages, boundaries and limits' (Walters and Lüthi 2016: 369), and the subjectivities that emerge are formed in 'choked passages' and encounters with 'impossibilities' (Deleuze 1997: 133; Deleuze and Guattari 1986: 16) The specific role of biometric visibilisation within atmospheric conditions of fear, I argue, is the pushing to this limit point of the interplay between 'the individual and the social, the personal and the political' in ways that constrain and constrict and force creative, strategic, or pragmatic engagement (Thoburn 2016: 368).

I would like to briefly expand upon Thoburn's argument here by way of the passage in Deleuze and Guattari (1986) in which he finds inspiration. The subjects of cramped space are what Deleuze and Guattari call 'minorities': those for whom 'cramped space forces each individual intrigue to connect immediately to politics' and where 'the individual concern thus becomes all the more necessary, indispensable, magnified, because a whole other story is vibrating within it'. This is contrasted with "majorities", defined as those for whom 'the individual concern (familial, marital, and so on) joins with other no less individual concerns, the social milieu serving as a mere environment or background' (Deleuze and Guattari 1986: 17). This point is illustrated in those accounts of biometrics where it is evident that wider political processes encroach on what would be for others (i.e., those not subject to threat of biometric visibilisation) modes of life and living that require less (in some cases, little) second thought: seeking help from police if a victim or witness of a crime, for example. It can be further

illustrated if we think of how something as simple as walking down a street or driving down a road holds the potentiality for a fingerprinting encounter; pulled aside or pulled over to be brought into a domain of appearance as fragments of data and material (avenues and sites of exposure through which one can be harmed) and perhaps even to referenced in a tweet or filmed for a documentary or to become part of governmental statistics for migration or police modelling. Moreover, when subjects articulate their fear and frustration with biometric technologies – as in the BSG survey responses, for example – it becomes clear that its impact is felt not in isolation from, but an acute mediation of, the emergence of a whole host of political forces and coercive powers (what I have called an atmosphere of fear). In other words, there is a 'whole other story' – that of the systematic maintenance of dispossession and inequality within European migratory flows – 'vibrating' within these accounts of the way in which biometric technologies mediate an atmosphere of fear (1986: 17; Walters and Lüthi 2016: 361).

What is it about the use of biometric data in the policing and management of migration that holds this vibrating capacity? How does fingerprinting open onto this whole other story? In what ways does biometric visibilisation force 'each individual intrigue to connect immediately to politics' and produce intolerable and unacceptable conditions (1986: 17)? At this stage I would like to remind the reader of Chapter 6's discussion of how biometric materiality has an affective force that impinges on (actual and potential) targeted bodies with a sense of a more complex whole: an atmosphere of fear orchestrated by centres of power. Thus, a possible response to the above questions lies in, I believe, the way in which affects like fear may extend beyond a particular site and time, circulating and accumulating in complex material and relational fields. In this regard, Franz Fanon provides a compelling illustration in his description of his encounter with a child on a train:

"Look, a Negro!" It was an external stimulus that flicked over me as a I passed by. I made a tight smile.

"Look, a Negro!" It was true. It amused me.

"Look, a Negro!" The circle was drawing a bit tighter. I made no secret of my amusement.

> "Mama, see the Negro! I'm frightened!" Frightened! Frightened! Now they were beginning to be afraid of me. I made up my mind to laugh myself to tears, but laughter had become impossible'

(Fanon 1986: 111–12)

The encounter is described as part of Fanon's account of the 'psychic and somatic misery' colonialism inflicts and, Ben Anderson (2014: 83) argues, encourages us to consider how bodily capacities to affect and be affected are formed amidst the ongoing (re)composition of encounters. The encounter is refracted through a racial schema that particularises and then ascribes negative characteristics to the particularised (Hage 2010 cited in Anderson 2014: 89). Thus, the colonial affects that unfold ('a tight smile', 'amusement that was not hidden' and the 'impossibility of laughter) do no simply 'belong' to the encounter but also to 'processes of racialisation that mediate the encounter and to past encounters between coloniser and colonised' (2014: 81-89). As the child points at Fanon and Fanon is racially mis-interpellated (Hage 2010), Fanon describes an immediate intensity that deepens in its inseparability from other times and places:

> 'I was responsible at the same time for my body, for my race, for my ancestors. I subjected myself to an objective examination, I discovered my blackness, my ethnic characteristics; and I was battered down by tom-toms, cannibalism, intellectual deficiency, fetishism, racial defects, slave-ships, and above all else, above all: "Sho' good eatin'"

(Fanon 1986: 112).

