Police Use of Taser in England and Wales, 2004 – 2014.

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Abstract:

This thesis constitutes one of the first attempts to investigate police use of the electric-shock weapon the Taser in England and Wales, between 2004 – 2014.

The research combines an inter-disciplinary approach—drawing on the criminology and policing literature, as well as on Science and Technology Studies (STS), Actor Network Theory (ANT) and Social Psychology—with mixed methods and novel data sources. It benefits from virtually unprecedented access to sources including internal police datasets, the College of Policing's Lead Instructor Taser Training, Taser training in two forces, interviews with police officers and individuals subject to Taser.

The thesis first explores how, and in what circumstances, Taser is used in selected forces in England and Wales, before looking at consequences of use for officers and subjects. It then discusses the broader legal, policy, training and accountability framework around the weapon, via an examination of three inter-related and widespread stories told about the weapon and its regulation: that Taser is a neutral tool, that appropriate use is a responsibility for, and at the discretion of, individual officers, and that it is subject to robust accountability mechanisms. It is argued that these stories, whilst not incorrect, are incomplete. Descriptions of the weapon as a neutral tool are understandable but not always convincing, decisions on its use are not just the preserve of individual officers, and accountability mechanisms are not always as robust as is claimed.

The conclusions have implications for practitioners and for the literature on Taser. They also contribute to wider criminology debates around use of force, discretion and accountability, and to sociological debates about the relevance of STS and ANT approaches. Finally, the thesis not only highlights areas for future research, but also highlights some tentative recommendations for policy and practice.

Contents Page

List of Illustrations.

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Abbreviations.

ACPO: Association of Chief Police Officers. (The NPCC replaced ACPO in 2015).

AFID: Anti-Felon Identification.

ANT: Actor-Network Theory.

AEP: Attenuating Energy Projectile.

APP: Authorised Professional Practice.

CED: Conducted Energy Device (a term commonly used to describe projectile electric-shock weapons, such as Taser. Please see the entry for Taser, below).

CPS: Crown Prosecution Service.

CCTV: Closed Circuit Television.

CS: 2-chlorobenzalmalononitrile.

DOMILL: Defence Scientific Advisory Council Sub-committee on the Medical Implications of Less-lethal Weapons.

ECHR: European Convention on Human Rights

ECtHR: European Court of Human Rights

ESRC: Economic and Social Research Council.

FOIA: Freedom of Information Act.

HMIC: Her Majesty's Inspectorate of the Constabulary.

HOSDB: Home Office Scientific Development Branch.

IACP: International Association of the Chiefs of Police.

IPCC: Independent Police Complaints Commission.

LLWs: Less Lethal Weapons

MPS: Metropolitan Police Service.

MoU: Memorandum of Understanding.

NDM: National Decision Model.

NGO: Non-Governmental Organisation.

NIJ: National Institute of Justice.

NMI: Neuro-Muscular Incapacitation.

NPCC: National Police Chief Council. (The NPCC replaced ACPO in 2015).

OC: Oleoresin Capsicum.

PALG: Police Action Lawyers Group.

PERF: Police Executive Research Forum.

PPE: Personal Protective Equipment.

PSCO: Police Community Support Officer.

PSNI: Police Service of Northern Ireland.

PTSD: Post Traumatic Stress Disorder.

PSDB: Police Science Development Branch.

SACMILL: Scientific Advisory Committee on the Medical Implications of Less Lethal Weapons.

SCOT: Social Construction of Technology Approach.

SPOC: Single Point of Contact (for Taser).

STS: Science and Technology Studies.

Taser: a term used to refer to electric-shock weapons manufactured by the American company Taser International. The name itself is an abbreviation of 'Thomas A Swift and his Electrical Rifle', taken from the Thomas Swift series of children's science fiction books written in the early 20th century.   TASER® is a registered trademarks of TASER International, Inc., registered in the U.S. All rights reserved. It is common practice in the literature to refer to such weapons as Taser(s), a convention which I follow here.

Taser X26: the model of Taser in use throughout England and Wales at the time of writing. Unless otherwise specified, I use the term Taser to refer to the X26 model. The X26 is a registered trademark of TASER International, Inc., registered in the U.S. All rights reserved.

Taser M26: An earlier model previously used by some police forces in England and Wales, but which is not currently in use in the jurisdiction. The M26 is a registered trademark of TASER International, Inc., registered in the U.S. All rights reserved.

UK: United Kingdom.

UN: United Nations.

UNCAT: United Nation Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment.

USA: United States of America.

An Introduction to Taser in England and Wales.

> 'Use of force… is a controversial topic strangely neglected by criminology ... (with) only (one) independent empirical study of how British police officers are trained to use force' (Buttle 2007: 166).

> 'Whilst (Taser) is a vital weapon for police to have at their disposal for incidents which pose a risk to the public, police or the alleged perpetrator, it is not something that we use lightly. I welcome the continuing scrutiny of Taser use' (Commander Basu, National Police Chief's Council National Lead on Less Lethal Weapons, in NPCC 2014).

The police's ability to use force is one of the most crucial and controversial powers at their disposal (Bittner in Fyfe 1991). Yet despite calls from a range of academics and stakeholders—including those detailed above—for further attention to be paid to the topic, it has been relatively 'neglected' by criminology.

One of the most controversial force options available to officers is the projectile electric-shock weapon the Taser (Adams and Jennison 2007, De Angelis and Wolf 2013). In brief, Taser [1] is a weapon manufactured by the American company Taser International that uses wires and probes to deliver a potentially incapacitating electric-shock to a subject at a distance of up to 6.4 meters (College of Policing 2014a), and can also deliver a shock when pressed directly up against an individual. An impressive piece of engineering, and a noteworthy addition to the police officers' toolkit perhaps – but why would anyone think it sufficiently important to be the topic of a thesis, or interesting enough to hold readers' attention for hundreds of pages?

In fact, there are several reasons. Taser use is increasingly common in England and Wales. Since its introduction in 2004 to firearms officers, it has since been rolled out to specially trained (non-firearms) officers. It is estimated that 11% of officers are armed with the weapon (Arnett 2013), and it is fired, on average, 5 times a day across England and Wales in 2014 alone (Home Office

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[1] Whilst rival electric-shock projectile products are produced by rival manufacturers, the term Taser is a brand name and should only be used to refer to those weapons manufactured by Taser International. TASER®, M26 and X26 are registered trademarks of TASER International, Inc., registered in the U.S. All rights reserved.

2015a) [2]. Yet relatively little attention has been given to how, when and why this weapon is used in England and Wales, or to its impact on officers and subjects. Nor have the policies, guidance and training around the use of the weapon – or the accountability mechanisms surrounding it – been subject to much academic scrutiny. In addition much of the existing work on the weapon comes from the USA (see, for example, Adams and Jennison 2007: Alpert and Dunham 2010: Crow and Adrion 2011: Gau et al 2010: Lee et al 2009: MacDonald et al 2009: Paoline et al 2012: Ready et al 2008: Sousa et al 2010 and Terril and Paoline 2013), with a small number of studies looking at Canada (e.g. Oriola et al 2012). It is assumed that findings from North America are relevant elsewhere – which may not necessarily be the case.

Despite this 'neglect', police use of Taser in England and Wales is an important issue, with crucial questions around the weapon's association with death and serious injury, its impact on officer and subject injury rates, patterns of use and misuse, risks and benefits for human rights, and appropriate levels of regulation and accountability. These are important issues in their own right. Indeed, if academic work is seen as playing a crucial role in acting not only as a 'mirror' to the police, but acting as a 'motor' for reform (Innes 2010), then they are also key issues for academics (Anais 2015), amongst them PhD students. Such issues also take on an additional importance given the relationship between Taser use, use of force and police legitimacy, with 'robust oversight of cases involving Taser (and) transparency around how and when it is used… (being) essential for maintaining public confidence' (IPCC 2014: 2).

The use of Taser in England and Wales also has implications for a number of other topics. Taser occupies an interesting unique position, being described all at once as a 'tool', a technology, a policing innovation, a use of force option, and a site of police decision making and of police accountability. As such, the question of Taser use sits at the heart of, and has implications for, a number of broader theoretical, substantive, methodological and ethical debates.

At a <u>theoretical</u> level, one important sociological debate is how best to conceptualise various technologies, the role they might play in society, and how

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[2] Official Home Office statistics note that the weapon was fired in probe firing mode 1, 724 times in 2014, and used in drive stun or angled drive stun mode 256 times, making a total of 1980 discharges, or 5.4 discharges a day.

the objects of study—from the particular technology of interest to the very concept of 'technology' and 'society'—should be constructed (Sismondo 2008). As shall be seen in Chapter 1, there is a vast amount of sociological literature in the field of constructivist Science and Technology Studies (STS) – including the Social Construction of Technology (SCOT) approach, and a school of thought termed Actor-Network Theory (ANT)—that grapples with such questions. Such issues are seldom explicitly discussed in debates around the weapon, but analysts' implicit, often unstated views on such topics will nevertheless impact their work on, and approach to, different technologies including Taser.

A thesis looking at the role of any one particular technology, such as Taser, ignores this work in STS at its peril. Failing to engage with or simply ignoring the large body of work that is explicitly concerned with theorising technology, technological change and the relationships between technology and society risks doing such an important topic a disservice and 'reinventing the wheel' (Edge 1995: 18). This may be particularly pertinent in criminology which, Aas argues, needs more studies examining the potential relevance of STS and Actor-Network Theory in particular (2015: xii). My work aims to be a small step towards answering this call, and towards assessing the utility and novelty of constructivist STS approaches in general, and ANT in particular. At the same time, engaging in an empirical case study can benefit STS by providing a practical, concrete application of these theories to a particular technology. The focus on Taser is particularly timely, as STS has been criticised for ignoring weapon technologies (Woodhouse et al 2002) – another gap this thesis aims to help fill.

At a substantive level, a careful consideration of the myriad roles and varied impacts that technologies can have may generate implications for our understanding of police discretion – a concept that has traditionally been centred around discussions of human agency, and free will (Campbell 1999). Broadening out our focus to look at how particular technologies may interact with the humans charged with using them has the potential to shed new light on the topic. Similarly, focusing on the legal, policy and training framework and the accountability mechanisms around the weapon, also has the potential to add to

long-standing discussions around how best to regulate police force and ensure accountability.

This discussion is particularly important because, whilst the majority of agencies in the USA use some kind of use of force continuum to assist in their regulation of the weapon (Paoline et al 2012), England and Wales have moved away from such conceptualisations in favour of an approach in line with the National Decision Model (ACPO 2012): a model promoting step by step assessment and review of decision making. Within this model officers are given relatively little guidance about the situations in which Taser use may be appropriate. Instead, the approach stresses that decisions about the use of Taser, and other police weaponry, are for individual officers to make on a case by case basis, using their own, subjective assessments of proportionality and necessity. The implications of this shift have been little studied, but would seem to merit further consideration. For, whilst continuum approaches are often criticised on numerous grounds, including their chilling effect on decision making (Terrill et al 2013: 57), the alternatives to them should also be assessed.

An exploration of Taser use in England and Wales may also have relevance for broader discussions over the use of different methods in policing and criminology more generally, in particular debates over the value (and limitations) of quantitative methods in criminology (Greene 2014, Sparrow 2011, Thacher 2001, Weisburd and Neyroud 2011). Last but not least, given its highly controversial status, a study of Taser also gives us a unique vantage point into important ethical issues, including the role that academic research can, and should, play in policing.

Having started by making the general case for attention to be paid to the use of Taser in England and Wales, and detailing the ways in which such a study can make an original contribution to knowledge both on Taser, and on a variety of academic debates more broadly, this introductory chapter now turns to the role of this thesis specifically. I now set out, in turn: my overall thesis aims, the research questions I seek to answer, the thesis structure and the key arguments made.

Aims of the Thesis

This thesis aims to make a distinct contribution to our knowledge on the subject of Taser in four ways. First, it is <u>exploratory in scope</u>. As one of the first pieces of work looking at Taser in England and Wales, it uses an interdisciplinary, mixed-methods approach to provide a snapshot of how the weapon is currently used, the law, guidance and training surrounding its use, and the accountability mechanisms in place – topics that have not been analysed in depth before. Second, however, the thesis also aims to move beyond exploration to provide a <u>constructive critique</u> of Taser in England and Wales, with the researcher acting as what the police might call a 'critical friend' on this important topic.

Third, I aim to use the issue of Taser in England and Wales as a case study to <u>contribute to broader discussions</u> and debates in the police literature and, indeed, in sociology more generally, as outlined above. Fourth and finally, the thesis—and the process I have gone through in the course of researching and writing it—also aims to make a positive, constructive contribution to the policy debate, generating <u>practical recommendations</u> for academics and practitioners alike.

Thesis Questions

In light of these aims, this thesis addresses a number of questions pertaining to the use of the weapon by police in England and Wales up until 2014, namely:

1) How is Taser used?
2) How has it impacted officers and subjects?
3) What stories are told about the weapon and its regulation, and how complete are they?
4) How is Taser regulated and accounted for?

I use the term 'story', instead of the term 'theme', or the more specialist term 'narrative', throughout the thesis as it speaks to the literature on the importance of story-telling in police work (see Shearing and Ericson 1991, Van Hulst 2013), as well as to the literature on the importance of story-telling in policy making environments (see, for example, Stevens 2011). In so doing, it helps 'distance us from the naive assumption that what police officers say they do truly equals what they really think or do', whilst reminding us that stories are not merely passive but can be active agents that can 'do all kinds of work' (Van Hulst 2013:

625). This work includes not just relaying information but providing instructions for 'seeing the world and acting in it' (Shearing and Ericson 1991:488). It also evokes a sense that there may be multiple stories, and that they are always partial, incomplete and unfinished.

This study is interdisciplinary in scope and draws on a number of different bodies of literature—from the use of discretion by the police, to police subculture, to social psychology—to focus on Taser and various issues around it. Yet, as my focus is not just on police practices per se, but on the use of a *particular technology* in policing, it also seems appropriate to explicitly consider the extent to which the (broadly constructivist) Science and Technologies Studies literature can aide our understanding, if at all. As such, I therefore have a final question, namely:

5) How helpful are constructivist STS approaches in answering these questions?

It is important to note that these questions were not strictly defined at the beginning of the PhD process but instead evolved throughout the research process. As I detail in chapter 3, the questions listed above were thus subject to change as my understanding of the topic developed, as the research process and semi-structured interviews highlighted the importance of certain issues, and as unique opportunities for research—such as unprecedented access to a police force's internal use of force dataset—presented themselves. Nor are these the only relevant questions around Taser. There are clearly a great number of questions and other important issues that could be tackled, and which I do not have space to do here. Similarly, the stories about the weapon, its regulation and accountability that I have drawn out here are those that I felt most strongly emerged, and I encountered time and time again, both through the course of my fieldwork, and through my close engagement with the academic literature. They are stories that I feel are particularly significant, and which deserve more attention than they have been given in the literature to date. I recognise, however, that other authors and analysts might choose to focus on other topics and stories (as have, for example, Ho 2009 and Jauchem 2015), and I am fully aware that this thesis is not able to capture and examine

all the relevant themes, stories and questions that have emerged around this controversial weapon.

<u>Thesis Structure</u>

In order to answer the questions above, the thesis is divided into three parts.

<u>Part 1</u>

Part 1 provides the basic information necessary to guide the reader through the thesis. Chapter 1 outlines the main approaches to conceiving of the relationship between technology and society, namely instrumentalism (technology as a neutral tool), substantivism (technology as deterministic), and constructivist Science and Technology Studies, discussing the Social Construction of Technology approach, and Actor Network Theory, in particular. After using these approaches to discuss and classify the existing literature on Taser, various 'testing grounds'— i.e. areas where constructivist STS studies are said to differ from their predecessors—are set out, and will be referred to throughout the thesis. Finally, a detailed definition and discussion of Taser, drawing on the schools of thought outlined in this chapter, is provided.

Chapter 2 provides details about the methodological approach taken and the methods used. It also provides a rationale for particular choices made during the research process, including the decision to focus on Taser (as opposed to other electric-shock weapons, or other policing technologies), to focus on a particular time period (2004 – 2014), on a particular jurisdiction (England and Wales) and on two forces within that jurisdiction (referred to throughout this thesis as Force A and Force B, to preserve their anonymity). However this chapter is merely intended to provide an overview of the methods used and the methodological choices made. As the research is mixed-method, using some complex techniques, further details and rationales for particular methods are discussed in the relevant chapter.

With this information covered, Parts 2 and 3 then attempt to answer the questions above.

Part 2 uses mixed methods research to explore how Taser is used in England and Wales, and the implications it has for subjects and officers (Questions 1 and 2 above). As one of the first academic studies to look at Taser use in this jurisdiction it is an exploratory piece of work, aiming more to provide an initial first look at such questions than to provide definitive answers to them.

Specifically, Chapter 3 aims to advance our understanding of how, when and in what circumstances Taser is used and determinants of use, via descriptive and multivariate analysis of a secondary use of force data set provided by Force A, an anonymised semi-rural police force in England and Wales. Chapters 4 and 6 use the same dataset to examine the association between Taser use and reported injury rates to subjects and officers, respectively. These quantitative chapters aim to contribute to the existing criminology literature in this area, almost all of which relies on quantitative data and complex multivariate statistical techniques of the kind utilised here, to answer such questions. As such, the reader may be grateful for the advance warning that Part 2 starts off on quite a quantitative note. Further information on the statistical tests conducted, the results and tables can be found in Appendix 1.

Yet it is also important to acknowledge the limitations of quantitative accounts, and to complement these with other sources of evidence (see, for example, Rojek et al 2012, Root et al 2013 and De Angelis and Wolf 2013). This is particularly important in an environment where many analysts tend to jump too quickly from statistical models to policy recommendations (Terrill and Paoline 2012) and where the debate around the weapon's impact and consequences is often reduced to quantitative assessments of injury rates (for the limitations of relying solely on quantitative work in criminology more broadly, see Sampson 2010). As such, Chapters 5 and 7 aim to go beyond statistical analysis, looking at details that quantitative work is not always able to capture. Chapter 5 draws on interviews with those subjected to Taser, and their representatives, to try and examine the far-reaching, highly personal consequences of the weapon's use, which helps complement the quantitative analysis of visible, recorded injuries in Chapter 4. Chapter 7 draws on interviews with officers who use the weapon in Force A and Force B to discuss how it may impact their safety in ways both

positive and negative, and via routes not easily amenable to statistical analysis. Throughout Part 2 the added value of constructivist STS approaches, including ANT, are discussed (Question 5). Further information on the questions asked during interviews; the University of Exeter's Ethical Approval Certificate; and the Information and Consent Form given to interviewees, and a rough indicator of questions asked can be found, respectively, in Appendices 2 – 4.

Part 3

Whilst Part 2 focuses on how Taser is used in practice, and some of its consequences, Part 3 seeks to broaden our focus, recognising that this use shapes, and is in turn shaped by, recurring themes and stories around the weapon, as well as by various regulatory frameworks and accountability structures. Drawing on publicly available documents and on interviews and participant observation in Forces A and B, Part 3 aims to examine three widespread, inter-related stories around Taser—the notion of decisions around the weapon being a responsibility for the individual officer, an image of the weapon as a neutral 'tool', and the existence of sufficient accountability mechanisms—and argues that these are not inaccurate, but that they *are* incomplete. Chapter 8 focuses on the stories of 'individual responsibility' and 'Taser as a tool', whilst Chapter 9 focuses on the story of 'robust' accountability mechanisms. This division of labour also allows Chapter 8 to focus on the mechanisms in place prior to Taser use—i.e. the guidance and training provided to officers before they use the weapon—and Chapter 9 to focus on the accountability mechanisms in place after its use. Taken together, Part 3 attempts to provide answers to questions 3, 4 and 5 listed above, whilst Chapter 10 provides an overall conclusion.