Fanon exists triply and fear moves between Fanon and the child. It takes on a kind of momentum and pressure that shapes the events that unfold. For example, Fanon describes a sense of constriction ('the circle was drawing tighter') that reduces him to a black body that terrifies a child: 'Now they were beginning to be afraid of me. I made up my mind to laugh myself to tears, but laughter had become impossible' (1986: 112).

What is important here is that the affective relation between Fanon and the child does not arise autonomously from two bodies within a blank space. Rather this relation of fear is mediated by historical forces of colonialism and racial schemas. Moreover, fear amplifies within the time of the encounter as processes of racialisation work through and accumulate in living bodies (Anderson 2014: 81). Anderson argues that, while what unfolds is not pre-determined ('does not

proceed by way of alignment and coordination), Fanon stresses 'the curtailment of possibilities and shattered hope' that emerges from the way in which 'something of the past persists'. All encounter, Anderson writes, contains references to past encounters, and are made 'through accumulated relations, dispositions and habits' (2014: 82). Thus, what Fanon teaches us is that affects do not 'float free from spatially/temporally extended relations' and 'elements from elsewhere or else when will be active participants' as they accrue within and occupy material relations (2014: 89). In doing so, Anderson argues, Fanon illustrates how collective affective forces are 'expressed in ways that scramble distinctions between the personal and impersonal' (2014: 83).

It is notable that Anderson's analysis of Fanon here lays the ground for his own discussion of the mediation of collective affects, which later includes atmospheres and the way in which they 'constrain and restrict as well as enable, open up and disrupt' (2014: 93). However, what Anderson articulates here is also precisely that imposition of the political on the cramped subjectivity (albeit within a divergent context). Moreover, the mechanism of accumulation through which this occurs is akin to what Walters and Lüthi (2016) are getting at when they argue that cramped space 'brings into view a different dimension of the past and present' (2016: 361). Cramped space operates, they argue, at 'an oblique angle' to the axes of 'macro or micro, global or local, public or private' used to think about space, mobilities and globalisation. It addresses these questions not in terms of linear causality and rational choice but rather in terms of their historical and political dimensions, registering 'degrees of deprivation, constriction and obstruction, but always and simultaneously a concern for the ways in which such limits operate to stimulate and incite movements of becoming and remaking' (Walters and Lüthi 2016: 361).

To summarise the above; in Anderson's reading of Fanon, fear is a collective affective force entangled with other spatially-temporally extended relations, processes and events. It is as much historical (and confining in the density of this historicity) as it is immersive and an expression of the milieux of violences Fanon encounters and describes throughout the book. It accumulates in matter and materiality (bodies, dispositions, habits). What I would like to contend in relation to biometric technologies and atmosphere of fear therefore is the following. Biometric data - as specific way of knowing, making legible or *making visible* the world and its subjects – is a discursive-material arrangement in which the violences of bordering assemblages accumulate. In this way, we might understand why the impact of the mobile fingerprinting devices, for

example, is articulated in ways that expresses that more complex whole; the culmination of the accumulative discriminations, exclusionary discourses and intimidation techniques of hostile environment politics and their pervasive, immersive emergence.