The division of labour between the two substantive parts of the thesis—such that Part 2 focuses on issues around how Taser is used in practice, and Part 3 focuses on the regulatory framework and stories told around the weapon—has been chosen quite deliberately. Given the lack of work on Taser in England and Wales I felt it was important to gain a better understanding of use in practice, before discussing broader issues around the weapon. Moreover, whilst I recognise regulatory processes and guidance have a key role to play, I wanted

to avoid reinforcing the notion that they directly dictate how the weapon is used – and instead to examine this as an important topic in its own right.

Introducing some key arguments

Throughout this structure, this thesis seeks to advance the following, four-part argument around Taser use. First it suggests that, in line with the IPCC (2014a) and HMIC's (2016a) findings, the weapon has much to recommend it and there are elements of good practice in its use and in the regulation, policy, training and accountability mechanisms surrounding it. In Force A, for example, Taser use accounts for a very small proportion of the total number of reported incidents where force is used, and there is a statistically significant relationship between incidents involving the use of Taser, reported presence of a weapon on the subject, and higher levels of subject resistance. These findings contrast markedly with previous findings in the literature (which have almost always been focused on the USA), which tend to show relatively high, widespread levels of Taser use.

At the same time, however—and this is my second point—the evidence presented here suggests there is also some cause for concern over certain elements of the weapon's use in practice. As set out in Chapter 3, there is a statistically significant relationship between incidents involving the firing of the weapon and individuals who are recorded as experiencing mental ill-health (even after controlling for other relevant factors), and in the majority of cases where the weapon is fired, it is used on individuals who were described as unarmed.

Such trends give pause for thought as, third, my research shows that the use of the weapon is far from consequence free. Whilst it is often claimed that the use of the weapon reduces subject and officer injury rates (see, for example, Kaminski et al 2013 for a good overview of the literature, and Jenkinson et al 2006 for an English and Welsh perspective), this thesis—in particular chapters 4 – 7—shows that the picture is a little more complex than that. My statistical analysis paints a mixed picture and highlights the need for collection of additional variables in order to get a clearer picture of subject injury patterns, as well as the need for a careful, critical examination of the data as a whole. Moreover, individuals who have been subjected to Taser express concerns not

just about injury, but also about the pain, fear, loss of control and psychological issues experienced as a result of what they believe to be excessive use of force. Similarly, whilst Taser offers certain advantages in terms of officer safety, and many officers state that they value the weapon because of the safety benefits it brings, paradoxically the socio-technical network around the weapon may put officers at enhanced risk, by virtue of the incidents to which they are sent, and how they handle them.

Such trends highlight the need for appropriate safeguards to be put in place to ensure that the weapon is used appropriately, for the benefit of officers and subjects alike. Yet, fourth, the evidence presented in Chapters 8 and 9 suggests that there is some room for improvement in this respect. English and Welsh law, policy and training give officers little guidance about when use of the weapon is appropriate, and devolve responsibility for decisions around the use of Taser to the individual officer armed with the weapon, with little additional clarification offered by senior officials. The assumption is that officers, assisted by the National Decision Model, will use their discretion to judge when use of the weapon is appropriate, and will be held to account where this is not the case. Yet a number of human and non-human factors—from commonly held beliefs that the weapon is a more sophisticated, 'nicer' use of force option than the alternatives, to peer pressure from colleagues, to the content of police use of force training, and the physical presence of the weapon—may influence how the officer exercises that discretion, subtlety encouraging them to use the weapon. Various features of the weapon, and the broader system around it, increase the risk that it may be abused, or used too frequently.

Where this does happen, the accountability mechanisms that have been put in place are not always as robust as is claimed. There is room for improvement both in internal police oversight mechanisms and external mechanisms such as the IPCC, considerable barriers to justice in both civil and criminal courts, and a related risk that the National Decision Model may be used in ways which do not enhance but, rather, undermine the possibilities for accountability. Thus, whilst many officers use the weapon responsibly, there is no room for complacency - and a need for additional measures to be put in place to help ensure responsible use across the board. In particular, stricter guidance, enhanced

training, improved data capture and stronger accountability measures are not only desirable but eminently possible.

These substantive arguments will be elaborated throughout the thesis, and their theoretical, methodological, ethical and practical implications will be discussed in more detail. However, as this argument cannot be fully understood without reference to the sociological literature on society and technology, the criminology literature on Taser and the research methods used, it is to these topics that I now turn in Part 1.

<u>Part 1: Background Information.</u>

Chapter 1: Approaches to technology and their implications for Taser.

Whilst the last chapter provided an introduction to the thesis as a whole, this chapter aims to provide an introduction to two specific issues that are central to this thesis: firstly, the longstanding and rich literature concerned with theorising the relationship between technology and society more broadly and, second, the implications that these approaches have for our definitions and discussions of the Taser weapon.

I start off, in Part 1, by outlining three distinctive approaches to theorising technology, and their associated criticisms. These comprise substantivist perspectives (i.e. technological determinism), instrumental perspectives (i.e. technology as a neutral tool), and (broadly termed) constructivist STS approaches (which are then further sub-divided into different schools of thought—such as Actor-Network Theory (ANT) and Social Construction of Technology (SCOT) perspectives—which have varying similarities and differences). Instead of discussing these theories in the abstract, each perspective will be discussed as it pertains to Taser, and the case will be made that constructivist STS inspired perspectives have been under-represented in the literature around Taser to date (although I recognise that, within the policing literature more broadly, authors such as Innes et al (2005), Lynch and Cole (2005) and Johnson et al (2003) use STS inspired insights to tackle topics as varied as police crime analysts and DNA databases).

Playing devil's advocate, however, it should not be presumed that this is lack of STS inspired Taser studies is problematic. Indeed, it could be argued that explicitly incorporating insights from constructivist STS may advance neither this thesis, nor our understanding of Taser in England and Wales more broadly. Thus in Part 2 I set out the criteria for establishing the relevance of constructivist STS and some of the differing schools of thought within it, as well as the 'testing grounds' on which they will be assessed throughout Chapters 3 – 10 of this thesis. Finally, I draw on these theories and discussions to provide a detailed overview of the Taser weapon, and the socio-technical network surrounding it. In such a way this chapter aims to provide the necessary

background to assist when reading the rest of the thesis, and to answer calls by Robert and Dufresne for criminologists to 'think out-loud' about the relevance of ANT (2015: 1, see also Aas 2015 and Dymond 2014a, where I discuss the potential relevance of ANT for analysing police use of Taser).

Conceiving of the relationship between technology and society.

It is often argued that the theoretical perspectives pertaining to technology and society can be differentiated into a number of relatively discrete approaches. There is a key difference for many between so-called STS approaches—a term which is often used to encompass constructivist STS perspectives such as the Social Construction of Technology and Actor-Network Theory type approaches—and other, more conventional approaches (Latour 2000, Sismondo 2008, [3].

For many (see Edge 1995: 18), what differentiates (constructivist) STS approaches, amongst them ANT, from the latter, is their willingness to challenge the 'old, positivist image' of science and technology as 'abstract, timeless entities'. Instead of dismissing technologies as empty objects, constructivist STS insists on extending sociological analysis to encompass a broad range of natural and material artefacts (Latour 2000). Instead of seeing technologies as decontextualized entities with predetermined effects, or simply as neutral tools, STS approaches look at the myriad influences, interactions and interpretations that shape the design, use and consequences of technologies. In short, STS approaches look at how 'the things it studies are constructed' (Sismondo 2008: 18) and are united in their belief that 'things are unfairly accused of being just 'things'. (Latour 2000: 117, see also Innes 2005, Lynch and Cole 2005).

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3 As this discussion shows, many accounts tend to see STS, and constructivist approaches, as one and the same Yet whilst constructivist approaches have tended to dominate within STS (Cutcliffe and Mitcham in Bijker 2001, Rappert 2004: 6), there are many flavours within STS, and some exceptions to this. Moreover, constructivism as an approach is much broader than, the development of the particular sub-field of STS.   For these reasons, then, I favour the term 'constructivist STS', instead of STS, to avoid confusion. Similarly, I use the term 'constructivist STS' as a shorthand, and a convenient umbrella term, to refer to those perspectives—including SCOT and ANT—that, whilst differing in some respects, share the common features detailed in this section, and in the penultimate section of this Chapter: features which can be contrasted with instrumental and substantive (technological determinist) perspectives. Whilst one of the founders of ANT (Latour 2000) has elucidated the features that ANT and (constructivist) STS accounts share, it is important to note, however, that ANT theorists would not see themselves as *social* constructivists—given what they perceive as limitations in the way that the term 'social' is invoked, and the narrow number of actants seen to comprise the 'social'—and to recognise that ANT has implications far beyond Science and Technology Studies (Cowan and Carr 2008).

Further distinctions can be made between constructivist STS approaches and their more traditional counterparts. Bourne (2012) differentiates between three approaches, which he calls instrumental approaches (where technology is seen as a neutral tool subordinated to social ends), substantivist approaches (where technology is seen as the determining factor in producing particular outcomes) and constructivist approaches, which stress contingency, negotiation and unpredictability. Latour differentiates between 'sociologist' perspectives, where technologies are 'tools… neutral carriers of will', 'materialist' approaches (where technologies transform the humans that use them), and a third approach, Actor-Network Theory, that he helped to found (1994: 31). Kaplan (2009) differentiates between constructivist approaches, 'neutral' approaches (which, again, see technology as a tool) and technological determinism. He further distinguishes between a 'strong version' of technological determinism, where technology 'imposes… specific social-political consequences', and a 'weak version' where technology merely 'influences' the humans and societies with which it interacts (Kaplan 2009: xvii). Similarly, Mackenzie and Wajcman note, with approval, the existence of a 'soft' determinism which recognises that, 'in adopting a technology, we may be opting for far more… than appears at first sight' (1999: 4).

To what extent, though, are these distinctions—between instrumental accounts, substantivist approaches, and constructivist STS accounts—helpful for mapping the Taser literature?

Instrumental Approaches: Taser as tool.

A convincing case can be made that the 'instrumental' approach is alive and well in the literature around less lethal weapons (LLWs) and Taser (a topic I return to in greater detail in Chapter 8). Several commentators have noted, whilst surveying the literature on policing and LLWs as a whole, a general tendency to either fail to consider weapon technologies at all or to simply see the weapons as neutral objects or mere tools. Thus Robert and Dufresne argue that, within criminology as a whole, 'the relevance of technology, materiality and objects still needs to be emphasised. Whilst many… crime control practices necessarily involve the use of devices, little analytical attention has been given to them' (2015: 2).

Anais turns her attention to the treatment of LLWs in criminology specifically, and notes that the most common conception is of them as 'neutral objects that do not do anything until human beings… use them to act on… (their) intent' (2015: 27). She criticises such work for 'seem(ing) to neglect the possibility that technologies take a range of contingent forms, have a range of unintended consequences and exist in... complex and often inarticulate relationship(s) ' (2015: 13, 138).

This tendency can also be found in much of the academic literature on Taser, which similarly presents the weapon as a tool, as a simple transporter of human will. For Jauchem, the weapon is an 'important… tool' for officers seeking to carry out a wide range of legitimate 'law enforcement activities' (2010: 53), for Spriggs it is a 'valuable tool for law enforcement agencies when used appropriately' (2009: 495), particularly useful as 'a tool for safely incapacitating belligerent drug and alcohol users' (2009: 515). For other academics, Taser is a tool in a less positive sense. Oriola et al describe it as a tool 'to terrorise the down-trodden' (2012: 66) and 'socially disempowered' individuals, and a visible manifestation of the 'aggressive' and 'repressive' policing of the working class. For Wright, LLWs such as Taser are similarly 'tools' for 'mass repression' and 'socio-political control' (1991: 35).   Whilst writers in this approach differ markedly, they nevertheless share a conception of Taser as a tool for conveying human will.

Technological determinism: Taser causes particular outcomes.

If the 'instrumental' approach is well represented in the literature, technologically deterministic (substantivist) views are less common. Wyatt (2008) notes that technological determinism is comprised of two distinct arguments: first, that technologies have their own, external logic, developing outside of and independent from society. Second, once introduced into society, they somehow cause or straightforwardly determine social change. Thus, critics of the weapon might argue, the introduction of Taser is destined to result in repression and excessive use of force whilst, for proponents, the introduction of Taser is destined to result in lower levels of force being used.

Whilst remnants of such beliefs may be implicit in some of the literature (as Rejali 2009 argues), there are few accounts explicitly making such arguments. The discourses outlined by those promoting the weapon perhaps come closest to making similar points. For example, Taser International (n.d) notes that:

> 'TASER products protect lives, prevent injuries, reduce litigation, and save agencies money. More than 700 reviews have affirmed TASER technology's life-saving value'.

Yet these stories are not solely deterministic. Even the original patent for projectile electric-shock technology, which sets out the apparent benefits of the technology, does not see these as inevitable:

> With the growing problems arising from the indiscriminate use of lethal weapons… new devices must be found which *can immobilize and capture* without inflicting serious or irreversible harm in the process. It would be desirable to have a compact, hand-held device that is *capable of* subduing without serious or permanent harm (emphasis added) (Cover 1974).

Whilst a degree of determinism is implied, nowhere is it explicitly stated that this is an inevitable outcome of Taser use. Instead, the position is much more nuanced.

Moreover, Rappert (2004) notes that the accounts provided by academics, human rights NGOs and weapons manufacturer Taser International alike seek to locate the acceptability of the weapon, at least in part, with reference to the 'context' in which the technology arose, and in which it is used (see also Moreau De Belliang 2015, who makes similar points about NGO accounts of Taser). Many accounts then further supplement this focus with an emphasis on the highly inter-related issues of 'user training, motivations (and) accountability' (Rappert 2004: 13). Thus few of these accounts could be said to be technologically determinist, but instead make space for a range of influences impacting on how the technology is received. Many organisations make 'multiple and competing claims… about electrical weapons' that are not easily reduced to one approach or another (Rappert 2004: 31 see also Rejali 2008).

Nor is this observation restricted to Taser: commentators looking at the debates around other weapons have noted that, whilst instrumental accounts abound, deterministic approaches are less common (Bourne 2012). Similarly, Leonardi and Barli convincingly argue that many researchers 'overlook' the complexity in

so called deterministic accounts, and instead 'inappropriately' use them as a 'foil' to make their own findings to make their own findings appear more 'surprising' than they actually are (2008: 163).

Thus, whilst the notion of technology as a neutral tool still holds some sway, and is one I shall return to in Chapter 8, nowadays it is difficult to find more extreme accounts stating that weapon technologies alone determine the character of social and cultural relations, and have particular effects. Nevertheless as the rise of Constructivist and Actor-Network Theory approaches within the broader 'church' of STS can be understood partly in response to concerns about the limitations of instrumental and substantive approaches—and in turn the apparent decline of technological determinism might be attributed to them (Walters 2014)—it is to these theories that I now turn.

Constructivist Approaches

There are a variety of branches of constructivism, with constructivist inspired approaches found throughout the social sciences – including in STS (see Innes et al 2005 for a good discussion of constructivism in relation to crime intelligence analysis within the police). Indeed, within STS, a particularly prominent example of constructivism is SCOT, or the Social Construction of Technology approach, closely associated with Bijker (e.g. Bijker 2001). Another widely regarded school of thought is Actor-Network Theory, closely associated with the work of theorists such as Callon (1986), Latour (1991), and Law (1992, 1999) which is sometimes also described as a constructivist approach within STS (Bijker 2010, Woodhouse et al 2004). I shall examine the similarities between both approaches in this section—identifying a common 'core' to (constructivist) STS approaches--whilst dedicating the next section to investigating differences between the two approaches, and what is said to be distinctive about ANT. Broadly speaking, then, as STS accounts, SCOT and ANT approaches have the following features.

<u>Black-Boxing and Interpretive Flexibility</u>

If instrumental and substantivist approaches do not concern themselves with the details and material features of particular technologies, their effects, or how

they came into being, SCOT and ANT approaches share a desire to open the 'black box' of technology. Specifically, they argue that, whilst technologies may appear as unified artefacts that possess certain material features and have particular effects, they are also complex weapons, whose design and subsequent use are 'under-determined' by material constraints (Pfaffenberger 1992a :282). These approaches thus highlight contingency in the <u>design</u> of a particular technology. The choice of a given design is not the product of necessity but of a range of complex, intertwined socio-technical factors.

They also highlight contingency in the <u>reception</u>, adoption and use of a given technology, stressing 'interpretive flexibility': the notion that multiple meanings and interpretations can be attached to the same object or artefact. The key insight here is that the technology itself, and its characteristics, is insufficient to determine how it will be received. Recognising this flexibility can help explain the wide variety of uses to which technologies are put, and how widespread this use becomes. More than that, however, the very ''working' and 'nonworking' of an artefact, its effectiveness, its effects and its success (or lack thereof) come to be seen, not as qualities intrinsic to the weapon itself, but as constructed assessments (Bijker in Constant 1999: 328). Such themes have also been picked up by Manning (2008: 24), in his work on the use of information technologies in policing, who notes that such technologies 'must be interpreted and used in spite of (their) often invisible workings'

Most authors adopt a 'middle ground' in these debates (Rappert 2003a: 569). Whilst paying attention to how uses of technologies, and their efficacy, are subject to considerable interpretation, they also acknowledge that 'interpretations… are still interpretations of something' (Rappert 2003a: 566). Thus useful terms here are those of 'affordances'—'aspects of technology that frame but do not determine the possibilities for action' (Rappert 2003a: 566)— and 'materiality', a term that encourages us to attend to technologies, their material features and affordances to look at how they mediate, shape and effect broader relationships, processes, institutions and human actions (see Walters 2014). So STS authors encourage us not only to look at 'social' elements, but also encourage us to pay attention to the role of technologies, as well as the

'material…features (of technologies) that provide opportunities for or constraints on action' (Leonardi and Barli 2008: 162, see also Callon and Law 2005).

Symmetry

Another important point of emphasis for both SCOT and ANT is the need to be 'symmetrical' in the 'style of explanations' adopted, looking for 'the same types of cause to explain, say, true or false beliefs' (Bloor in Law 2004: 102, see also Lynch and Cole 2005). Thus constructivists warn against explaining 'true' beliefs with reference to 'reality', and 'false' beliefs with reference to 'socio-psychological' causes, to the 'distorting influence of society' (Bloor 1999: 84). Instead, all systems of belief—regardless of whether they are judged 'true' or 'false' by the analyst—should be the object of curiosity, with 'nature' and 'society', 'the world of things' and 'the world of people', all seen as potentially playing a part in their formation (Bloor 1999: 88). When applied to technology, the symmetry postulate helps remind us that the success or efficacy of a technology should not be simply explained by the 'fact' that it is successful or effective: instead, the fact that it is seen to be successful or effective is what needs to be explained in the first place. (Pinch and Bijker 1984: 24).

Whilst emphasising the role of interpretive flexibility, constructivists nevertheless need to explain how this flexibility diminishes. Bijker (2010: 69) looks at how meanings and interpretations of technologies come to be structured via a ''technological frame', a paradigm which 'structures the interactions amongst the members of a relevant social group, and shapes their thinking and action', and actor network theorists look at how networks stabilise and become 'punctualised' and appear as black-boxed entities (Law 1992: 385). In both approaches the amount of interpretive flexibility diminishes, and there is 'closure' around the debate. Yet this closure is only temporarily: ''reality' is not a final, definitive state.... nothing becomes real to the point of not needing a network in which to upkeep its existence' (Latour 1991: 118).

From Tools to Assemblages and Networks

Thus it is necessary not just to look at a given technology, but at the 'technical, social, organisational, economic and political elements' surrounding it. The adoption of any given technology requires the 'successful modification of social

and non-social actors so that they work together harmoniously' (Pfaffenberger 1992b: 498). The engineers' task is not just to create a technology, but to create a market and various social groups – what Law calls 'heterogeneous engineering' (in Mclean and Hassard 2004: 501). Similarly, Latour (1991: 106) argues that studying the introduction of a new technology, is not a case of following a 'statement through a context' but 'follow(ing) the simultaneous production of a 'text' and a 'context'. Hence the unit of analysis is not the individual artefact, per se, but what is variously referred to as a socio-technical ensemble, assemblage or network. For many constructivists, then, the challenge is to use this broader perspective—this shift in focus from the object to the socio-technical network surrounding it—to highlight that 'technological artefacts... are socially shaped' (Hutchby 2001: 441). As shall be seen, however, other authors, in particular those associated with actor-network theory, reject this very society-technology dualism.

Actor-Network Theory

Thus far, I have provided an overview of some of the key features of constructivist STS accounts in general, highlighting the similarities between ANT and constructivist approaches such as SCOT. Indeed, for some the differences between ANT and the rest of (constructivist) STS have been overstated: indeed, for Fuller (2000), they amount to no more than 'niche differentiation in… a crowded field'. Others, however, argue that there are fundamental differences.

Whilst many constructivist approaches seek to demonstrate how social factors impact the design, reception, evaluation and use of particular technologies— thus, for example, Bijker's SCOT approach seeks to analyse technological development 'as a *social process*' (1993: 117, emphasis added)—it has been argued by some (e.g. Prout 1996) that ANT's approach is quite different. Instead of providing social explanations of various phenomena, ANT argues that 'society', and the humans within it, can only be understood with reference to the 'missing masses' of non-human entities. Because of this, distinctions between human/nonhuman and society/technology are arbitrary, artificial and obscure more than they reveal – and binary distinctions and dualisms of all kinds should be regarded with deep suspicion (Heeks 2013).

Thus ANT provides a perspective 'quite distinct in one crucial and radical respect: ANT rejects the assumption that society is constructed through human action and meaning alone' (Prout 1996: 220). As Callon and Latour (1992: 348) note 'we have never been interested of giving a social explanation of anything, but we want to explain society'. This becomes a particularly notable contribution if we consider that, as Leonardi and Barli (2008: 163) argue, many within STS—keen to avoid the label of technological determinism—have (over)emphasised the social, looking, for example, at the groups around particular technologies, rather than the affordances of these technologies.

Generalised Symmetry

Thus, if SCOT applies the principle of symmetry to beliefs around 'successful / unsuccessful' and 'working / non-working' technologies, ANT further extends this symmetry principle. Instead of assuming, a priori, that humans are the only powerful, meaningful actors, ANT asks us to assess humans and non-humans (such as nature, animals and technologies) in the same way, in a move often referred to as 'generalised symmetry'. Humans and non-humans should be assessed equally on the grounds of their ability to 'make others do things' (Latour in Waltz 2005: 58). Thus many ANT studies use the term 'actant', a term which can be applied to both human and non-human entities, and does not imply anything about the characteristics of the entity under discussion.

So instead of a key distinction being between human and non-human, a key distinction is whether the actants in question are intermediaries or mediators. Whilst the former is predictable, and simply acts as a conduit to transmit ideas and meanings, the latter is unpredictable and can bring about transformations and effects (Latour in Waltz 2005: 61). ANT thus recognises that 'humans are not always actors, frequently they are intermediaries and... not all nonhumans are intermediaries, for they can often act in ways which change (human) worlds' (Murdock 1998: 367). So the outcomes and effects associated with introducing particular technologies cannot be predicted in advance but are fluid, changeable and unpredictable, produced by unique interactions with human and non-human actants.

In the elegant phrasing of Pickering (a post-humanist whose work has close overlaps with ANT), such outcomes result from a 'dance of agency' between human and non-human (2005:2). In Manning's work on information technologies in policing, a key insight is that technology is not just a passive entity but, instead, 'stimulates…mediates relationships and elaborates complexity' (Manning 2008: 1).

Given this fluidity, some theorists go further and argue that there are no inherent essences to technologies, no singular 'it' that can be talked about in isolation from the network in which it is embedded. All actants are, in turn, comprised of networks, and should both be considered purely 'relational effects' of this network (Law 2007). Thus some ANT approaches start neither with the human or the technology, but the interactions between the two, and the 'hybrid' actor that is created when the two meld together. For Munro 'the focus in ANT is on the organising power of combinations' (2009: 125). Latour argues that 'we are never faced with objects or social relations, we are faced with chains which are associations of humans and non-humans' (1991: 106). For Gad and Brunn-Jenson 2010: 270) 'all things are what they are in relation to other things, not because of essential qualities'. There is thus a strong strand of relativism and idealism in many works inspired by ANT and by STS more broadly – although, as Bijker (2010: 63) notes, ultimately 'constructivist technology studies can be agnostic about this idealism–realism question: both ontological positions are compatible with constructivist sociology of technology, and the sociology of technology cannot provide empirical arguments to choose for either ontological position' (see also Whittle and Spicer 2008, and Mackenzie and Wacjman, who note that such approaches are 'wholly compatible with a thoroughly realist, even a materialist, viewpoint' 1999: 32).

Thus for many working with the approach, the focus is on interactions and on *process:* specifically how everything from the identity of actors, to the goals they hold dear are continually and forever 'negotiated' and 'translated' (Callon 1986: 6). The term 'translation' has been particularly favoured (e.g. Callon 1986) as a way of emphasising that concepts, definitions, ideas and technologies are not just transmitted outwards and passively received by audiences. Instead actors may attempt to convince, negotiate or 'enrol' others

to their programme of action, changing and negotiating the aims and objectives of others in the process. In so doing they attempt to make themselves an 'obligatory passage point' – i.e. to make it compulsory for other actors to go through them, and to speak on behalf of others in the network.

Criticisms

However, SCOT and actor-network theory approaches have also been subject to criticism. Those writing from the latter perspective have accused social constructivist approaches such as SCOT of ignoring the role that non-human actors can play, and simply invoking the 'social' as an explanation in its own right, rather than looking carefully at how—and what—the 'social' is comprised. Both approaches have been criticised for ignoring issues of power, ethics and unequal access to information (Winner 1993). It is ANT, however, that has perhaps come in for the most criticism, four strands of which I will pick up here.

First, ANT's emphasis on generalised symmetry and the role of non-human actors may risk ignoring what is distinctive about humans, including consciousness and intentionality (Fine 2005, Murdock 1998, Laurier and Philo 1999). In seeking, usefully, to highlight the importance of the non-human, they risk diminishing the importance of the human. In seeking, usefully, to unpack myriad influences on human decisions and the changing nature of human will, they risk detracting attention away from situations where powerful human actants are able to exert their clearly defined wishes on their less powerful counterparts, be they human or non-human.

Second, on paper Actor-Network theory asks us not just to incorporate the notion of the non-human into our analysis but, further, to jettison the very notion of a distinction between human and non-human, and in their place to see only heterogeneous, hybrid actors. For ANT, these actors are created solely by interactions in networks: there is nothing essential or pre-existing about them, and thus talking of discrete human and non-human actants is inaccurate and misleading.

Yet, as many commentators have noted, it is much easier to criticise other analysts for reproducing binary human – non-human distinctions than it is to

reject such distinctions oneself. Whittle and Spicer (2008: 613-4) argue that whilst ANT claims to 'resist explanations that appeal to the essential characteristics of actors, such as technologies', it nevertheless 'continues to rely upon the notion of inherent agential capacities when attributing properties to natural and material objects', assuming in practice that 'man-made artefacts have certain 'real' properties'. They note that 'this leaves ANT closer to the critical realist approach, where the content… or affordances… of objects such as machines are allocated an explanatory role… (with) innate properties of an object… explain(ing) why objects and artefacts have certain 'effects' (2008: 614). Fine notes that 'by criticizing others for sins that are inevitably reproduced, if concealed by abstruse terminology… ANT generates a distinct flavor of ''having your cake and eating it''' (2005: 93). Moreover, if taken to extremes, idealist, anti-essentialist, relational perspectives that emphasise not just one reality, but multiple versions of it, it may leave us unable to make important claims about broader forces, trends and objects, and the impacts associated with them (Castree 2002).

This is compounded by a related difficulty that ANT tends to be empirically and methodologically vague, with few texts providing a clear guide to methods, and to how grand concepts such as 'generalised symmetry' and 'agnosticism' should be operationalised in practice. As Strathern notes, 'reading ANT texts for their methodology is often quite disappointing. Most texts… do not say much about how to go about doing ANT, practically speaking' (1999: 73).

Moreover, whilst ANT urges us to go beyond notions of human and non-human and, instead, explore the idea of interactions and of hybrid actants, it is not quite clear what this involves, or might look like, in practice. Several who have tried to attempt such a task have found it 'quite challenging' noticing their tendency to either leave 'the material realm unexamined, or emphasizing the agency of the material to the detriment of understanding the entangled practice' (Wagner, Newell and Piccoli in Mutch 2013: 31). As both ANT accounts and more conventional analyses stress the importance of material artefacts, and the effects they may have, the differences between these accounts and weaker versions of technological determinism can be overstated, and difficult to untangle (Leonardi and Barli 2008). Similarly, Mackenzie notes that

'technological determinism contains a partial truth. Technology matters… not just to the material condition of our lives… but to the way we live together socially' (Mackenzie and Wacjman 1999: 2). For many, then, it is not just the differences not just between constructivist approaches and ANT that have been overstated, but the differences between ANT and so called technological deterministic approaches.

Third, many writing from a range of critical perspectives have emphasised that ANT's notion of power and accountability needs to be augmented. ANT tends to see power as relational, as created by and as an effect of, a particular network, and as located at several different points throughout in this network. This has the effect that the focus is taken off one or two powerful human actors or institutions, and is diffused to a broad network of allies, human and non-human. This development, worries Fuller, 'makes it difficult to hold anyone accountable for anything' (2000:26). This is compounded by what some see as a tendency in ANT—and in constructivist studies more generally—towards political inertia, ethical relativism and away from critically engaged, action-orientated studies (Woodhouse et al 2002).

Finally, as Latour himself noted, the perspective is at risk of generating 'trivial' insights – such as the fact that 'a technology must be … activated by a human subject' (1994: 45). Those writing from outside of the theory have gone even further to argue that the theory generates no new, meaningful insights at all. For some it is simply a way of dressing up, in complicated academic language, observations that were already commonplace - and could be made with or without Actor-Network Theory and its 'imprecise and undefined' terminology (Scott 1991: 11). Fuller (2000: 8) argues that ANT simply represents 'one of those all too familiar… moments in academic life when a move that appears radical within the terms of a paradigm is equivalent to the prose that everyone else outside the paradigm has been always speaking'.

In face of these criticisms, many have sought to adopt a weaker version of ANT. Thus Castree uses a blend of ANT and critical approaches such as Marxism to 'remain critical of binarist thinking, of asymmetry, of limited conceptions of agency and of centred conceptions of power. However, at the same time, it

would concede… (that) it is the 'social' relations that are often disproportionately directive… (and) that power, while dispersed, can be directed by some (namely, specific social actors) more than others' (2002: 135).   Many others—for example Frickel (1996) and Mutch (2013)--have also worked with a watered down version of ANT, or have been loosely inspired by the approach (see also Mol 2010). Frickel notes many of ANT's criticisms are 'ultimately avoidable' if the approach is not seen as an 'all or nothing adventure' (1996: 49). Indeed, Mol argues that 'the strength of ANT… is not that it is solid, but rather that it is adaptable' (2010: 265). Bearing in mind these issues, then, just how, if at all, have constructivist STS approaches been applied to Taser?

Constructivist STS Accounts and Taser

In fact, studies inspired by constructivist STS approaches in the broader sense—much less by SCOT or ANT specifically—are relatively rare in criminology. Robert and Defresne (2015: 2) note that, 'while they are multiplying over the last year, there is still a paucity of ANT studies in the (criminology) field' – though such a lack of studies may not be surprising, given that this is a relative niche area. There are, however, a few pieces that have appeared in the last year that explicitly draw on ANT and which focus in broad terms on the use of Taser.

Anais draws on constructivist STS approaches in her analysis of the construction of 'excited delirium', a term sometimes used in cases where individuals have died following use of Taser. Anais aims to reveal not whether the syndrome is 'real' or false, but the 'networks of legal and medical experts (that) make it real' (2014: 47). Similarly, her broader work on LLWs, by her own admission, seeks to 'avoid' what she notes are 'important empirical questions' around 'use and abuses of less lethal technologies' in favour of 'questioning the process through which the boundaries between lethal and non-lethal have been stabilised' and asking 'what differences the concept of non-lethality has introduced into the relationship between military and policing agencies… and the people who serve as the living targets of non-lethal weapons' (2015: 138). She calls for further studies of LLWs that 'marshal insights from…STS perspectives' to see these objects as 'elements with agency that open up new spaces of possibility and as things that make things happen' (2015: 52).

Moreau De Belliang's analysis of the use of Taser in France does not draw particularly heavily on ANT, but does analyse the arguments put forward by those in favour of the weapon, and those 'opposed' to it. He finds that those in the latter camp are already thinking in 'ANT-ish' ways, noting that whilst proponents focus on the technical superiority of the weapon:

> 'Those who are against (Taser) guns… share Latour's attention to the distribution of agency… They do not only target the technical specifics of the Taser. They try to re-establish the human / non-human assemblages that have been created by the introduction of the Taser into policing… By meticulously taking care to recompose the network made up of Taser, the person who uses it and the situations in which they are involved, the opponents of the Taser want to show that the miracle of the technique assuming the sole responsibility is an illusion that can only exist thanks to the concealment of numerous links of the network' (2015: 105).

Perhaps more numerous are Taser studies which, whilst not necessarily defining themselves as ANT, SCOT or constructivist STS studies per se, could be argued in various ways to have a broadly constructivist flair to them. The work of three disparate authors—Rappert (2004), Rejali (2009) and White (2014)—could be said to fall into this camp, and also help illustrate some of the difficulties associated with labelling complex pieces of academic work in this way.

Rappert's work on Taser is not focused on the weapon 'itself' but instead uses the 'constructivist gaze' (2004: 28) to analyse the debate around it and attempts to make claims about the acceptability of the weapon. Arguing against views of the weapon's acceptability based solely on assessments of the weapon's (so-called) purpose and origins, or on assessments of the context in which it is used, or on assessments of the pain produced—and noting the way that, in practice, accounts often merge two or more of these categories—he calls for 'constructivist examinations' of Taser that actively 'debate the nature of technology, context and purpose as well as how they are approached in the course of analyses' (2004: 18).

Rejali's study of Taser incorporates many elements of constructivist STS. Discussing various incarnations and changes made to the weapon over time, he presents the story of the adoption of Taser not as a simple one where the technology was introduced to a society which then 'responds by adopting or resisting it', but as a process of assembling a series of alliances. Taking a leaf

from ANT, he notes that these alliances were not comprised solely of humans, but involved 'enrolling' a number of non-human actants (2009: 237). He explains how Jack Cover, the original inventor of Taser, tried to mobilise a number of different alliances until he found one that was successful. It was only at that point that the spread of the technology then came to seem 'magical', to seem 'as if the devices were powered by their own utility' (2009: 231).

His work thus looks inside the 'black box' of Taser, and in so doing incorporates notions of symmetry. One should not ascribe cases where the technology succeeded to technological superiority, and explain away cases where the technology was less successful as a result of societal resistance. Instead, the socio-technical network around the weapon should be considered to help explain both successes and failures alike. He powerfully and eloquently highlights the considerable degree of interpretive flexibility around the weapon, following its eventual adoption.

His account also stresses the difficulty in differentiating between the 'social' and the 'technical' and—whilst he doesn't use phrases such as generalized symmetry or actants--is at pains to stress the role played by non-humans. Throughout, Rejali is at pains to differentiate his account from many other commentators who, he argues, simply tell the 'story' of Taser technology as if the 'technological product emerges full blown… and then it was simply a social problem, of overcoming resistance' (2009: 237). As shall be seen, such accounts continue today – even amongst approaches that seem to adopt some elements of the constructivist approach.

One such example is the work of White (2014), whose account also nicely illustrates the difficulties faced when attempting to neatly classify complex academic works into one or other of these overarching (and sometimes quite vague) schools of thought. White's work seeks to apply the so-called 'innovation of diffusion' approach, or 'diffusion paradigm' to Taser technology. In brief the 'diffusion paradigm', started with Ryan and Gross' work on hybrid-corn technology in America (White 2014), was elaborated by Wejnert (2002). Wejnert (2002: 297) provided a conceptual framework for the study of the adoption and use of various technologies based around three key factors: the 'characteristics of the innovation itself', the characteristics of the innovators—

including their 'socioeconomic characteristics' and 'personal qualities'—and the environmental context.

White (2014: 16) argues, in line with this framework, that the popularity of TASER is due to 'the rational consequence of an interplay between key features of the innovation itself… the innovators and the environmental context'. For White, the 'key features' of the weapon are its 'benefits', specifically 'it's relatively short duration of recovery time among those who are exposed, its reliability from a distance (up to 35 feet depending on the model), its compact size and utility' and its efficacy (2014: 6). Innovators are law enforcement agencies, Taser International and policy bodies, who can play an important role in increasing uptake. Finally, environmental context includes the pre-existing search by police agencies for less-lethal weapons, geographical proximity to forces that had adopted the technology, and court rulings favourable to its use. In view of these factors he found its adoption to be a 'natural, rational development in policing' (2014: 1).

Such an approach has elements which seem to go beyond instrumental and substantivist approaches, and acknowledge issues of construction and interpretation. Thus there is a role here for 'social networks' in explaining the weapon's popularity, and an acknowledgment that 'laws, values, norms, ideologies, and belief systems can either facilitate or hinder the adoption patterns of an innovation' (2014: 292). There is also talk of 'interplay' between technology, human actors and the 'environmental context' (2014: 282).

Yet there are also elements of technological determinism, with White explaining that, amongst other factors, the 'effectiveness of the Taser' has overcome the 'traditional inflexibility that defines police departments' (2014: 293). Success is seen, at least in part, as determined by the technology itself. Hence, writes White, 'innovations with greater upsides', such as Taser, will 'diffuse rapidly' compared to innovations with 'more risks than rewards' (2014: 284) – with little consideration given to the notion that the rewards themselves may be socially construed. Cast in one light, this could be a classic example of exactly the trend that Rejali warned about: that of presuming a clear trajectory for a superior technological product, and characterising the 'social' as a given, pre-

existing backdrop whose main function appears to be presenting 'resistance' to the march of technology.