At this stage, we might consider and compare this some of the debates on the depth and duress of border politics that I argued I wished to speak to in Chapter 3 of this thesis (Amoore 2020; 202; Mbembe 2011; Walters and Lüthi 2016). For example, Amoore (2021) discusses a recent case in which a facial recognition algorithm wrongly identified a Muslim American woman, Amara Majeed, as a person wanted in connection with the Easter Sunday bombings in Sri Lanka. "I have this morning been falsely identified by the Sri Lankan government as one of the ISIS Easter attackers", Majeed – a self-described activist and feminist - posted to social media, "what a thing to wake up to! Please stop implicating and associating me" (New York Times 2019 cited in Amoore 2021: 1). 'At the mercy of a contingent threshold set by the Sri Lankan state', Amoore writes, 'Amara Majeed experienced an intensification of the violence she had long been exposed to in the United States, receiving racist abuse and death threats'. What this case illustrates, Amoore argues, is a deep border politics that 'recombines and reorders ferocious technology and mundane daily experience' so that Majeed's fear of violence on a city street is not separate from the not-so-abstract algorithmic propositions that extracted her data (2021: 2). Amoore compares this to Ann Laura Stoler description of the accretions of colonial violence, which fold together a "combined ferocity of high-tech and lowly, daily creations and reorderings of ever more present distinctions and discriminations" (2016: 11 cited in Amoore 2021: 2).

While Amoore's focus is on deep learning technologies rather than biometrics specifically, what I would like to highlight within her argument is the politics of weight, duress and burden that emerges from the intractably material and political constitution of algorithms. That is, she shows algorithms to be not free-floating entities but material relations of power - significant actors in themselves - through which the violences and harms of bordering accumulate, disperse, and recombine to be revisited in the lives of future others (Amoore 2021: 8). Furthermore, if, as Amoore (2020: 9) writes elsewhere, algorithms formulate a series of claims about the world - decide what can be made to matter and structure the relations between these claims – then what is made to matter when someone is fingerprinted? In this thesis I have tried to show that what is made to matter emerges somewhere in the relation between that "individual" body and its suturing to constitutive violences, harms and struggles of border politics: the ambiguous

matrixes of dispossession, the hierarchising of lives in terms of legality and illegality; their realisations in the mediations between interfaces, actors, institutions and legal frameworks that give these things particular meanings with specific impacts; and the micropolitical fields of struggle that unfold from their encounter. Put simply, biometric technologies are not about the identification of an individual at all.

Understood in this way, when someone is fingerprinted – or when they feel its threat – any latent liberal illusion of a distinction between personal and political that might be afforded to others crumbles and crumbles in the most visceral of ways. To return to those invaluable expressions of resistance that I opened this thesis with;

> 'Katrina said something that shook me to the core 'we can change our name, but we cannot change our fingerprints'. I think that is one of the key issues, and how the police station is being brought to us on the streets. That really shook me to the core. '
>
> (Laura RJN 2021: [01:29:00 - 01:31:58])

In their mapping of why the need to resist biometrics (as communities while acknowledging who can be safe in which spaces), Laura and Katrina convey the constitutive relationship between body data and identity (Van der Ploeg 1999), and the way the material traces a fingerprint leaves entails an existential potential for harm. A fingerprint, past data traces of a fingerprint, of other fingerprints, may be weaponsied against you, against others (RJN and YR 2020). Biometric data is not information about a body, it is a social constitution of that body. It that through which certain bodies are sutured to, constituted by and constitutive of historical and global power relations in all their weight and violence.

As Foucault (1980) reminds us, the body is an intensely contested locus of power relations where political events and histories of sovereignty materialise and unfold. That is, none of us own our bodies. However, some bodies are interlaced with and buffeted by a milieu of restrictions and injunctions to a degree that others are not (Thoburn 2016: 370). In this way, biometrics marks the deepening of atmospheres of fear as conditions of social existence in the round: an immanence to the social, the suffocating density of material and relational space characteristic of cramped space. Atmospheres of fear may be at times vague and diffuse and at times more sinister and acute (e.g., in a fingerprinting encounter, coming across a threatening tweet, filling out a survey that requires reflection). Yet, whatever its degree of

intensity in a particular moment or location, as a distributed technology that constitutes and is constituted the vast array of processes and practices explored in Chapter 4, this emergent sense of fear saturates the environments subjects must navigate.

The above can be illustrated in one of the more sinister resonant effects of the orchestration of atmospheres of fear that have formed the backdrop of this thesis, namely testimonies of the burning of fingerprints documented by other researchers that illustrate the affective force of biometric technologies like EURODAC. For example, when discussing what they term 'the knowledge and information strategies of migrants' and the meanings they attach in their narratives to the burning of fingerprints, Kuster and Tsianos claim they repeatedly came across variations of the phrase "the glass is dangerous" in their conversations with refugees stuck in Igoumentesia (a small port city in Greece) (Kuster and Tsianos 2013: 35-17; Kuster and Tsianos 2016: 95) 2013: 35-37). They recall, for example, one of their interlocutors recounting 'that in Orestiada, one of the first Greek towns at the border with Turkey, there is a popular saying: "If you take asylum, then you get fingers and you can get nowhere anymore."' (2013: 30). They write that they 'frequently across the same tale', quoting Mussa below as one example:

> '[The police] explained that afterwards it will not be possible any more to apply for asylum in another country. We were already afraid of that, because we already had our fingers in Greece. Of course we were hiding it, we didn't say a word about Greece. But we were afraid, we always feared that they would discover our fingerprints in Greece and that as a consequence we would have to go back to Greece. This was a lasting anxiety. And in the end, they found our fingers".
>
> (2013: 37).[27]

Two journalists provide a similar account of their interviews with a group of refugees in a squat in Anagnina (on the outskirts of Rome) who told them it was 'common for asylum seekers to burn their fingers' in the hopes that their Italian fingerprint record would be destroyed. Below they discuss the legislation EURODAC is designed to enforce – the Dublin Agreement:

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[27] Name changed by Kuster and Tsianos for anonymisation purposes.

"Dublin is a virus," Awet says. "Yes, Dublin is like Aids." The rest all nod – they too have been fingerprinted in Italy, and know they will never be "cured". Sitting in a circle, they list the places they have tried to start afresh: Norway, England, Switzerland, Sweden, England again.'

(Grant and Domokos 2011).

Grant and Domokos (2011) then describe how Awet mimed placing his hands on an oven hob and then showed them his scarred fingertips, which his friend explains he burned "so he could apply for asylum like a new person".[28]

Faced with these testimonies, Thoburn's notion of cramped space as a condition in which one is 'tracing a path amidst, with, and against impossibilities' – a rewording of Deleuze – becomes key (2016: 370). According to Thoburn, the relating of impossibility and confinement with idea of freedom and invention tackles 'liberal humanist notions of freedom and creativity (as a space of individual autonomy and self-expression) head on' since it claims that 'it is precisely in cramped situations, in the enforced proximity of peoples, histories, and languages that creation occurs' (2014: 19). Kai Heron, however, argues that it is necessary to be 'a little more precise about what is at stake'. He argues that Deleuze and Guattari's aim is not to critique liberal humanism's support of individualistic autonomy, but rather to show that 'the question of freedom' for subjects of cramped space 'becomes irrelevant because it is impractical' (2020: 97). Here Heron is worth quoting at length:

'An emphasis on practicality and pragmatics is a defining feature of Deleuze's work. It should come as no surprise, then, that when they develop the idea of cramped space, the abstract notion of freedom is set aside in favour of describing how cramped conditions call for a rigorous strategic engagement with the conditions that minorities find themselves within: "it isn't a question of liberty as against submission, but only a question of a line of escape or, rather, of a simply way out"[Deleuze and Guattari 1986: 16]. To this, the abstracted liberal notion of freedom can add nothing'

(Heron 2020: 97)

Tracing a path admist, with and against impossibilities, is being forced to work within the

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[28] Name changed by Grant and Domokos for anonymisation purposes

conditions not of one's own devising and re-working them to create something liveable (2020: 95). When faced with impossibilities – intolerable and unacceptable options - questions of whether someone freely chose to burn their fingerprints, for example, hold little meaning. When enveloped by an atmospheric threat of deportation to a country where one faces destitution, death or persecution, the question of free choice is irrelevant. Nor can those enveloped by this particular threat appeal to the rights afforded by liberal social democracy as it is their exclusionary functions with European immigration regimes that have been foundational to this threat: from the specificities of the Dublin accords and 'New Asylum and Immigration Pacts' and their dichotomisation of 'responsibilities' and 'burdens'; to the ambiguity of state interpretations of UN refugee conventions (who "counts"?); and to the broader Pandora's box of 'the right to have rights' (see Arendt 1973).