There are other elements of White's work at odds with constructivist STS approaches. Whilst there is a consideration of how social factors impact the spread of a particular technology and its rate of diffusion—given pre-existing assessments of its efficacy, utility and effects—there is little consideration of how such factors may impact assessments of efficacy and utility in the first place. Some echoes of this approach can be seen in the work of Squires and Kennison (2010: 57), who—whilst not mentioning Taser specifically—argue that the arming of the police has become 'technologically driven'. If 'proven effective' new weapons are adopted by the police, to be used 'as the situation demands'. Again, there is little consideration of how some weapons may come to be seen to offer operational benefits in certain carefully defined situations, and others may not.

Thus beliefs around the advantages and merits of the weapon are taken at face value and treated as if they are inevitable, rational responses to objective qualities of the Taser weapon. However risks and disadvantages associated with the weapon are seen as 'false' beliefs that can only be explained by social factors to explain their spread. Thus in contrast to constructivist STS' emphasis on symmetry, there is a fundamental asymmetry here: 'false' ideas are seen as something in need of explanation, 'true' beliefs are not. The social is a resource to be drawn on to explain why misconceptions around the weapon exist, but is not as relevant when looking at the positive features of the weapon. Thus White notes that 'interest groups' and 'politicized city councils' can delay the spread of the device (2014: 291).

Another asymmetry also needs pointing out, again relating to one's perception of the social. Wejnert notes, and White agrees, that innovations 'evolve in a specific ecological and cultural context and their successful transfer depends on their suitability to the new environments they enter during diffusion' (in White 2014: 14). So the social is seen as fixed, unchanging context into which technologies such as Taser are introduced, with greater or lesser success. The social can impact the reception of a given technology, but there is little consideration of the inverse: how technologies, such as Taser, can impact 'the

social'. There is thus no consideration of the ANT concept of 'generalised symmetry' – adopting the same approach to investigate both so-called 'social' and 'technological' factors.

As White's paper nicely illustrates—and as should be clear by now—there are some key differences between constructivist STS approaches and more traditional, conventional forms of analysis, and it is to precisely these differences that I now turn.

Testing the Theories: Assessment Criteria.

Thus far in this chapter I have reviewed three perspectives—substantivist, instrumental and constructivist STS approaches--concerned with conceptualising the relationship between technology, humans and society, examined the differences between SCOT and ANT approaches *within* STS, and demonstrated a relative lack of studies drawing on STS insights. Nevertheless the work that Anais (2015), Rejali (2009), Rappert (2004) and others have conducted has demonstrated that constructivist inspired STS studies are useful in suggesting new, novel lines of enquiry around Taser and police weaponry, in place of more traditional, conventional lines of enquiry. As Mol notes, such approaches can help us to 'ways of asking questions and techniques for turning issues inside out or upside down' (2010: 261).

Yet if constructivist STS studies—and SCOT and ANT within them-- can add value by suggesting new lines of enquiry, can they also assist us in examining some of the more traditional, conventional topics and concerns that are central to the criminology debate around Taser? This is an interesting point of enquiry not just for empirical reasons, but also for theoretical ones. After all, if you use a theory to examine the issues and tasks it was designed to do, and to answer the questions that it poses, then it is likely you will find it does prove useful. But I am not interested, here, in producing a PhD solely concerned with theory for its own sake, but in discussing crucial issues around Taser. Thus an additional test of a theory is how it fares with tackling perennial questions set, not by its advocates and proponents, but by the academic community as a whole – and it is this latter test I am keen to implement here. The case of Taser makes a particularly interesting example for testing such theories for, as Woodhouse et al note, STS has 'never been strong on weaponry technologies' (2002: 303).

Similarly, Walters notes his surprise that 'few researchers employ actor-network theory, or science studies more generally, to examine questions of… armed conflict or weapons research' (2014: 105).

To take a leaf from the constructivist book, then, it is not enough simply to assume that (constructivist) STS—and SCOT and ANT within that—are helpful approaches. Instead, the analyst needs to be agnostic about the value of such approaches, using symmetry—instead of assumptions—to tease out the extent to which they add value. Otherwise we may end up assuming exactly what it is we should be investigating.

So let us set out some parameters for this test. In terms of my assessment criteria, I see theories as being helpful if they are <u>useful </u>and <u>novel.</u> By emphasising utility I am aiming to assess the extent to which such theories can provide concrete, practical assistance in tackling the questions at the heart of this thesis. The related test of novelty is designed to assess whether the application of such theories actually lead us to new insights that could not be generated any other ways, or whether the same insights could have been arrived at anyway, without the aid of these theories. (If this is the case, it would not demonstrate such theories to be unhelpful or irrelevant—as there may be many ways to generate important insights—but would just demonstrate that such insights are not unique).

However, having clear assessment criteria alone is necessary but not sufficient. It is necessary to draw out, from the discussion above, some (alleged) differences between constructivist STS and their alternatives in order to define three testing grounds on which the utility and novelty of the theory will be assessed. I seek to examine these three areas in more detail in order to assess both i) whether the STS take on these questions can add value to the existing literature on Taser and, relatedly ii) whether, indeed, the alleged, stated differences between STS and alternative approaches and literatures on these topics are as significant as some have claimed.

<u>Assemblages and their implications</u>

First, as demonstrated above, constructivist STS accounts, including SCOT and ANT, stress that that technologies should be considered, not in isolation, but as

part of the socio-technical assemblages, or networks, in which they are embedded, and whose effects are unpredictable, variable and anything but deterministic (for an interesting application of this approach see, for example, Johnson et al 2003, who look at the socio-technical assemblage around the DNA database). At first glance, this sounds novel, innovative and helpful —yet many authors readily concede and accept such premises, even if they do not use STS or ANT language to do so. Thus Bishop et al's (2014) study looking at the impact of policy change around police use of Taser, or Adam and Jennison's (2007) call to pay attention to a broad range of issues around the weapon—amongst them training, guidance and interaction with other force options—already recognise the need to look at complex networks and interactions around the weapon, as do many NGO accounts (Moreau De Belliang 2015, Rappert 2004). Moreover, the latter—in seeking to explore possibilities of change in the network—necessarily adopt the position that the socio-technical relations around the weapon are not fixed and static, but may be more or less amenable to change.

Furthermore, as the preceding discussion has shown, whilst broadening out one's focus from the technology in question—and the humans who use it—to the network around the weapon may have value, it also brings with it risks: in this case, a risk that accountability for negative effects may be watered down. Can such issues be obviated, as Frickel (1996) suggests? Or does using an ANT approach add little to our understanding of the weapon, whilst simultaneously limiting our ability to hold key actors to account for any negative effects associated with it? Such questions will be tackled at different points throughout the thesis, but particularly in Chapter 6 (which looks at officer safety and their views on the weapon), Chapter 8 (which looks at the story of Taser as a tool) and Chapter 9 (which looks at the accountability mechanisms around the weapon).

<u>A symmetrical approach to truth claims - or Taser as an 'empirical reality'.</u>

Second, as previously noted, traditional perspectives to the study of technologies such as Taser can tend to treat the effects and efficacy of the weapon as a set of objective, given, independent facts (Innes et al 2005). They are seen as an 'empirical reality' (Terrill and Paoline 2012: 153) that can be

demonstrated, a singular 'truth' that can be uncovered (Ho 2009, Truth Not Taser 2008), and as a set of 'misunderstandings' that can be clarified (Jauchem 2015), often via statistical analyses. They thus come close to what Hilgartner (2014: 85) has termed a 'sociology of error'.

In this context constructivist STS approaches, including ANT and SCOT, may (or may not) remind analysts to pay attention to how commonly held beliefs, such as the efficacy and effects of the Taser weapon—and the statistical analysis that underpins this—are not simply objective facts, but may be, at least in part, socially constructed. As Innes et al (2005: 50) notes, in so doing, they pose a 'challenge to…overly rationalized accounts of scientific practice'. Similarly they may, or may not, serve as a useful reminder to investigate, symmetrically, the reasons for a particular technology's success, considering the notion that 'success explains efficiency, efficiency does not explain success' (Feenberg 2010: 7).

At the same time, however, the novelty of constructivist STS approaches should not be presumed. Whilst it has been a long time coming, the recent discussion between Kaminski et al (2013) and Terrill and Paoline (2012) makes explicit reference to the notion of injuries from Taser being a 'social construct' – an exchange that has been conducted quite without the aid of any explicit reference to the STS literature, or to the complex vocabularies associated with ANT. So just how novel, and useful, is this approach? And does it genuinely shed new light on the use of the Taser weapon, and its consequences? I address these issues in Chapter 3, 4 and 6 when interpreting the results of my own statistical analysis into the use of, and injuries associated with, the Taser weapon, and in Chapter 7, where I discuss how beliefs around the weapon may be shaping perceptions of its efficacy and effects.

Generalised symmetry of actants – or Taser as a tool.

Finally, as detailed above, it has been argued that traditional criminology approaches pay too little attention to the technologies in question—treating them as a straightforward tool, as a slave of human will—and thus fail to fully explore the possibility that technologies such as Taser may affect the humans who are using it and the context into which it is introduced.

Thus Robert and Dufresne argue that, within criminology as a whole, 'the relevance of technology, materiality and objects still needs to be emphasised' (2015: 2). Similarly, Sousa et al (2010: 38) lament that researchers 'have not yet fully explored the impact of (Taser)… on police decisions' to use force, and note that 'a wider range of options (of force techniques) may change the decision-making process'.

But can our understanding of Taser—and of decision making around the weapon—be enhanced by a focus on the weapon, its materiality and its interaction with human actants, and by efforts to open up the 'black box' surrounding the technology? How widespread are notions and assumptions of Taser as a tool? Can constructivist STS studies—in particular ANT, which urges us to pay attention to the 'missing masses' of non-human actors and their 'agency'-- assist us in questioning these assumptions, and does this add anything new to our understanding of Taser? As has been demonstrated, analysts have already started to explore how Taser may impact use of force decisions, quite unaided by any assistance that STS in general, and ANT in particular, has to offer. In addition at least one article has paid attention to the distinct effects and agency that Taser may have (e.g. Lee 2009). So just how novel are constructivist STS approaches in such situations? Such questions are discussed in Chapter 8, where the story of Taser as a tool is discussed in more detail.

Conclusions and Definitions.

In this chapter I have sought to provide a relatively broad ranging introduction to the academic literature on technology and society and around the Taser weapon more specifically, delineating the main schools of thought and examining the extent to which the literature on Taser fits into these approaches. I have argued that, whilst there is a body of work looking at certain policing technologies (from information technologies to crime analytics) in a way that is sensitive to STS insights (Cole and Lynch 2006, Innes et al 2005, Johnson et al 2003), there are a paucity of STS inspired studies looking at Taser. Whilst these approaches remain as criticised and as controversial as the Taser weapon itself, opportunities exist for taming these approaches, using weaker versions which avoid 'symmetrical absurdity' (McLean and Hassard 2004: 493)

whilst taking what is best from these perspectives. Yet the key tenets of such perspectives themselves—tenets which place a high emphasis on empirical investigation and thoughtful, symmetrical analysis—caution us against simply assuming that their application will automatically generate useful and novel insights into our understanding of Taser. The extent to which these approaches genuinely lead to new insights will thus be a key question to be addressed throughout this thesis.

Before closing, however, I want to use this chapter to do one more piece of work. Clearly, one's definition of Taser cannot help but be affected by the perspective of the author on the relationship between technology and society, and the school of thought with which they are most closely aligned. To define Taser in a specific way is to do much more than to offer a simple description. Equally, choosing not to describe the weapon or its technical characteristics in detail is also a performative act. Certainly for the purposes of the thesis, some kind of introduction to the weapon is needed. By way of closing, then, I would like to draw out the implications of this chapter for providing a definition of Taser and to provide a description that will serve us well throughout the following thesis. This introduction should include a description of the weapon and its characteristics but it should not stop there.

Towards a Definition of Taser.

Taser: its (socio)technical features.

The Taser weapon is a brand of electric shock weapon marketed predominantly (albeit not exclusively) to law enforcement agencies. In particular, the term Taser refers to electric-shock weapons manufactured by the American company Taser International. Whilst other projectile electric-shock weapons are available, Taser models are in use in over a hundred countries (TASER International, 2012) and are the only projectile electric-shock weapon currently authorized for use by law enforcement agencies in England and Wales. The name Taser is an abbreviation of 'Thomas A Swift and his Electrical Rifle', taken from the Thomas Swift series of children's science fiction books written in the early 20th century (O'Brien et al 2007).

The X26 Taser, the model currently in use in England and Wales, is loaded with a single cartridge which delivers a potentially incapacitating electric-shock via tethered wires and probes to subjects up to 6.4 metres away, an effect known as neuro-muscular incapacitation (NMI). The X26 is programmed to automatically deliver a five second shock of electricity via this cartridge when the trigger is depressed, although police officers can over-ride this and deliver a longer shock by keeping the trigger held down for longer. The degree of neuro muscular incapacitation achieved depends partly on the placement of the probes (Ho 2012)—with probes that are further away from each other potentially more likely to increase the incapacitation effect—as well as on a range of human and non-human factors (from the accuracy of shot placement, to the type of clothing worn). The weapon can also be used in 'drive-stun' mode where the end of the weapon, with the cartridge removed, is pressed directly up against the subject to deliver an electric-shock. Unlike probe firing mode, this does not incapacitate but works by pain compliance alone [4]. Unless otherwise specified, I use the term Taser to refer to the Taser X26 model specifically.

The weapon can also be used in a number of other ways. As shall be discussed in Chapters 3 and 7, some evidence suggests that drawing and / or aiming the weapon can have a deterrent effect. The device can also be 'red-dotted', a term used to refer to the action of pointing the red-dot laser sight of the weapon at a subject. This action is a good example of particular effects not being pre-determined by the technology itself, or by the society into which it is introduced, but evolving from a series of complex interactions. Whilst initially intended as an aide to assist accuracy when firing, pointing the red-dot at a subject has come to be seen as a valuable function, and a powerful deterrent, in its own right – an unforeseen outcome resulting from a dance of agency between subject, officer and technology.

The Taser weapon also has accountability mechanisms built into its design. Whenever a cartridge is fired 15 – 20 Anti Felon Identification Discs (AFIDs)--confetti-like tags, each bearing the serial number of the cartridge in question—

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[4] More recently a third method of firing, 'angled drive stun', has also evolved. The NPCC describe angled drive stun as a method for when 'the Taser has been fired towards the intended subject and one probe has missed, or the Taser has been deployed towards the subject and the probes are too close together to incapacitate… In these circumstances if an officer then places the end of the taser in a part of the body away from the probe(s) then it is possible that incapacitation can be achieved' (NPCC 2015).

are released. These can provide confirmation as to which cartridge was fired, and additional details about the location of the firing. Additional documentary evidence can also be provided by the weapon's internal data logging system, which records the time and date that the current was discharged as well as the length of discharge.

From technical characteristics to the socio-technical.

Whilst it is important to note such features, it is also important not simply to stop there but to recognise the extent to which the weapon and its features are embedded into a broader socio-technical assemblage or network. As Rejali (2009) notes, these features did not magically, inevitably appear, but were the product of a series of choices, compromises and alliances between human and non-human actants. Indeed the Taser weapon went through several different incarnations before appearing in the form that it does today.   Nor should it be assumed that these features of the weapon un-problematically result in a series of 'effects', be they good or bad. Instead, significant debate exists around the efficacy of the weapon, its ability to incapacitate and the term 'less lethal' – and as such, considerable 'interpretive flexibility' exists around the weapon. (The issue of 'interpretive flexibility' around the functioning and effects of Taser will be discussed in Chapters 5 and 7 which deal, respectively, with officer and subject views of the weapon).

Moreover, whilst understanding the weapon's operations and features are crucial, these must not be looked at in isolation. For example, certain of the weapon's capabilities—such as its use in angled drive-stun mode, and its use in red-dotting mode—have changed over time, as weapon and user evolved, co-mingled and found new ways of interacting. Nor are the weapon's much lauded accountability features able to live up to their promise independent from human interaction – they require human actants to collect the AFIDs, download the internal memory, and analyse and act on the data retrieved.

For our purposes, it is also necessary not just to discuss the socio-technical network around the weapon in general terms, but also to provide an overview of key features of the network or assemblage around the weapon in England and Wales.

Taser in England and Wales

In-depth evaluation of projectile electric-shock weapons in England and Wales first started in 2001, with products produced by Taser International, and competitors, examined by the Police Scientific Development Branch (PSDB 2002). The testing regime encompassed a range of variables, including barb accuracy and dispersion, electrical output and reliability and handling characteristics (reported in DOMILL 2002) and showed Taser products to be 'the most consistently accurate'. In parallel to this process, DOMILL, a 'standing committee of independent clinicians' (now replaced by SACMILL) advised on the medical implications of Taser weapons. Their 2002 statement found that (for the M26 model) 'the risk of life-threatening or serious injuries… appears to be very low' and 'certainly much lower than that from conventional firearms'. However they stated that this advice could only be based on 'the available evidence on the use of the device' – and noted significant gaps in this evidence base (DOMILL 2002).

Following this advice, a year-long pilot study of the M26, a predecessor to the X26, was conducted in five police forces between 2003 and 2004. It use was initially restricted to authorised firearms officers at the forces in question. The pilot study was reviewed by Price Water House Cooper (2004), and later on that year Taser was rolled out to firearms officers in England and Wales, with the following Ministerial statement accompanying the announcement:

> 'In the light of the results of the (Taser) trial, I have authorised chief officers throughout England and Wales to deploy Taser for use in the same strictly limited circumstances. Chief Officers can now make… Taser available to authorised firearms officers in their force as a less lethal alternative for use in situations where a firearms authority has been granted' (House of Commons debate 2004: column 150WS).

The weapon's use by specially trained (i.e. non-firearms) officers—and its use by firearms officers at incidents where firearms authority had not been granted-- was also piloted between 2007 - 8 and was accompanied by a DOMILL statement on this expansion in use (DOMILL 2007), and a HOSDB summary of the pilot (HOSDB 2008). This trial involved not just the older M26 model, but the use of the newer X26 model (which is the focus of this thesis) and, in fact, the 'overwhelming majority' of incidents in the trial involved the latter.

In the intervening period DOMILL had also produced two additional statements on the safety of the M26 and X26 weapon (DOMILL 2004: DOMILL 2005). Some of the gaps identified by DOMILL in 2002 were partially filled in by these statements. Both the 2nd and 3rd reviews again concluded that the 'risk of life-threatening or serious injuries' from both the M26 Taser and the newer variant in use today, the X26, 'is low'. Throughout this period, some sought to make a distinction between two categories of injuries associated with the weapon, and one that that will be referenced throughout this thesis: that is, a distinction between the primary injuries that are 'directly attributable to the application of the Taser currents' and the 'secondary' injuries such as 'barb wounds' and 'head injuries from falls' that are 'physical injuries directly associated with Taser use' (ACPO 2008a: 18). Taser was subsequently rolled out to specially trained officers in England and Wales in 2008, at the discretion of Chief Constables, and with some financial assistance from the Home Office[5]. It is estimated that 11% of officers carry the weapon (Laville 2013).