How then does the concept of cramped space help us address the central puzzle underlying this thesis' investigation of the impact of the use of biometric data in the policing and management of migration in Europe? That is, how does it respond to the issue of phenomena that complicate our understanding of harm? As I have argued throughout these last two chapters, biometric technologies are a constitutive part of those atmospheres of fear orchestrated by centres of power. Biometric technologies extend the reach of atmospheres of fear across more intimate and more public spheres of life. There is a constant background threat not just at a geographical border, but also in everyday life or even moments of need or crisis. Biometric technologies also deepen the collective force of atmospheres of fear through relationalities of exposure that suture bodies to a milieux of global and historical power relations. Thus, an atmosphere of fear envelops and surrounds particular things, but in the final analysis these are but moments of intensity of that which exceeds particular spatio-temporal locations.

 Under such atmospheric pressures, there is a confinement and narrowing of spaces the subject can occupy and their experience of the social (which I take to be constituted by both relations and spaces) presents 'boundaries' and 'impasses' rather than 'enabling possibilities or clear options'. But this 'impossibility of activity' is matched with 'the impossibility of doing nothing if life is to be lived' (Thoburn 2016: 370). The burnt fingerprint testimonies are not questions of "self-harm", but of atmospheric pressures and the kind of politics these atmospheres demand. Nor is it a question of liberty 'against submission'. It is simply a way

out admist intolerable and unacceptable options when 'the politicial domain has contaminated every statement' (Deleuze and Guattari 1986: 17).

Having said this, I would like to return to what Heron says on the matter of cramped space and the understanding of 'politics'. He highlights that to say cramped space "forces each individual intrigue to connect immediately to politics" is not equivalent to saying 'an individual intrigue *has* a politics' (2020: 101 emphasis in original). He urges the need for caution here particularly because its English translation is less specific than in Deleuze and Guattari's original use of the term in French. He points out the latter was 'la politique' (politics), which refers to an established political order, as opposed 'le political' (the political). Thus, he clarifies that, we should understand cramped space as forcing the individual intrigue to be connected immediately to an established political state of affairs (as opposed to immediately producing its own minor politics or process of becoming). In other words, he argues, 'what the minority does under these conditions is not itself a politics', but it nonetheless 'opens the space for a politics' (2020: 101). Thus creative, strategic and practical engagement –- even when committed to the intimate and the familial – can be said to become 'all the more necessary, magnified, because a whole other story is vibrating within it' without necessarily leading to a definite politics (2020: 101).What I mean to emphasise here is that not only need we not assign categories of victimhood or abjection to those who suffer the harms of biometrics in terms of burnt fingerprints. We also need not abstract this harm as an exemplar manifestation of resistance to consider that it may in some way be part of a wider field of political struggle. It is the emergence of this wider struggle that lays the ground for the frustration of those same conditions through which it is formed. Let us now turn to other manifestations of that wider struggle.

Section III: Conclusions: Openings for Politics, Spaces for Struggle

In this thesis I have sought to understand the above testimonies and the constraining impacts of mobile fingerprint scanners as intertwined expressions of an atmosphere of fear mediated by biometric technologies. There are, however, crucial differences. The testimonies are more

akin to the 'extreme cases' of cramped conditions Walters and Lüthi's (2016) focus on in their analysis of infrastructures of migrant mobilities. Such cases, they argue, are contexts where the features of cramped space are 'pronounced and thus particularly accessible to critical thought' (2016: 364). I emphasis this point not to siphon off the importance of either impact under a rubric of the "exceptional" versus "the rule". Rather my point is to that atmospheres of fear can involve more ambiguous – but not for that reason less significant – forms of harm and struggle. For this reason then, I would to conclude by consider what the opening of space for politics looks like within the context of the mobile fingerprint scanners, which lends itself more readily to the language of creativity and invention to which cramped space also refers. To do so, I would like to come back once again to the insights into the landscapes of harm, struggle and resistance I started with. Once again, I am indebted to the Racial Justice Network, Yorkshire Resists and those I have met here.