Current practice

Whilst details of how the weapon is currently being used in practice are scanty and, as will be discussed in the next chapters, the statistics issued by the Home Office need to be treated with considerable caution, the most recent set of these statistics seem to show three trends emerging from the data. *First*, there are large discrepancies in rates of use between different forces. Indeed as the IPCC (2014a: 3) has noted, 'some police forces…(have) a proportionately much higher rate of Taser use in relation to their size than others.' With that caveat in place, the *second* trend is that Taser firings tend to account for a small proportion of overall uses of the weapon. For example, during 2011 - 2013 red-dotting of the weapon accounted for 51% of uses, and the percentage of uses involving probe firing of the weapon decreased from 21% to 17% (Home Office 2014a).

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[5] The Home Secretary at the time announced that she was 'making funding available to forces to support the purchase of up to 10,000 Tasers. This will allow chief officers to take a decision on Taser deployment according to operational need, without being encumbered by financial restrictions'. House of Commons Debate (2008: column 37WS).

Third, whilst firings make up a small percentage of Taser uses, uses of all kinds have increased over time. Comparing the six month period from April to September 2009 (the earliest statistics that are available on a quarterly basis) to the six month period between January to June 2014 (the most recent statistics available) shows increases in every category of use. The number of times Taser has been used in probe-firing mode has increased by 174% (to 826 times): the use of the weapon in drive stun mode has increased 41% (to 78 times), and the number of times the weapon is used but not discharged has increased 337% (to 4, 158 times) (Home Office 2013a, Home Office 2014b).

The Regulatory Framework around the weapon.

There are a number of regulatory mechanisms around the weapon, including domestic and European laws and conventions (including the 1967 Criminal Law Act, the 2008 Criminal Justice and Immigration Act and the European Convention on Human Rights) and UN soft law standards (including the UN Basic Principles on the Use of Force and Firearms and the UN Code of Conduct for Law Enforcement Officials [6]). Guidance provided by the College of Policing via Authorised Professional Practice (APP) (College of Policing 2014a), the National Decision Model (NDM) (College of Policing 2014b), and a standardised Taser training curriculum, also provide input to officers to help inform their use of Taser (discussed in greater detail in Chapter 8).

Once the weapon has been used there are a range of accountability mechanisms in place. In addition to the features discussed above, they include the completion of a 7 page form whenever the weapon is used (even if it is merely drawn) and overview and assessment of the form by the force's in-house Taser Single Point of Contact. Externally there is the potential for involvement by the Independent Police Complaints Commission (particularly in cases of death, serious injury or complaint) and from Her Majesty's Inspectorate of the Constabulary, as well as by SACMILL, who review the use of Taser and request notification if and when guidelines for use change, so that they can assess and provide statements as appropriate (for example, as happened with

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[6] The UN Basic Principles on the Use of Force and Firearms, along with the UN Code of Conduct for Law Enforcement Officials are two notable international texts pertaining to police use of force, but are only soft law instruments. Key provisions of these texts are further discussed in Dymond and Corney (2014).

the roll-out of Taser to non-firearms officers). These features, their strengths and drawbacks will be considered in more detail in Chapter 9 – and highlight the importance not just at looking at the weapon, and its features, in more detail, but also looking at the network in which it is embedded.

This chapter has sought to provide an overview of the four main approaches to technology and society—instrumentalism, substantivism, constructivist STS accounts, such as SCOT, and actor-network theory--and has discussed how they apply to the Taser literature. It has then used these insights to generate a definition of Taser and the network around the weapon that, it is hoped, will serve as a useful basis for readers who may be less, or more, familiar with such discussions. Before delving straight into the empirical chapters of this thesis, however, one further discussion is necessary: that of the research methods and methodologies employed to answer my aims, objectives and research questions. It is to this topic I now turn.

Chapter 2: Methodology.

This chapter aims to provide information about, and a rationale for, decisions made in the research process, as well as the methodology and methods used, in order to act as a single reference point throughout the thesis. For ease of reading, some of the finer points of the methods used in different chapters are discussed in the relevant chapter, and this chapter sets out the rationales for the broader choices that have been made around the research and how it is conducted. I first consider why the research topic has been narrowed down in the way that it has, before looking at how and why the specific research questions have been selected. I then consider how the two police forces where I conducted the bulk of the field work were chosen, before discussing the justification for the research methods used. Issues of ontology, epistemology, research limitations, ethics and impact are discussed throughout the chapter.

Refining the focusing of the thesis

Having outlined in the introduction the rationale for focusing on the use of projectile electric-shock weapons in England and Wales, it seems appropriate to clarify here some additional choices that were made to narrow down the topic. Ultimately this thesis has a specific and limited remit—to focus on one type of electric shock weapon (the Taser X26), in a specific jurisdiction (England and Wales), over a particular time period (2004 – 2014)—for several reasons. First, whilst alternative projectile electric-shock weapons exist, Taser International's products are the most widely used, and their products are the only projectile electric-shock technologies currently approved for use in England and Wales. Second, whilst Taser International has produced a range of projectile electric-shock devices, again, the X26 is the only model currently in use in England and Wales at the time of writing.

The time period was chosen for two reasons: first, the majority of my field work took place in 2013 – 2014, and the statistical database I had access to only covered up until 1st January 2015. Second, and more pragmatically, choosing an end-point also facilitated the write-up. Whilst I was cognisant of developments happening after 2014—such as the potential introduction of the 'next generation' of Taser weapons into England and Wales, and the trialling of

a standardised, nation-wide use of force database—I did not have to continually change the text to try and keep pace with on-going developments. The starting date of the thesis, 2004, was chosen to reflect the fact that it was in this year that Taser was first introduced to England and Wales, but does not imply that my findings are equally relevant to all of this time period, given the years in which my fieldwork was conducted.

It was decided to focus the fieldwork on two police forces in England and Wales—with one of these forces also providing the dataset to be analysed in Chapters 3, 5 and 6—not just because of their physical proximity and accessibility, but because of the welcome my research received in the jurisdiction, a welcome that would prove crucial to my ability to carry out research in such a controversial and sensitive area.   It was clear from relatively early on in the process that research on Taser was welcomed by many.   For example, one Taser trainer stated that he valued the research, because:

> 'gaining an outsiders view of what we do, um, I think that's important. It's really important to get people in… (to) cast a critical eye over everything. It's quite nice as well to be a little bit more open about it' (Taser trainer, force details omitted).

This was crucial because, as Marks (2004) has noted, securing active buy in from a range of officials at all levels of policing organisationsis crucial when conducting research into the police.   Similarly, civil society organisations, oversight bodies and lawyers representing individuals subject to Taser, generously gave up their time to assist and to answer questions, as did Taser International, the manufacturers of the weapon in question. This not only meant that I had virtually unprecedented access to issues around Taser in England and Wales—including access to Taser training, internal use of force statistics and a chance to examine the weapon up close—it also meant that I had a unique opportunity, I felt, to use the research to generate impact. Although I could not have predicted the exact routes to impact that would unfold as a result of the research, the possibility that this might occur was a second reason for choosing to focus on England and Wales. Indeed, my assessment was proved correct when a variety of opportunities, detailed in the next section, occurred during the research.

Pathways to Impact.

One of the aims of this PhD was to engage with and generate practical recommendations for practitioners, and I benefitted from some unique opportunities to do so, including:

- My work, in a part-time capacity, with the Omega Research Foundation, an NGO that works on the human rights impact of LLWs such as Taser, and my engagement with Amnesty International UK, and other civil society organisations, as a result of these links (2009 to the present day).

- An invitation to sit on the Metropolitan Police's Taser Reference Group between 2013 - 2015. This gave me a unique opportunity to discuss my research officially and directly with key stakeholders, from the NPCC Lead on Less Lethal Weapons, including Taser and the Metropolitan Police's Lead on Taser to representatives from Amnesty International and other civil society groups, medical and mental health experts, religious leaders and academics.

- An invitation to speak at the Association of Chief Police Officers' Seminar for force leads (Single Points of Contact) on Taser in 2013 and 2014, to which Taser leads in all English and Welsh forces were invited.

- The writing of a submission detailing my interim impressions of Taser training, requested by the College of Policing in 2014, who were keen to hear my views in advance of a review of the training package.

- An invitation to visit the Headquarters of Taser International in 2014 and to present my research over 10 senior officials, including the Chief Executive, Senior Legal Counsel, other members of the legal team, Medical Advisors and the Vice President of Strategic Communications, with travel costs paid for by the company.

  The ESRC funded Expert's Meeting on Taser that I organised in 2015, which provided an opportunity to engage key stakeholders and to present interim research findings. The meeting was attended by

representatives from the ACPO, the College of Policing, the Police Federation, the Home Office, the Defence Science and Technology Laboratory, the SACMILL and medical professionals, the IPPC and from relevant companies and NGOs, as well as academics, lawyers representing individuals subject to TASER, and TASER officers and trainers. (For further details see Dymond 2015 , which provides further details and notes of the day

- A research placement with the NPCC between 2015 - 2016, funded by the ESRC, to enable me to act as a researcher and advisor to the Police Use of Force Reporting Review, announced in 2014 by the then Home Secretary, the Rt. Hon. Theresa May. This review aims to introduce, for the first time in England and Wales, a standardised system to capture and record incidents where police officers have used force, including Taser. I am on the 'Programme Board'—which provides strategic oversight—and the 'Project Team', tasked with implementing the details of the review, and am the only academic on these panels.

Selecting Research Questions

Having set out the broad aims, and objectives of my research, narrowed my focus, and explored pathways to impact, I still had to focus down on the exact questions that I would seek to answer. As previously noted, many constructivist studies in STS start by closely examining and then carefully deconstructing a given technology such as Taser, in order to better understand the interactions shaping the design of the technology, the uses to which it is put, and how it is received. However such a study has already been done (see Rejali 2009), and the idea of duplicating such an approach did not appeal.

Instead, I was guided by my initial primary and secondary research into the topic, and iteratively used themes that emerged from this research—combined with a sprinkling of what Jacobson et al (2013: 7) would call 'serendipity'—to help refine the questions. For example, during my initial desk-based research it soon became clear that much of the literature on Taser use was focused on its consequences for officer and subject safety, with consequences defined narrowly as physical injury rates. Thus the literature on the consequences of Taser use for officers and subjects was not only highly focused on one

jurisdiction—the USA—but, as I shall demonstrate, tended to be highly quantitative, ignoring the experiences of those subjected to and charged with carrying the weapon. I thus saw an opportunity to contribute to knowledge by exploring the qualitative dimensions of these topics.

Through exploring these qualitative dimensions, I was then given access to unique quantitative data: a police force's internal use of force data-set. This was not something that had been anticipated at the start of the research process, but I recognised the value in complimenting my qualitative work with quantitative analysis, and was keen to take on the challenge.

My background as an NGO worker undoubtedly also influenced my choice of topic. Some authors and institutions looking at various aspects of policing clearly see their role as assisting the police with implementation and operationalization issues – in other words, to conduct research *for* the police. In the arena of use of force research, Kaminski et al criticise researchers who use definitions of use of force and injury that are not accepted by police officers, and who produce accounts 'unhelpful to practitioners and police executives seeking to better understanding correlates of force' (2013: 618). Jauchem argues that academics can play an important role in pointing out 'misconceptions' around the Taser weapon, which he sees as 'an important law enforcement tool' (2015: 53). Jenkinson et al (2006: 239) are keen to argue, on the basis of limited data and (by their own admission) limited statistical analysis of said data, that the weapon should be made available more widely in England and Wales and are quick to dismiss concerns that it 'will be deployed as instruments of torture'. Such analysis is taking place in a broader context of a shift from the 'sociology of the police to sociology for the police' (Reiner 2012: 91).

Yet my civil society background allowed me to see the benefits of a slightly different, and arguably more challenging, conception of police research – one that allowed the researcher to be a 'critical friend' to the police, neither being unduly critical, nor shying away from tackling difficult and sensitive issues. In so doing, I adopted an approach similar to that advocated by Delaney (2014: 23), one that sought to highlight 'common ground' yet was 'at once confrontational and collaborative'. Such research then, is not so much *for* the police—although it may well bring a range of benefits—as it is *on* the police (see also Innes

2010). As such, encouraged by the call from the NPCC's Lead on Less Lethal Weapons for 'continued scrutiny' of the weapon, I wanted to be able to explore the regulatory and accountability mechanisms around the weapon, the stories so often heard about its use, and the consequences for officers and subjects, from this perspective.

Selecting Police Forces

Providing answers to the questions in this thesis involved engaging with police forces in England and Wales to observe Taser training, observe officers at work, access sensitive statistics on the use of Taser and other less lethal weapons and conduct interviews. However this involved making some tough choices. As there are 43 territorial and 8 non-geographic police forces in England and Wales, it was impractical to look at all of them. Indeed, given the sensitivity of the research, it was necessary to establish and maintain close and constructive relationships with a small number of forces in order to ensure success (Marks 2004). I ruled out studying non-territorial forces, as they, by definition, have a different mandate from their geographical counterparts which would further complicate analysis. In addition, the Home Office publishes statistics on Taser use for territorial English and Welsh forces, but not for their non-territorial counterparts, or for Police Scotland, which would make data triangulation more problematic. For all these reasons, it made sense to focus on English and Welsh territorial forces – but it was still not clear how many, or which ones..

In the final analysis the *qualitative* research in England and Wales centred on two forces both of whom agreed to participate under conditions of anonymity, and the *quantitative* research focused on a dataset supplied by one of these forces. (I describe the dataset itself at the start of Part 2, so that readers can refer back to it when reading the subsequent chapters). Force A—which covered a mainly rural area—was selected for several reasons: it was very interested in the research with high levels of buy-in throughout the organisation: it was a highly influential force—thus bringing with it opportunities to maximise the impact of the research—and it was in line with the national average for the frequency with which Taser was drawn, re-dotted, fired, and used in drive stun mode, thus aiding generalizability of any observations gathered. It was also

one of the few forces in England and Wales that collected detailed statistics on the use of less lethal force by police officers —including, but not limited to, Taser—and was willing and able to make these available to me [7].

It was, however, recognised that looking at one force in England and Wales was far from sufficient - as any dynamics observed might well be unique to that particular force. As such, I attended an ACPO Conference on the use of Taser and appealed for co-operation from forces that were willing and able to facilitate the research. This resulted in a second force (Force B), with a territorial remit that included some rural areas but also included a major city, coming forward. This force was in an alliance with several other forces, meaning that other forces in the arrangement shared the same training materials, and this was also considered to help aid generalizability of the findings drawn. Whereas Force A closely matched the national average on Taser firings, Force B had a higher than average percentage of Taser firings (out of all Taser uses) and did not collect use of force statistics, other than the Taser statistics mandated by the Home Office. Given these differences between the two forces, their selection was considered appropriate.

However, it can be assumed that the police forces able and willing to participate in the research were probably those with most capacity around Taser use and management, and those who saw themselves as having little to hide – and that I was therefore capturing, arguably, the best of the best. In order to help combat this issue, I used Freedom of Information requests to all forces in England and Wales to explore particular issues and to better understand whether particular practices were limited to the two forces in question, or were more widespread. As I detail below, I was also able to observe the College of Policing's Lead Instructor's Training—an advanced course aimed at individuals who were already Taser trainers in their home force—and to conduct interviews

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[7] The initial plan was to use datasets from multiple forces in England and Wales. As such the research owes a large debt of gratitude to the (then) ACPO Armed Policing Secretariat, who approached all forces who were in the same Home Office 'Most Similar Forces' group as Force A—and thus broadly similar on a range of characteristics—and who were understood to collect some data on use of less lethal force, on my behalf (Home Office 2013b). However, due to limitations and gaps in the data captured by these forces, it was necessary to limit the analysis of Taser statistics in England and Wales to the single anonymous police force detailed above: an approach in keeping with Kaminski et al's work (2013): White and Ready (2008), White and Ready (2010), Lin and Jones (2010) and Castillo et al (2012), all of whom used data from a single force in their analysis.

with many of the participants. This gave me an excellent opportunity to speak with trainers and Taser Single Points of Contact at a number of other police forces, thus enhancing the reach of my research, and I conducted 35 interviews with police officers, SPOCs and / or trainers in total.   Nevertheless, this remained a perennial concern– particularly as few Taser studies address in any detail how the forces in question came to be involved in the research and what implications this may have (White and Ready 2007 provide just one example of this tendency).

Accessing other voices

I was also keen not just to speak with police officials, but also to speak with those who might have a different perspective on the weapon: in particular individuals who had been subject to Taser, and their representatives.   Access to these individuals was sought via NGOs working with individuals subject to Taser discharge and the solicitors and barristers representing them (see Chapter 5 for further details).

 Cognisant of the potential negative impact of the research on participants' mental well-being, advice was sought from the gatekeepers identified above, and only certain individuals approached.   The selected individuals were approached by the gatekeepers themselves, not by me, to minimise the risk that they felt pressurised to participate in the research process and were be informed of their ability to terminate the interview at any time.

Moreover, as remarks made in interview—and subsequently made public—may have the potential to jeopardise ongoing legal proceedings (should they be taking place), I refrained from giving highly detailed or specific accounts of the circumstances around Taser use that could identify the individuals concerned. In total, I conducted detailed interviews with five individuals, two of whom had been subjected to Taser, two of whom were providing legal representation to individuals subjected to Taser, and one NGO representative who was working on Taser issues in England and Wales. To complement these accounts, a search of the academic and grey literature--including NGO reports, newspaper articles, radio interviews, blogs and other fora—was also conducted.

Selecting Appropriate Methods.

I used a mixture of qualitative and quantitative methods to answer my research questions. Quantitative methods have been detailed above, and qualitative techniques mainly comprised semi-structured interviews and participant observation. As noted above, I conducted 40 semi-structured interviews with Taser trainers, Personal Safety Trainers, Taser Single Point of Contacts and police officers in England and Wales, individuals subject to Taser and their representatives [8]. Whilst the majority of interviews were conducted at two police forces—identified here as Forces A and B—interviews were also conducted with Taser trainers and SPOCs at a number of other forces. The Ethical Approval Form, Information and Consent Form and indicative list of questions asked can be found, respectively, at Appendices 2 – 4.

I supplemented this with auto-ethnographic techniques—including, as I detail in Chapter 5, volunteering to be Tasered under controlled conditions—to deepen my understanding of the weapon, and some of the related effects associated with it. Furthermore, I was given access to a random stratified sample of over 60 detailed Taser use of force reporting forms from Force A, which provided further details of the circumstances in which Taser was used, officer rationales for use, and how officers tended to describe the scenarios with which they were faced.

I also conducted nearly 275 hours of observations, including observing the College of Policing's national Lead Instructor Training, Taser Initial training, Taser Refresher training courses, Officer Safety Training, ride-alongs with officers on patrol, and attending the Inquest into the death of a young man, Jordan Begley, subject to the use of Taser.

Participant observation was chosen as it is considered by many to be essential for conducting research in policing environments. Marks writes not only that

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[8] I also conducted 20 additional interviews that, whilst not strictly required for, or used in, the thesis, nevertheless deepened my understanding of the issues involved. This included interviews with officers from the Police Service of Northern Ireland, with senior officials in the UK and interviews with officials from Taser International – material that I look forward to utilising in a later stage of my career. The year long placement I conducted with the NPCC on the Use of Force Reporting Review announced by the then Home Secretary, the Rt Hon, Theresa May (detailed above), also gave me an invaluable opportunity to deepen my understanding of the issues around the use of Taser, and other use of force in England and Wales.

such an approach 'may be the researcher's only way of securing other methods of doing research', but that it also improves the quality of information gathered, as police officers are less likely to 'conceal what they believe to be 'in house' knowledge' (Marks 2004: 871). In my experience, participant observation proved highly useful in encouraging officers to take part in interviews and encouraging them to open up, and to build rapport, once in an interview situation. In most cases, officers were advised prior to the course commencing that I would be attending, were given the information and consent form pertaining to my research in advance and advised that they had the opportunity to engage in interviews, should they so wish. I then provided a short verbal introduction to the research at the start of the course, and asked officers to make themselves known if they were interested in being interviews, with interviews themselves being conducted during lunch and break times in the course schedule. Semi-structured interviews were chosen as they allowed me to cover topics of interest, pick up on points raised in my quantitative and qualitative work, and retain space to explore additional topics raised by participants (Stephens 2007: 206). As Leech (2002: 668) has noted, such a style of interviewing is particularly suitable with highly knowledgeable, elite respondents as it 'gives them the chance to be the experts'.

Participant / observer status and relationship adopted with participants.

My approach to research, and the relationship adopted with participants, could perhaps best be described as inspired by participatory action inquiry, and I aimed to achieve a moderate degree of participation throughout the research process. Whilst over 35 variants of participatory action inquiry have been identified worldwide, in general terms participatory action research is characterised both by 'political participation'--the tenet that 'research subjects have a basic human right to participate fully in designing the research that intends to gather knowledge about them' (Heron and Reason 1997: 281)—and by a desire 'to change the world' (Fals Borda in Heron and Reason 1997). Because of these tenets, participatory action is particularly suitable for this research and its aims. It is also, perhaps, particularly important given my chosen research setting; as Marks (2004; 883) notes, 'proper access and fair research on the police requires being able to give something back… and it would seem that participatory research is an important route to follow.'

I adopted a participatory approach both in terms of research design – choosing semi-structured interviews to explore topics of interest, and giving participants space in the interview to raise topics that were important to them, but that may not have been adequately covered in the rest of interview—and in terms of discussion of interim results and research process. I also took care to discuss the interim results of the research with participants who had previously indicated an interest in participating in such discussions through a variety of routes. These included participation in the Expert's Meeting on Taser, the Metropolitan Police's Taser Reference Group and the national Police Use of Force Reporting Review (conducted between 2013 – 2016, and discussed above), as well as a series of meetings held in summer 2016, with the police forces, lawyers and NGOs who had participated in the research as well as oversight bodies (specifically the IPCC, HMIC and SACMILL) and the NPCC, Home Office and College of Policing.

There are, however, limits to the extent to which I have been able to incorporate the participatory action approach into my research and, as such, I use the term with care. Hagey criticises authors who 'abuse' PAR by 'using its good reputation… while conducting research within the conventional sets of relations. The obvious motivation is to retain control of research and to be accountable to one's bureaucracy' (in Allen and Hutchinson 2009). Yet many (including Allen and Hutchinson 2009) have faced challenges in implementing participatory techniques as fully as they would like.

My research is no exception and it is necessary to acknowledge this. Minkler et al (2002) argue that 'a fundamental tenet of PAR involves ensuring that the issue to be investigated and acted upon comes from the community and not an outside professional or funding source', and whilst I had the clear support and interest of a wide range of stakeholders for my research topic, as detailed above, I ultimately retained decision-making power over what issues to address and how to address them. I would thus describe my research not as fully participatory but as more participatory than some STS research, characterised best by 'participation by consultation' (Pimbert and Pretty 1997: 309) or 'user-sensitive research' (Campbell et al in Allen 2009; 125), than by more holistic participatory methods.

Data Analysis and Triangulation

My choice of mixed methods research and my approach to triangulation was, like many researchers, a highly pragmatic one (Johnson et al 2007). From a practical perspective the range of quantitative and quantitative techniques adopted allowed me to use techniques that were particularly suited to answering particular questions. For example, the statistical analysis was well suited to analysing trends in officer's use of the weapon, whilst qualitative analysis was well suited to understanding their perspectives. Furthermore, using both quantitative and qualitative techniques allowed me to reach a deeper understanding of the topic than I would have done using only one type of technique. Just as my quantitative work pointed to interesting directions for my qualitative research, so my qualitative research allowed me to alternatively make sense of, nuance and unpack findings from the quantitative work and from the quantitative literature more broadly. As well as using what Denzin terms 'methodological triangulation'—in particular, the 'between method' qualitative and quantitative triangulation that he recommends—I also used 'data triangulation', drawing together a range of data sources to aid my understanding of the topic under investigation (in Johnson et al 2007: 114).

My practical approach to data analysis was predominantly what Moore has characterised as 'simultaneous triangulation', in which findings from multiple methods are analysed, and then drawn together at the interpretation stage, as opposed to 'sequential' designs where the research is planned such that the findings from one method then inform the next phase of the study, which goes onto utilise a second method (in Johnson et al 2007: 114). . In my case, this was necessary because access police use of force data was not something that had been anticipated, and therefore planned for, during the research planning process. This approach was also reflected in the design of the thesis, which allowed me to use quantitative methods to speak to questions (such as officer and subject injury rates) usually tackled via quantitative methods in particular chapters (for example Chapters 4 and 6), and then complement this, and unpack it further, with reference to qualitative findings (for example in Chapters 5 and 7 – something I return to in more detail in the next section of the thesis).

Nevertheless, I was at times also able to use 'sequential' triangulation. For example, when analysing subject injury rates using quantitative data I was able to conduct additional interviews with officers to help further understand when, how and why they were classifying certain incidents as resulting in injury, and to feed this information back into relevant discussions.

My ontological and epistemological approach to triangulation and data analysis was also pragmatic and could best be described as critical realist, in that I make room for constructivism and interpretation—in particular for multiple interpretations of reality and the objects that help constitute it—yet equally seek to retain some notion of reality, truth and material objects existing outside of such interpretations. As Seale (1999: 470) notes, those working from such perspectives are able to take the view that:

> 'Although we always perceive the world from a particular viewpoint, the world acts back on us to constrain the points of view that are possible. The researcher treading this middle way is continually aware of the somewhat constructed nature of research but avoids the wholesale application of constructivism to his or her own practice, which would result in a descent into nihilism'.

In this approach, then, triangulation is seen as useful not only because it helps to increase breadth and depth of the research (see Seale 1999: 230), but also because it has the potential to allow one to further explore and corroborate findings (Johnson et al 2007).   In line with Johnson et al (2007), I aim to 'respect' both singular ways of viewing the world, and ways which emphasise multiple or relative truths, whilst adopting a 'pragmatic', 'middle' solution between the two extremes (Johnson et al 2007: 113).

Limitations and ethical issues.

However the use of these methods came with their own limitations. Whilst I explore these limitations in more detail in the relevant chapters, I wish to pull out four overarching issues here. First, as noted above, whilst some researchers are able to carefully plan the type of triangulation they are using, in my case the adoption of mixed methods was a little more opportunist, as it was only once I had started conducting qualitative research at Force A that I was granted access to their data.   In practice, then, my quantitative analysis largely came after I had conducted my interviews and participant observations – meaning that

I had then to schedule some additional interviews to help clarify issues raised by the data, and that my research perhaps wasn't as well planned as it could have been.

Second, when engaging in all these methods I was conscious of what Giddens has termed the 'double-hermeneutic' twist: the 'mutual interpretative interplay between social science and those whose activities compose its subject matter' (Giddens 1984: xxxii). Whilst the double hermeneutic has many implications, one may be that my presence might change the conduct of those being observed. Although I did try to minimise my influence by making my participation in class, or on patrol, as unobtrusive as possible, it is likely my presence had an impact, making it difficult to generalise too much on the basis of the events I witnessed.

Third, using interviews has certain limitations. Those subjects who were willing to be interviewed may have been more likely to hold more negative views of the weapon, whilst officers may be more likely to hold highly positive views about the weapon, or at least to feel that they have something important to say about its use. Moreover, as Holdaway notes, the interviews that police officers tell are often exaggerated (in Waddington 1999), and many researchers (e.g. Marks 2004) have documented the unwillingness of officers to be fully truthful with researchers perceived as coming from the 'outside'. I am keenly aware that officers might have been stressing the benefits of Taser for my 'benefit', keen to correct what many perceived was the overwhelmingly negative press coverage of the weapon.

Fourth, whilst conducting research of any kind necessarily brings with it a host of ethical issues, these issues are, perhaps, heightened when conducting research on sensitive and controversial topics such as police use of force. As Marks has stated, one key challenge with police research is to 'make use of meaningful and possibly compromising information… (while not) bring(ing) any harm to the individual police or the organisation itself' (Marks 2004: 884). Working so closely with police officers in such settings, then, sharply illustrates a key ethical issue with my research discussed above: namely, how to appropriately, effectively and fairly address any issues that may be identified by the research, whilst recognising the elements of good practice that do exist, and

minimising the negative impact on those who so generously gave their time to facilitate the research. At the same time one also needs to be cognisant of, and recognise the severe limitations associated with, using use of force datasets that rely on police accounts (an issue I come back to in Chapter 5).

A related issue stems from the power dynamics at play, and from my position as a relatively inexperienced doctoral student. Throughout the research I have been conscious that inadvertently raising concerns in the wrong way or at the wrong time could not only threaten the very access on which *my* research depends but could potentially jeopardize the work of future researchers in this important area. Similarly, another related risk is that my research might not be critical or independent enough. This is a particular concern given longstanding concerns about the risks of 'going native' when working with the police (Savage 2013) and in light of the fact that, given issues with access and time limitations, I had more interviews with police officials than other stakeholders.

Whilst such ethical issues can never be eliminated, I was able to minimise them by a series of measures. These measures included the negotiation of Memorandums of Understanding with ACPO and the individual police forces where I was conducting my work, which included provisions on anonymity (of the force in question, and of individuals) and of early sight of the thesis (and any related publications) and its recommendations, prior to publication. However ACPO and police forces had no veto over, or ability to amend, the content of the thesis or related publications. I also worked with the University of Exeter Ethics Committee, who gave ethical clearance for the research, to design Information and Consent forms that were given to all interviewees, and which stressed their ability to withdraw from the research, or to amend what they had said at interview, at any time prior to publication. (No interviewees withdrew, but I did have one participant who requested a transcript of the interview and then amended some comments that he had made). When quoting individuals, I omitted any details that might help to identify their identity, or the identity of the Force in question. This was particularly important when conducting interviews with Taser trainers and Single Points of Contact who, by virtue of their senior status, could be more easily identified from their remarks than could Taser

officers. For this reason, whilst I generally identify whether the interviewee is from Force A or Force B, I make an exception for Taser trainers and SPOCs.

Whilst anonymity of participants was standard, I gave interviewees the chance to waive their anonymity, should this be desired – an option exercised by a few participants. On occasions where I was observing police training, I contacted the relevant trainer in advance with the information and consent form for him to circulate to potential attendees, so that they had advance notice that I would be observing the training and could decide whether or not they wanted to be interviewed for the research. I also took care to report back on the interim findings of my research as it was developing, to a range of stakeholders, via the routes to impact discussed above. Whilst such strategies have helped me handle the issues associated with working on such a sensitive, and important, area of research, they have not eliminated these ethical considerations.

A related ethical concern is that my experience conducting prior research on this topic prior to starting the PhD may well affect the conclusions reached in this thesis, in ways I may not fully be aware. Indeed some might argue that my research is compromised and biased either as a result of my involvement with the NPCC and Home Office Use of Force Reporting review, detailed above, and / or due to my engagement with Taser International, and my trip to their Headquarters in Scottsdale, Arizona, detailed in Chapter 5) and / or as a result of my previous, and ongoing, work for the human rights NGO the Omega Research Foundation, which works explicitly on issues around LLWs. Moreover, as a member of the public, it is likely that the preconceived ideas I had around the weapon were at odds with the police view of the weapon (IPCC 2014a). I have no simple answer to these questions—particularly if, as the social psychological literature tells us, humans not only have a tendency towards 'confirmation bias' (i.e. to subconsciously interpret new information in a way which confirms pre-existing beliefs), also but perceive biases to be 'more prevalent in others than in themselves' (West et al 2012: 506).

Yet I would argue that whilst such experiences have undoubtedly impacted the research, the appropriate response is not to somehow remove any trace of myself as individual from the research—an impossible undertaking at the best of times--or to condemn the research and its findings. Instead, an alternative

response—and one that I seek to implement at various places in this thesis—is to acknowledge the influences that may have impacted on my research, in just the same way that the unique positions of other researchers will also have impacted theirs, and to be open about limitations and challenges faced.

Seen from this perspective, I would argue that my engagement with various actors—from NGOs to the NPCC, to the Home Office and Taser International—has strengthened the research, giving me unique insights into the use of Taser, and the complexities of data collection, that I would not otherwise have. Ultimately, one of the key criteria for judging academic research and doctoral theses should not be whether the research could be accused of subjectivity, or of bias—a charge that could be levied at any work—but whether the research generates new insights on a specific topic (in this case, Taser). Whilst I think this is the case here, I will leave the reader to draw their own conclusions.

Conclusion.

This chapter has sought to outline the topic, methodology and methods used in the research, and to outline and justify the choices made by the researcher as part of this process. To summarise, the research into Taser in England and Wales uses qualitative techniques (predominantly semi-structured interviews and participant observation) as well as quantitative analysis of use of force data sets. Qualitative engagement with police participants centres around two forces, one of which was also able to supply the secondary statistics necessary to facilitate the quantitative analysis, and I also engage with a broad range of participants from outside of the police. Yet if I have stressed the choices I have made during the research process, and the rationale for these decisions, I have also sought to bring to the fore the limits to this agency, acknowledging the role of chance, contingency and uncertainty in the research process. Having given the reader details of the methodology and methods used, it is now time to turn to the empirical chapters of this thesis. I start, then, with Part 2, which focuses on how Taser is used in England and Wales, and some consequences of this use.

Part 2: Taser use and its consequences.

Introduction to Part 2.

This Part of the thesis aims to use mixed methods research to consider how, and with what consequences, Taser is used in England and Wales. Chapters 3, 4 and 6 use statistical analysis to look, respectively, at how Taser is used, the association between Taser use and subject injury, and the association between Taser use and officer injury. Chapters 5 and 7 seek to complement this analysis by exploring more qualitative forms of evidence around the relationship between subject and officer safety more broadly conceived. My aim is that the quantitative chapters can be read as conventional statistical analyses—thus contributing to the (almost exclusively) quantitative literature on this topic—but that they also provide an occasion to explore the added value that constructivist STS approaches can bring to the study of Taser. As quantitative studies follow a commonly accepted layout, I aim to follow this structure as closely as possible, and include discussion of the implications of constructivist STS and ANT approaches in the concluding sections, and including a text box in the discussion of dependent variables in Chapter 4, to minimise the extent to which the chapter departs from academic conventions around the presentation and discussion of quantitative findings In order to limit duplication, before turning to the Chapters in question, I now provide a detailed description of the dataset in question, before introducing some insights from constructivist STS that should be bourne in mind when reading the subsequent chapters.

The dataset.

The force from which the dataset is taken covers a relatively large geographical area that is predominantly rural, but which also contains some large towns. During the period covered by the force database (2007 – 2014), officers were equipped with a range of force options, including irritant spray [9] and baton, and also received training in empty hand techniques and the use of fabric restraint belts. The force employs dog handlers, and has a number of other specialist units, including firearms officers. Taser was rolled out to firearms officers in

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[9] The force in question used CS irritant spray throughout most of the period in question, but transitioned to PAVA in the latter few years of the data set under consideration here.

2005, to a small number of road policing officers (less than fifty) in 2009, and to a limited number of response officers (less than a hundred) in 2013 – 2014.

The data set initially comprised all recorded uses of force by officers between 1st January 2007 and 1st January 2015. After excluding cases where force had been used against property, the total number of cases on the database numbered 27,652. Each individual record represented a case in which an individual officer used one or more types of force in a particular incident. Thus if two officers used force in the same incident, the incident would be recorded twice. Force was defined broadly to include drawing of baton, incapacitant spray, Taser and baton gun, as well as the physical use of a range of techniques including: empty hand techniques, non-compliant handcuffing[10], shield use, Taser, baton, irritant spray, canine and 'other'. In addition to the type of force used, its (officer-rated) efficacy, and civilian and officer injuries, the database captures a number of important additional variables. These include the time, date, location and type of the incident, the number of officers and civilians present, the role, rank and length of service of the officer, the level of resistance offered by the subject, and the subject's gender, ethnicity, disability and mental health status (as assessed by the officer).

Data Aggregation

Whilst the dataset contained many variables of interest, the requirement that all officers using force in an incident submit a separate use of force form meant officer and subject injuries were likely to be over-estimated. For example, if six officers used force on one subject, any resultant injury would be captured six times. Moreover, as officers were often recording on their forms not just whether they themselves received injuries, but whether injuries were received by *any* of the officers involved, this risked similarly over-estimating the frequency of officer injuries. I therefore restructured the data according to incident, in order to minimise over-representation of subject and officer injuries without compromising sample size.

The data was aggregated according to date, time and station of the officers involved. This resulted in a data set of 23,556 incidents. Thus, for separate

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[10] Whilst the Use of Force form only asks officers to record non-compliant handcuffing, interviews with officers revealed some confusion around the term, with the upshot that some officers were using the form to record every time that they used handcuffs, even if their application was compliant and routine.

uses of force by multiple officers to be considered part of the same incident, they had to have been recorded as happening on the same day, at exactly the same time (down to the minute), and in the same station area (the most detailed geographical indicator available) [11].

Combining Variables from Different Records

Whilst one would expect different reports of the same use of force incident to offer largely similar accounts, there may be instances where these accounts vary. As such, where discrepancies existed, it was important that the data aggregation methods adopted were able to minimise the loss of potentially relevant data and that the methods by which one value was chosen over another (where necessary) were clearly set out. As such, the following techniques were employed:

- *Force options* were coded as being used if this had been stated by at least one officer in the incident. The option in question was considered effective if this had been stated by at least one officer in the incident.

- *Injuries to officers and subjects*, and *subject characteristics* (e.g. whether the subject had taken alcohol or drugs: whether subject was armed with a knife) were similarly considered to be present if this had been stated by at least one officer in the incident.

- *Nature and site of subject injuries* were summed. This meant that, in case of discrepancies, both sets of data would be retained in the new dataset. Similar information on officer injuries was not captured in the data set.

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[11] As an additional verification measure, a cross section of the aggregated records (N = 20) were also manually checked against the original dataset, with notes of the incident and incident numbers (where available), and other available variables checked for any evidence that might suggest the cases had been combined incorrectly. No such evidence was found. This manual check did, however, suggest that in a small number of cases (3 out of the 20 reviewed) the opposite tendency might be at work: that records had not been combined when they possibly could have been - a notable limitation of the data. Such cases, which had the same date, station location and OIS number, had not been combined due to variations in the time of when the incident was reported to have happened. However it was felt preferable to stick with the requirement for cases to have exactly the same time (as well as location and date) in order for them to be combined, for several reasons. First, whilst in one instance the discrepancy was as little as a minute—which implied that the officers had simply entered slightly different times for the same event—in another instance, the time differed by as much as ten minutes. This raised the possibility, detailed above, that the records did, indeed, refer to separate use of force occurrences. Second, relaxing the time requirement further would have risked erroneously combining incidents that were, in fact, distinct. Third, manually reviewing all incidents to see if they could be further combined was not practical in light of the size of the data set. Given the absence of comprehensive officer notes for each record, it would have also raised issues of inconsistency and analyst bias in determining whether incidents should be further collated, or should remain as separate entries.