In particular, I would like to recall the third piece of campaign material I introduced: a recording of an event posted on YouTube. In April 2021 the Racial Justice Network held an online event in lieu of the release of their second report on the Biometric Services Gateway (BSG). latest Freedom of Information requests on the national rollout of the handheld scanners (Wangari-Jones et al. 2021). This report was written by Peninah Wangari-Jones, Laura Laura Loyola-Hernández, and Rachel Humphris and analysed data obtained through a second round of Freedom of Information requests on the national rollout of the handheld scanners equipped with the capacity to access the BSG portal. The release coincided with increased public awareness and coverage of the Police, Crime, Sentencing and Courts Bill. The event thus materialised as a 'collective conversation' that interwove the impacts of police use of the scanners with the impact of the Bill (RJN 2021). As such, several speakers were invited to speak to the different dimensions of this complex whole. Sharon Anyiam (former Project Officer at RJN, and PhD student) chaired the event and Rachel Humphris presented the findings of the report on the police use of the scanners, highlighting the systematic racial bias, the lack of public consultation and Equality Impact Assessments, and the lack of clear justification, rationale and consistency of their use.

Katrina Ffrench (director of the NGO Unjust C.I.C) – discussed her past experiences as the chair of a Stop and Search scrutiny panel in Islington when policing bodies presented the new "stop and scan" technology, highlighting their coercive and circular logics. Mary Atkinson

(campaigns officer at the Joint Council for the Welfare of Immigrants) discussed the scanners as an extension of the hostile environment, highlighting the circularity of how many are pushed into undocumented status through barriers built into the immigration system and then 'punished in really inhumane ways' for failing these barriers (RJN 2021: 29:20 – 29:40). Luke Smith (an activist and campaigner within the Romany 'Gypsy community' who 'works in technology as well') discussed continuous processes of criminalisation and discrimination faced within his community, highlighting how both the Bill and the scanners exacerbated this (2021: 37 -39). Ally (from the Leeds Anti-Raids Network) discussed how police use of the scanners interacted with Immigration Enforcement practices. She also celebrated the sit-in protest in Kenmure Street, Glasgow, (which successfully prevented the van removal of two men from their home following a raid), emphasising that 'activism isn't that glamorous most of the time and actions like that cannot happen without the tireless effort of community groups, small organisations, neighbourhoods' (2021: 00:53:20-00:60:00).

The event ends with Laura weaving together insights from the speakers. I started with Laura's words here and I would like to conclude with them. This time, however, I would like to illustrate how they speak to the themes of cramped space and it's opening a space for politics. Thus, again this thesis encounters the ethical problematic embedded throughout this research: the political, cultural, ideological and economic relations of power imbued in "speaking for" and "speaking of" (Spivak 1988). More specifically, it encounters the issue of a seamless integration of quotes from activist spaces into the textual arrangements of a thesis that risk 'creating the magical illusion of the Other's coming to voice' (Crang 1996; Harrison cited in McLaren 1995: 240). For these reasons, I hope the reader bares with me as I attempt to respond to this by returning to Laura's statement at more length. My hope here is that doing so sheds light on those moments of 'interruption, stoppage or open-endedness' that lie within these spaces and the ambiguous and contested character of the reality the thesis builds (Butler 2005: 65; Routledge 1996: 414).

> 'Thank you to everyone and the panellists and everyone that's joined for sharing this space to have these conversations and for everything that you guys do.
>
> I think everyone touched on different aspects of why not only surveillance, but also policing and wider implications on border violence and institutional racism, it affects all of us. It's not just around marginalised communities. I think Luke said it, "today

they'll come for me, tomorrow they'll come for you". So we really do need to talk about solidarity.

Another point that has been touched on as well: people are positioned in a very different way. If you're a British citizen, if you're not, those have very different implications on the type of action. I don't feel safe going to a protest, for example, and I never do, and I think we need to acknowledge that. We do what we can with what resources we have [because] we also have to talk about self-care but also group care and collective care. That's something at RJN and Yorkshire Resists we're really keen on because people have different time to dip in and out. It's really important that we do that and acknowledge that because this white supremacist capitalist system is built to burn you out and to pit us one-against-the-other. So, it's about how do we bridge those moments of solidarity but also happiness and love as well as a community.