- *Officer characteristics:* Where multiple officers were attending, and these officers had different ranks and different lengths of service, the highest rank and longest length of service were captured, in order to be able to reflect the expertise available at the scene. Where different values were given for the number of officers and subjects present, and for the number of officers using force, the largest numbers given were used. Where different values were given for the length of time that had elapsed since personal safety training, the longest gap between training was captured. Response officers, firearm-trained officers (ARVs), traffic officers and 'other' officers were all binary (yes/no) variables, and were coded as being present if at least one officer with this role description was present at the incident.

- *Incident characteristics:* Where different values were given for incident characteristics, values were selected that reflected the extent of the danger faced by officers, subjects and bystanders. Thus the most aggressive interpretation of the subject's conduct was recorded, and force was recorded as having been used to protect officers, the subject or others (as opposed to other reasons) if at least one officer had so indicated. This also meant that the longest duration of time since an officer had received personal safety training was included, and the incident was characterised as taking place at night-time or dawn/dusk if this had been mentioned by at least one officer present.

- *Incident characteristics:* Where different values were given for the type of incident (e.g. whether the incident was a domestic, a traffic incident etc.), the description that occurred first in the dataset was chosen, to avoid introducing bias into the results.

Selecting Statistical Controls.

Whilst the outcome of interest varies across chapters, the control measures entered into the models remain consistent throughout[12]. Previous studies into

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[12] Spearman's Rho tests were performed on control variables being considered for inclusion into the models to assess the extent of correlation between them. This analysis revealed that certain pairings of variables (i.e. year / policy) were significantly and strongly correlated, whilst other variables—namely mental health issues / disability, lighting levels / alcohol and officers present / officers using force—were weakly correlated (with r_s values of between .20 - .39). For reasons discussed below, I decided to keep

the factors affecting police use of force tend to include a number of relevant controls, which differ somewhat from model to model. Gau et al (2010) control for subject race, levels of subject resistance, whether the incident was a traffic stop, levels of lighting, and officer characteristics (namely the age, gender, race, height and weight ratio). Avdi (2013) controlled for subject age, gender and race, their demeanour, whether they had taken drugs or alcohol, physical resistance, and age, gender and race of the officer, and their years of service. Lin and Jones (2010) controlled for officer and subject gender and race, length of officer service and subject resistance – and also add in a control for year. Crow and Adrion (2011) similarly controlled for subject resistance, type of incident, age, gender and race of subject and officer and also control for changes to Taser policy made by the department. There is thus no one clear set of controls for models concerned with factors influencing police use of force, or Taser more specifically.

Nor, as Terrill and Paoline (2012: 165) have noted, is there agreement on the measures that should be included in models of subject and officer injury, with controls varying depending on the variables captured in the dataset to hand. Virtually all studies control for subject resistance (Terrill and Paoline 2012, Lin and Jones 2010, Macdonald et al 2009, Smith et al 2007, Smith et al 2010, Kaminski et al 2013). Many control for the age, gender, ethnicity and, where possible, drug and alcohol consumption of the subject (Lin and Jones 2010, Macdonald 2009, Terrill and Paoline 2012, Smith et al 2007, Smith et al 2010 and Taylor and Woods 2010 are able to control for all, or most, of these variables). Some studies also control for officer characteristics which, depending on the datasets, can include gender, ethnicity and length of service (Terrill and Paoline 2012, Lin and Jones 2010, Smith et al 2010, Kaminski et al 2013), with at least one study also controlling for officer rank (Crow and Adrion 2011). Whilst the importance of incident level characteristics has been recognised (see, for example, Crawford and Burns 2008), studies that control for such characteristics are few and far between. Those that do typically control for year (Lin and Jones 2010, MacDonald et al 2009), for the number of subjects and/or officers involved in the incident (Smith et al 2007 and 2010,

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these variables, entering them into the initial models, on the caveat that multicollinearity tests be performed on all models, and models adjusted where necessary.

Kaminski et al 2013), and for the type of incident (Crow and Adrion 2011, see also Gau et al 2010).

Cognisant of this literature, as well as the lack of an overarching consensus on the measures that should be included, I controlled for *subject characteristics*, including ethnicity (whether their officer defined ethnicity was White, Asian or Oriental, Afro-Caribbean or other, with White as the reference group), gender (male, female or unknown, with male as the reference group) and disability (with no recorded disability as the reference group, followed by officer identified mental health disability as a second group and physical, sensory, learning disability or other as a third group). I also controlled for whether they had taken drugs or alcohol (simple yes / no measures, with no as the reference group), and whether the officer indicated that the person had mental health issues (as well, or instead, as having a mental health disability), again a simple yes / no measure, with no as the reference group.

Officer level characteristics were also included, namely whether firearms officers were present, whether traffic officers were present, and whether response officers were present (with the reference category being no such officers present). It was considered important to control for this, as firearms and traffic officers were much more likely to have Taser at their disposal than response officers, and the level of training that these officers receive also varies. I also controlled for officer rank (with incidents where Constable was the highest rank present being the reference category, compared to incidents where Sergeants or those of a higher rank were present), the time since officers had received Personal Safety Training (PST) training on the use of empty hand techniques, baton, irritant spray and handcuffing, and length of service, based on the pre-existing categories present in the data set (five years or less being the reference category, compared to 6 – 10 years and over 10 years), as this might influence their choice of force tactic.

Incident level characteristics were controlled for, including levels of subject resistance with passive resistance or spitting the reference group, and 'making off' (i.e. attempting escape) and threats, general struggle and unarmed aggression (comprising general struggle, head-butting, kicking, punching or biting) and use of a weapon as the other categories. A separate control was

also added in to account for whether the officer had recorded a weapon as being present at the incident, irrespective of whether it was used against the officer (as there may be incidents where subjects do not use a weapon, but nevertheless have one on their person or otherwise close to hand). Controls were added for the levels of lighting / time of day (night time or low light as the reference category, and daylight as the other category) the number of subjects present, the number of officers present and the number of officers using force.

It was felt important to control both for the number of officers present, and the number of officers using force, as they capture slightly different things. The number of officers present may impact on injury rates in a number of ways. Having more officers present may impact officer and subject behaviours in positive or negative ways and may give officers more options for dealing with situations in which force is necessary, whilst the number of officers actually using force may exacerbate injury rates (more officers using force leads to more injury) or minimise them (more officers using force means the situation can be controlled).

Further controls were added in for year that the incident took place (as recommended by a reviewer given the possibility that the data may not be time invariant) and the type of incident. In line with Crow and Adrion's 2011 study, the only one to control for the type of incident in detail, incidents were divided into order maintenance (the reference category, comprising incidents that were termed either 'public order', 'football duty' or 'domestic'), suspicious person / activity (comprising incidents involving 'suspicious person' and 'alarm'), violent crime (comprising incidents of 'assault', 'sexual offence', firearm' or 'hostage'), traffic and other ('crime', 'warrant' or 'other). Whilst Crow and Adrion did not include separate groupings for incidents taking place in custody or incidents involving detention under the Mental Health Act (or the equivalent legislation in the USA), use of force in these incidents are clearly distinct, and often highly controversial, so I ensured that they were captured separately.

In keeping with Crow and Adrion (2011), and Bishopp et al (2014), I also controlled for Taser policy change in this period. Policy governing Taser in England and Wales is complex and ambiguous, and it could be argued that there was not a significant policy shift. However in 2012 national guidance was

replaced by an Authorised Professional Practice (APP) document that put increased emphasis on individual officer decision making via the NDM and no longer made explicit reference to the criteria for use of 'violence of such severity' (College of Policing 2015)—although this wording still continued to be used by the Home Office (2014a) and the IPCC (2014a). Given these potential factors, policy change was considered worthy of inclusion. APP was introduced in October 2012 (College of Policing 2015) and, following the lead of Bishopp et al (2014), allowances were made for the time taken to disseminate the policy. Lagging the variable by a year ensured that all officers would have had access to refresher training following the introduction of the APP [13].

One final control measure deserves discussion. Whilst it is commonplace for researchers to control for the level of resistance offered by a suspect, this does not capture the level of violence that the individual may represent to himself or other members of the public. In such a situation, officers may have no choice but to use force and to sustain injury. This omission might not be too much of a problem if the risks of attending such an incident were equally distributed across the data set. But specially trained officers with Taser may be much more likely than their non-Taser trained counterparts to be sent to incidents that are likely to involve violence or the threat of violence. Thus if officers are more likely to be injured in situations involving Taser, this may not reflect concerns around the weapon, but the heightened injury potential of the *situation*. The dataset contains a measure that might help control for this tendency. Officers are asked to record why they used force, and can choose from a series of ten different responses[14]. Three of the responses—to 'protect (the) public', 'protect self/other officer' and 'protect subject'—allow officers to indicate that a risk of violence is present. As such this variable was divided into cases where the officer explained his recourse to force by explicitly referencing the need to protect his/herself or others, and incidents where that was not the case.

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[13] As expected, the control for policy change was moderately and significantly correlated with the control for year (r_s = .64, p = 0.01). It was decided to keep both variables in, as they measure different features, but to consider excluding the measure for policy should this degree of multicollinearity cause issues in certain models.

[14] Namely to effect arrest, effect search, fingerprint, prevent escape, prevent offence, protect public, protect secure property / evidence, protect self / other officer, protect subject and other.

The inclusion of other controls was desirable but not possible given data constraints. It was not possible to control for whether a particular officer actually had Taser at their disposal, nor for the type of Taser firing (probe-firing, drive or angled-drive stun), the number of firing, and the length of exposures - though it should be noted that, to the best of my knowledge, no other studies are able to include these controls. Nor was it possible to control for officer gender and ethnicity, suspect age, or for incident level characteristics – including the officer's prior knowledge of the subject and the type of community in which the incident occurs--factors that Klahm and Tillyer (2010) argue are crucial but, again, rarely included in models.

Statistical Modelling and its limits: an STS inspired discussion.

Whilst the discussion so far has provided an assessment of the dataset and the models used from a conventional quantitative perspective (i.e. from something of an 'insiders' perspective), the dataset and models can also be assessed with reference to (constructivist) STS approaches (i.e. from more of an 'outsiders' perspective).   Indeed, given the stark differences and productive tensions between the two approaches, this may yet yield some further insights.   For example, ANT in particular seeks to overcome binary divisions of all kinds, the statistical technique used here (and in the vast majority of quantitative articles on Taser) models real world complexity precisely by using such divisions: it is quite literally referred to as *binary* logistic regression. This does not mean that ANT theorists see no role for statistical analyses. Latour is critical of 'statistical records that lose…the inner quantification of the organism', but challenges us to 'find ways to gather the individual 'he' and 'she' without losing out on the specific ways in which they are able to mingle, in a standard, in a code… in a technology' (2010: 155, see also Callon and Law 2005) – and this challenge, as well as broader challenges posed by constructivist STS, can help highlight certain limitations to statistical approaches.

Insufficiently capturing complex interactions and networks around technology.

Constructivist STS approaches serve to underscore, first, that the statistical assumptions built into most regression models—assumptions that, because of their basic, foundational nature are left unexamined in many statistical articles—tend to downplay the extent to which technologies (and other discrete variables)

'mingle' with a whole host of other artefacts and entities, creating outcomes that can only be understood by looking at the broader assemblages around them.

By default, binary logistic regression models are structured in a way that assumes (in the absence of including interaction effects to the contrary) that predictor variables are independent from each other, and thus the effect that one particular predictor variable has on the outcome variable does not change as other predictor variables alter (Fitzmaurice 2000: 314). Instead, the impact of one predictor variable can be examined with the others held constant. So they assume, for example, that firing Taser has the same impact on subject injury regardless of subject consumption of drugs or alcohol. Yet this may not always be an accurate depiction – instead, it is possible, for example, that Taser could be associated with higher or lower odds of injury depending on drug or alcohol consumption[15].

Few analysts, either those working on Taser, or those using regression models more generally, include interaction terms that would try to capture some of this complexity [16]. Moreover, whilst many analysts, including myself, do run collinearity diagnostics to assess the extent to which predictor variables may be correlated (with themselves, if not necessarily with the outcome of interest) high levels of collinearity are typically seen as a 'problem', as 'bad news', and as complicating efforts to understand 'which variable is important' (Field 2009: 223-4). Moreover, as often there is no simple solution to the issue of multicollinearity, researchers sometimes deal with the 'problem' by removing one of the related variables (Field 2009: 299). In general, then, statistical techniques such as binary logistic regression are designed to tease out and isolate the unique impact that different, discrete variables might have on an

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[15] See, for example, Kroll et al 2008 (677-8) who dismiss the 'erroneous statement' that 'cocaine makes… (the weapon) more dangerous' and argue, instead that it 'increase(s) the threshold for ventricular fibrillation'.

[16] Some models include one or more interaction terms in their models, by combining the two relevant variables together. However, it should be noted that very few papers on taser—the exception being the NIJ—have included interaction effects in their models. Nor is this limited to those working on Taser: Morris et al (in Jaccard et al 1990: 467) note the 'persistant failure' of analysts to include and detect interaction effects more generally (see also Fitzmaurice 2000). Moreover, the most common framework used to assess interaction effects—the moderator framework—'tends to mask the fact that the same interaction parameter characterizes the effect of X on Y when Z is the moderator variable as well as the effect of Z on Y when X is the moderator' (Jaccard et al 1990: 16). In other words, interaction terms tend to look at the interconnections in just one direction but not at more complex sets of interconnections. They also tend to focus on interactions between just two variables but, as Fitzmaurice notes, interactions can occur between many more variables.

outcome of interest. As such, they are not necessarily geared up to looking at relationships and interactions between variables. This means that many statistical models around Taser—including my own—are ill-placed to capture the intricacies and complex dynamics between humans and non-humans that, together, may make particular outcomes more or less likely.

Moreover, as this method of modelling assumes that the value of a predictor variable can be easily changed for another value—so, for example, empty hand techniques can be changed for the use of Taser, whilst keeping everything else constant—it implies that it is possible to measure the impact that this one change has on the dependent variable (for example, subject injury) *regardless* of the broader network around the weapon. Such an approach, whilst it has much to recommend it in statistical terms, is nevertheless ill-placed to capture the broader impact of different assemblages and networks within which different weapons sit. It points to the need to interpret statistical models with care, and for a cautious approach when it comes to drawing conclusions, and making policy recommendations, on the basis of such models.

Bracketing the networks and material features within technology.

An STS inspired approach can help sensitise us to other issues with statistical analysis, too. For if the statistical models presented here are ill-equipped to capture the networks *around* the weapon, they are also ill-equipped to capture the networks *within* the weapon. For practical reasons, statistical models have to black-box complex heterogeneous actors into 'irritant spray', 'Taser' or 'officer' and to treat them as a discrete whole. There is nothing wrong with doing this, of course, but one has to be prepared to re-open the 'black box' where necessary, and make sure not to bracket out such questions permanently. Details such as the composition of particular weapons—for example, the type and strength of the irritant spray used, or the type of electric-shock weapon used—can have a crucial impact on the outcomes of interest.

Seeing the process of statistical analysis—and the outputs it produces—as reflective of reality, rather than a product of socio-technical relations.

Constructivist STS approaches can also help resist the temptation to present findings as 'facts' and instead to consider the contingent and constructed nature

of statistics and the interpretive flexibility contained within them (see, for example, Innes et al 2005). As Callon and Law note (2005: 719), calculations of any kind involve entities being 'detached, and displayed within a single space…manipulated and transformed… (and) a result is extracted. A new entity is produced… This new entity corresponds precisely to - is nothing other than - the relations and manipulations that have been performed along the way'.

Of course, we don't need STS to tell us that there are risks in reducing complex real world interactions into statistical models, and to treating data as if it is somehow distinct from, and independent of, the context in which it has arisen. Many analysts from a range of perspectives already make a range of useful points in this respect. However, such a sensitivity can be a useful reminder at a time when:

> 'there seems to be an assumption…that the 'social bit' doesn't really matter: instead what matters are the data… (many) methodological approaches don't so much as even nod to how important social meaning, context, history, culture, notions of agency or structure might be – and yet these matter enormously to how we use data' (Uprichard 2015: 1).

As Uprichard et al (2008: 610) notes, such tendencies have been exacerbated by the arrival of a non-human actor, SPSS, which has encouraged a practical focus on how to use the software 'at the expense of discussing more philosophical concerns… about the decision making processes involved in making substantive interpretations about the analytical findings'. As shall be seen, awareness of such issues can be highly useful in a context where regression analyses are all too often presented simply as proof of the safety (or otherwise) of Taser, and used all-too-quickly to justify far reaching policy recommendations (Terrill and Paoline 2012). Taken together, then, constructivist STS provides some useful insights that I would urge the reader to keep in mind—and shall indeed come back to—throughout the statistical analyses presented in Chapters 3, 4 and 6.

Having provided an overview of dataset and the variables used throughout Part 2, as well as a discussion of STS inspired considerations, it is now time to move to data analysis itself, starting with analysis of how, and in what circumstances Taser is used – the task of the next Chapter.

Chapter 3: How, and in what circumstances, is Taser used?

The circumstances in which police use Taser, and other forms of force, and the factors associated with this use, are important topics of analysis for academics and practitioners alike (Gau et al 2010: Avdi 2013: White and Ready 2007). This is particularly important because the literature on this topic is 'sketchy and incomplete' (Adams and Jennison 2007: 456), but tends to show that Taser is used widely and frequently. Alpert and Dunham (2010: 251) characterise them as the police officer's 'response of choice'. Crow and Adrion (2011: 380) find that 'officers tend to use Tasers in response to lower levels of resistance... (including) verbal resistance' and Gau et al note their concern that police are 'substituting this weapon for verbal de-escalation' (2010: 452). Nevertheless most works also show increases in subject resistance, aggression and/or presence of a weapon to be significant predictors of Taser use (Lin and Jones 2010: Advi 2013: Crow and Adrion 2011 c.f. Gau et al 2010). Authors have also pointed to concerns around use of the weapon on ethnic minorities (Gau et al 2011: O'Brien et al 2011: Lin and Jones 2010 c.f. Advi 2013) and on individuals who are mentally ill (White and Ready 2007, O'Brien et al 2011).

This literature, whilst helpful, suffers from five limitations for our purposes here– issues that I intend to address with this chapter. First, with the exception of Oriola et al's (2012) work in Canada, and O'Brien et al's (2011, 2014) work in New Zealand, it comes mainly from the USA. However, given the marked differences between the USA and England and Wales on a number of variables—including the length and content of the Taser training undertaken, the medical guidance on use, the degree to which Taser has been rolled out to police officers, the extent to which citizens can bear arms, and police-civilian relations more broadly—it would be reasonable to expect patterns and determinants of use to differ between the two jurisdictions.