Katrina said something that shook me to the core 'we can change our name, but we cannot change our fingerprints'. I think that is one of the key issues, and how the police station is being brought to us on the streets. That really shook me to the core.

One of the things that Mary said [was] about how easy it is to become undocumented or to "be in trouble" with the law. If you look at the asylum process in itself and how people can fall into destitution, for example, it's so easy to have these laws criminalise you even more so, just because of where you are and how the system is designed.

… We have to do what we can. As Katrina was saying, if we need to be in the room, those of us who can go in the room, some of us can't go in the room, we can't talk to authorities. It's doing what we can.'

Finally, I think Luke also connects these issues around 'they're trying to criminalise our communities, our way of lives'. That's part of a colonial backdrop to all of this. Again, I want to come back to community love and reinforcing our communities, our cultures, our language, our love for each other. Because that's also part of resisting as well, and that's part of protesting."

<div align="right">(cited in RJN 2021: [1:28:20-1:31:58])</div>

She describes how differential experiences of safety circumscribe the possible modes of action and movement for targeted communities and the need to acknowledge these restrictions: to find ways of working within them, but also bridging through them. For Laura, the story that vibrates within the impacts of biometric technologies is the 'white supremacist capitalist system…built to burn you out and to pit us one-against-the-other', process of criminilaisation and their 'part of a colonial backdrop to all of this'. But the story that vibrates

is also about doing "what we can with what resources we have" to frustrate the individualising, isolating and exhausting powers that form the backdrop to "all of this".

In all the above, I refract and retell. By this I mean, through the language of cramped space what I describe is only a fragment - refracted fragments - of the reality Laura articulates (1996: 414). That is, as Spivak (1988) and Butler (2005) teach us, representation is always misrepresentation. In the space of this thesis Laura has appeared as someone whose words often stick with me, stick to the thesis, when faced with the spaces of harm and struggle that unfold within biometric conditions. But Laura is a feminist geographer, critical race studies theorist, migrant activist, trade unionist. And Laura and Peninah and those I have not named in this thesis have made material, tangible and nuanced to me what I had read about what the interstices of activism and academia might look like. Yet it is precisely this affective force that I cannot fully express as a conclusion. Another form of cramped space is the closest language I have at this juncture. My hope is, however, that through this thesis some work has been done within analyses of biometrics towards displacing and undoing 'that killing opposition between the text narrowly conceived as the verbal text and activism narrowly conceived as some sort of mindless engagement' (Spivak 1990: 120-1). Yet, ultimately, this is also where my thesis falls short. If I were to carry on this thesis, I would start again from cramped space and explore further this interplay between harm and struggle. There is much work to be done here, I think, in what "a space for politics" looks like within the cramped conditions of biometric bordering. Of course, what Spivak invites from us is to consider this beyond the question of the text, the literature, the thesis. What people The Racial Justice Network and Yorkshire Resists have made tangible to me is the immense necessity and possibility of Spivak's task.

Nevertheless, instead of an argument solely about cramped space, my thesis has been packed full of other concepts (assemblages, foldings, visibilisations, atmospheres), empirical details and its own sprawl of political themes, questions, and puzzles in order to "get there" – to move towards the potential it has a concept for engaging with questions of biometric harm. This density emerged in part because of a messy research process and in part because of what I saw to be the value in assemblage thinking. It is first and foremost a question methodology then, akin to Haraway's 'staying with the trouble' (2016: 3) and Lancione and Simone (2021:2). the staying with 'the in-between' of spaces 'taken away' and of bodies and existences 'marked

as foreclosed' (2021: 2). Why has this density stayed? To a certain degree it has been a question of practicality, of writing within a political space where conditions are cramped and what is at stake saturates analyses (Piotrowski and Inquiry 2017). I hoped through this something important that could be said about the harms of biometric technology. What I hope it helps us understand is why critiques of the impacts of biometric border technologies that take the individual as their point of reference – whether as the subject of privacy rights, a victim of self-harm or a self-determined singular agent of resistance – cannot but fail. They cannot address the questions of multiplicity, historicity and collectively at stake in biometric power.

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