Yet the peer reviewed academic literature specifically on Taser use in England and Wales remains limited – a gap I attend to here. There are a handful of articles for, and by, medical practitioners (such as Bleetman et al 2004, Little et al 2012a, Little et al 2012b) and one article assessing comparative injury rates to officers from Taser and other less lethal options (Jenkinson et al 2006), which focuses on the earlier M26 Taser no longer in use in England and Wales. There is also a highly useful survey of English and Welsh police forces

conducted by Payne-James et al (2014a), which shows that the use of incapacitant spray, Taser and baton rounds have increased. However none of these studies have looked at when, and in what circumstances, officers deploy the device, and the factors associated with its use.

Second, existing work tends not to look at trends and patterns over time (for two exceptions, see Taylor and Woods 2010 and MacDonald et al 2009). However, as Adams and Jennison note (2007: 453- 3), documenting rates of use over time—as I intend to do here—is particularly important because new technologies can impact overall use of force rates in multiple ways, by increasing or decreasing overall levels of force used, or by being substituted for other force options.

Third, not all studies are able to put the use of Taser into the context of use of force more broadly. Oriola et al (2012) focus on Taser-related fatalities in Canada, but do not analyse fatalities that occur after other police uses of force or detail whether other uses of force were also used in the incident in question. White and Ready (2007: 176) argue that it is important to understand 'the context in which the weapon is used, whom it is used against, and its degree of effectiveness', but restrict their analysis only to cases where Taser is used, as does O'Brien in his work on mental health in New Zealand (O'Brien et al 2011). Such analyses, whilst highly appropriate for certain purposes, are ill-equipped to analyse Taser in the context of other force options. In such circumstances, looking at how Taser is used in relation to other force options—and ascertaining whether patterns and issues associated with Taser use are unique to the weapon, or are reflecting issues with police use of force more broadly—can be a highly useful endeavour.

Fourth, limitations in data analysis are also important, as several studies (including White and Ready 2007: Adams and Jennison 2007: Oriola et al 2012: O'Brien et al 2011, Jenkinson et al 2006) do not employ the multivariate techniques that can help assess whether, and to what extent, different factors are associated with Taser use: techniques I intend to apply here.

Fifth, there is a lack of conceptual clarity around Taser use. Crow and Adrion (2011) note that their dependent variable is Taser 'use' or 'deployment', but do not define the term: similarly Gau et al (2010) focus on two dependent

variables—if Taser is the first form of force used, or if Taser is used at all during the account—but again don't define the term use. Yet given that the weapon can be used in seven different ways, definitions matter. It is particularly important to differentiate between instances where Taser has been fired and instances where it has been used, but not fired - and, ideally, to make further distinctions within these categories. Moreover, whilst much attention is focused on use of the device in probe-firing mode, factors influencing whether the weapon is drawn and displayed are in need of further study (Lin and Jones 2010, Dymond 2014c, where I call for further research on this area, and detail some of the associated difficulties). There is thus space for an inquiry into how, on whom, and in what circumstances different methods of Taser use, and other force options, are deployed in England and Wales: a task I intend to tackle in this chapter.

The Current Inquiry

The first section of this chapter uses descriptive statistics to address basic questions around police use of Taser, namely: how often is it used and in what circumstances. The second section builds on this analysis by using multivariate logistic regression models to explore which factors, if any, are significantly associated with i) Taser firings (whether in drive-stun, angled drive-stun or probe-firing mode), and ii) incidents where Taser is drawn (with drawn also including aiming the weapon, and using the red-dot laser sight) but not fired.

Based on the previous research summarised above, I hypothesise that subject conduct and presence of a weapon will be significantly associated with increased odds of Taser firing, given the broad consensus in the literature on this issue. I also predict that the risk posed by the subject is an important variable and, as such, I hypothesise that it will be significantly associated with increased odds of Taser firing. However, there is insufficient literature on factors associated with Taser drawing to allow me to venture a clear hypothesis on this topic.

The dataset has been described in detail above, so suffice it to say that it comprises 23, 556 occasions between 2007 and 2014 in which one or more forms of force—including the drawing of weapons—were used by one or more police officers in a given incident. As has been previously discussed, variables

analysed include a range of subject characteristics (such as subject gender, disability, mental health issues, drug and alcohol consumption), officer characteristics (including their role, rank, experience and length of time since Personal Safety Training) and incident characteristics (including the year in which the incident took place, the number of officers and subjects present, the conduct of the subject, the presence of a weapon, and the threat posed to themselves or others). Please see the 'Introduction to Part 2' for further details about the dataset and the variables used. Details of variable coding and descriptive statistics can be found in Table 3.1, in Appendix 1.

**See Appendix 1, page 266 for
'Table 3.1: Variable Coding & descriptive statistics **.

Descriptive Statistics.

How often is Taser used?

Whilst much literature is focused on Taser, in this data set it is fired very infrequently, in only 1% of cases (N = 263), and was drawn, but not fired, in 3% of cases (N = 624)[17]. This contrasts markedly with the literature from the USA, which routinely finds Taser is used in between 40% - 50% of incidents in the forces under examination (Lin and Jones 2010, Crow and Adrion 2011, Gau et al 2010). In fact, the most common use of force featuring in this data set is open-handed techniques, which are used in 70% of cases in the sample (N = 16, 637). In half of cases where Taser was fired, another weapon or use of force technique was also physically used, speaking to the importance of looking at Taser alongside other force options (see Table 3.1 for a further breakdown of this).

**See Appendix 1, page 268 for
'Table 3.2: Incidents where Taser Fired with Other Force' **

It is also important to put such trends in the context of changes over time. In this instance the data shows that the numbers of incidents in which officers have used force have increased substantially during the period in question – findings in line with Payne-James et al's (2014a) analysis. In 2007 the total use of force incidents on the data set used here totalled 2,016. In 2014, the last

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[17] Percentages are rounded to the nearest whole number.

year captured by the dataset, they had increased by over 60%, to 3,292[18]. The data also indicates that the number of suspects using violent resistance [19] in their encounters with the police has also increased during this period, by just over 800 cases (from 1,523 incidents in 2007 to 2,350 incidents in 2012). During this period, the number of Taser firings increased by over 200% (from .5 to 1% of cases) - although this percentage masks a small absolute increase, from 11 to 34 uses.

Thus such findings support Adam and Jennison's (2007) contention that looking at changes in force rates over time is important – yet they also support their call for more work to be done in this area to help explicate the relationship between Taser use and use of force patterns. For whilst the data indicate an absolute increase in the amount of force used, given the relatively small number of Taser firings, the latter does not appear to be substantively driving the former. Similarly whilst Taser may be being substituted for other force options in the instances where it is fired, as Taser firings only account for 1% of uses of force overall, any substitution effect that may occur is likely to be limited. These findings directly contrast with the literature in the USA where, for example, one year after its introduction into the Washington State Patrol following its introduction, Taser was used in 40% of incidents (Lin and Jones 2010).

Overall, then, whilst Taser firings have increased and force patterns evolved over time, the weapon is only fired in 1% of incidents involving force, and of these cases 50% will involve another force technique. Such points need to be born in mind when moving on to discuss the individuals on whom, and circumstances in which, Taser is used – a topic to which I now turn.

Who is Taser used on?

Across the dataset as a whole, 93% of incidents involved the use of force on white individuals and 85% of incidents involved the use of force on males. By

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[18] Even after excluding the 21 cases that happened on 1st January 2015, this represents an increase of 62%, some 1200 cases, during a time at which officer numbers have remained constant, and have even slightly fallen. Whilst some of this may be down to increased reporting, it is unlikely that this explains all the increase. Similarly whilst some of this increase simply captures a larger number of in incidents where officers drew, but did not use, a weapon (a subset of incidents which increased from 70 in 2007 to 155 in 2014), and increases in cases where the sole force used was non-compliant handcuffing (which accounted for 85 cases in 2007 and 218 cases in 2014), these factors alone cannot fully account for this increase.

[19] Defined as including the following categories of reported behaviour: 'general struggle', biting, head-butting, kicking, punching, or holding a weapon.

comparison, incidents where Taser was fired were more likely to involve male subjects (95% as opposed to 85%) and those who consumed drugs (32% compared to 20% in general), whilst percentages were similar for ethnicity and for alcohol. There is also some evidence that incidents involving Taser are more likely, when compared to all uses of force as a whole, to involve individuals recorded as experiencing some kind of mental distress, up to and including a recognised mental health condition. In 9% of all incidents on the database, police officers recorded subjects as having a mental health condition / disability. This percentage increased to 22% when incidents involved Taser firings, and 17% of incidents where Taser was drawn but not fired.

Officers also had at their disposal a second variable around mental health, a yes / no variable which asked the officer to indicate whether they believed that the subject had some kind of issues with their mental health. These issues might not be as severe as a condition or disability (as indicated by the variable previously discussed), but might include more minor and / or temporary forms of emotional and mental distress. In 36% of incidents involving Taser firings, and 34% of incidents where Taser was drawn but not fired, the individual was reported as having such issues, compared to 18% across the database as a whole. Thus, when compared to all use of force incidents, those involving Taser are more likely to involve males and individuals who have consumed drugs or have mental health issues, with no differentiation in terms of ethnicity.

In what circumstances is Taser used?

There are clear differences in the circumstances reported when Taser is fired, vis-à-vis other force techniques. Officers reported that Taser was fired to protect officers, suspects or the public in 77% of cases, where force more generally was only used for these reasons in 47% of the time. Moreover, in 29% of cases where Taser was fired, the levels of resistance posed by the subject included the use of a weapon, compared to 4% of times when force was used in general. The flip side to this is that, in the majority of cases where Taser is fired, or drawn, it was used on someone who was not recorded as using a weapon to resist the officer. It is exactly this kind of detail that the current Home Office statistics—which produce only decontextualized, headline figures of how often Taser is used, without any of the detail about the circumstances of use—do not capture.

In addition to recording the kinds of suspect resistance offered—which may include use of a weapon—the database also has a separate variable where officers can detail what kind of weapon is present, if any. Whilst these variables overlap (as clearly a weapon must be present in order to be used) this latter variable also captures incidents where the subject may not have a weapon, but there is one close to hand. Combining these variables (subject recorded as using a weapon to resist officer, and officer indicating weapon was more generally present) into one single measure of whether a weapon has been recorded at the incident provides further evidence that the majority (55%) of instances where Taser is fired—and the majority (53%) of instances where Taser is drawn, but not fired—occur in cases where no weapon has been recorded, a point to which I return later.

**See Appendix 1, page 269, for 'Table 3.3: Frequency of Taser use in instances where weapons have been recorded' **.

Thus far, the data provides some indication that there are marked differences in the kinds of situations in which Taser is fired and in the behaviour and characteristics of those subjected to the weapon, when compared to other uses of force. But are these apparent differences actually significant? How important are these various factors—such as reported subject resistance, gender, and mental health status—in predicting whether Taser will be used? In the next section I follow the lead of Avdi (2013), Crow and Adrion (2011), and Gau et al (2010) in using logistic regression models to attempt to provide answers to these questions.

Results

Model Variables and methods.

In the first model, the outcome variable is whether Taser was fired in an incident (with firing including use of the weapon in probe-firing, drive-stun and angled drive-stun modes). In the second model the outcome variable was whether Taser was drawn, but not fired, in an incident – i.e. the highest use of Taser was the drawing of the weapon. As discussed in the introduction to Part 2, a series of controls at the officer, subject and incident level were also added.

Following comments from reviewers on an earlier draft of this chapter presented for publication, I use the forced entry method and report insignificant controls to both enhance transparency and to ensure that suppressor effects (i.e. where a variable has an effect only when a second variable remains constant) are accounted for. Studenmund and Cassidy (1987) contend that forced entry is the most appropriate technique for theory testing, as stepwise techniques can be sensitive to random variation (Field 2009: 213). I also ran a series of diagnostics to check the degree of multi-collinearity (association between two or more dependent variables impacting on model results) in the model – something that Callagan and Chen (2008) argue is all too often over-looked by analysts, particularly those from a social science background. Tests revealed that collinearity did not exceed accepted parameters.

Predictor of Taser firings.

As anticipated, increased levels of subject resistance, and presence of a weapon at the incident were statistically significant and associated with increased odds of Taser firing, and there was also a statistically significant correlation between the officer reporting that force was necessary to protect himself or others, and increased odds of Taser being fired.

Moreover, results from the first model showed that the presence of an officer who was ARV (firearms) trained, or the presence of an officer utilised in a traffic role, was a significant predictor that the odds of Taser being fired would increase, reflecting the fact that these officers are more likely than their counterparts working in response roles to have the weapon at their disposal. The presence of officers with more than six years' experience was also associated with increased odds of Taser firings, perhaps reflecting that such officers may be more likely to be trained in the weapon in the first place. 2009 and 2010 were statistically significant, perhaps reflecting the policy change that saw Taser issued to non-firearms officers from 2009 onwards.

Officer identification of the subject as having mental health issues were associated with increased odds of Taser being fired (see White and Ready 2007, O'Brien et al 2011), as was officer identification that the individual was on drugs. Whilst physical, sensory or other disability was not significant, mental health disability was significant and associated with increased odds of Taser

firing. Subject ethnicity was not significantly associated with Taser being fired (Gau et al 2011: O'Brien et al 2011: Lin and Jones 2010 c.f. Advi 2013), and neither was alcohol consumption and numbers of officers present. The odds of Taser being fired were significantly decreased in custody situations, but increased in traffic incidents, again perhaps reflecting that traffic officers were routinely equipped with the weapon. Finally, incidents where one or more officers had received PST training over a year ago were associated with increased odds of Taser firing when compared to incidents where officers had received training more recently.

** See Appendix One, page 270, for 'Table 3.4:
Logistic regression results for Taser firings' **.

Predictors of Taser drawing.

Results from the second model showed that many of the factors that were significant predictors of increased odds for Taser being fired were also significant predictors of an increase in the odds of Taser being drawn, but not fired. Thus as in the previous model, the role of the officer, the gender of the subject and whether they were experiencing mental health issues, whether the subject posed a risk to themselves or others, if they were resisting using a weapon, and if a weapon was present at the incident, were all significant predictors of increased odds of Taser being drawn, but not fired.   Policy change, lighting, and the number of officers remained insignificant, and general struggle and unarmed aggression was associated with decreased odds of Taser being drawn – perhaps reflecting that, as shown in the previous model, it was associated with increased odds of Taser actually being fired.

Unlike the previous model, alcohol was a significant predictor but drugs were not significant and nor was the length of time that had elapsed since the officer received PST training, whilst the presence of two subjects was a significant predictor that the odds of Taser being drawn would increase.

** See Appendix One, page 272, for 'Table 3.5:
Logistic regression results for Taser drawn but not fired' **.

Discussion

These results point to issues of academic and public policy importance. They provide additional confirmation—in keeping with the previous literature from the USA—that engaging (reportedly) in higher levels of resistance, being male, experiencing mental health issues and using drugs are associated with increased odds of Taser firings (Lin and Jones 2010: Advi 2013: Crow and Adrion 2011, White and Ready 2007, O'Brien et al 2011). However in contrast to much of this literature (namely, Gau et al 2010, O'Brien et al 2011: Lin and Jones 2010), little evidence of racial bias was found. This may well reflect the fact that the force in question covered a semi-rural environment, with less diverse communities than may be found in other areas. It therefore cautions us against assuming that findings in one particular context will automatically translate into other jurisdictions. The findings also point to the importance of controlling for an additional variable seldom included in previous models – that is, whether the subject poses a risk to themselves to or others. At least in this context, the variable was seen to be significant and to be associated with an increased likelihood of Taser being drawn (without being fired) and of Taser being fired.

The findings also provide some confirmation of the need to investigate concerns that those suffering from mental health issues are more likely to have Taser drawn on them, and fired at them: an area where some have called for more research to help supplement the anecdotal nature of the evidence that exists at present (MacAttram in London Assembly 2013: see also DOMILL 2012). Of particular interest is the finding that mental health disability continued to be significantly associated with Taser firing even after controlling for the conduct of the subject, and for whether they pose a risk to themselves or others. This is worthy of further study given DOMILL's findings that 'some drugs used in the treatment of certain mental health conditions… may predispose [a person] to an adverse cardiac event' (2012: 24): and that 'the longer-term psychological implications of exposure to an extremely painful Taser discharge… remain unexplored' (2012: 5).

Similarly the finding that reported drug use was associated with increased odds of Taser firing, even after controlling for the other factors listed above, may also

be of concern given DOMILL's warning that 'the threshold for development of cardiac adverse outcomes in drug-intoxicated individuals subjected to Taser discharge or other types of force may be lowered' (2012: 25: see also Zipes 2013 c.f. Kroll 2008, Kroll et al 2008). The current College of Policing Taser guidance refers only to vulnerable groups and does not specifically mention these factors as enhancing the risk associated with the weapon, but previous ACPO Guidance (2008: 11) explicitly mentioned 'mental disorder and illness' and drug consumption as 'specific risk factors.' Further work is needed into the nature of these associations for, as I discuss below, it may be that officers are more likely to record such details in cases where Taser is used, than in cases where other force options have been deployed.

The finding that incidents involving officers who had received their personal safety training refresher [20] over a year ago were more likely to result in the firing of Taser than incidents involving officers who those who had received their training more recently, is also of interest. This area deserves further investigation before reaching any conclusions, as the relationship between the two variables is not clear. As this dataset does not capture which officers at the incident were equipped with Taser, it is unclear whether these results indicate that Taser trained officers who have had PST training less recently are more likely to use the weapon, or whether more complicated, indirect mechanisms are at work [21]. This would be an important area to research as it presents the intriguing possibility, one of many, that those officers who are less familiar with, and less confident in, their use of alternative techniques may be more likely to use Taser. It would interesting to see if similar results are found in other forces, and if a clearer, more definite association between training in other force techniques and the propensity to use Taser can be established.

Finally, whilst the literature in the USA tended to conclude that Taser was being used as the weapon of choice in response to relatively low levels of force, the

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[20] At the force in question officers are meant to undertake a two day refresher course on personal safety training annually. This refresher covers a range of topics, including the use of empty hand techniques, baton strikes and irritant spray - the options that non-firearms officers will have at their disposal as alternatives to Taser.

[21] For example as, by definition, some officers are going longer than the recommended 12 months between refresher courses, it may indicate that there is something unusual about these individuals that is not captured in the data set, an underlying variable—such as long period of absence from work—that might explain increased odds of Taser firings, either by them or by colleagues.

findings here are not as clear cut. The small number of instances where Taser was fired (263 over an eight year period) indicates—at least in this Force—that Taser is not being discharged frequently or routinely or that officers have been turning to Taser instead of using other force options on a large scale. However, these findings need to be put in national context, where there have been dramatic increases in the rates of Taser firing, as discussed in the introduction to Part 2.

Moreover, the presence of a weapon on a subject was the single strongest predictor of whether Taser would be fired in a given instance, and a significant and large predictor of whether Taser would be drawn. The odds of Taser being drawn or fired was also significantly increased if the subject posed a risk to themselves or others. However, as noted above, in the majority of instances where Taser was fired, it was fired at individuals who were not recorded as using weapons to resist officers. Given the small absolute number of Taser firings, this constitutes a small number of incidents over an eight year period. There may well be extenuating circumstances in such cases, including the high level of violence that some unarmed individuals are capable of posing, the threat certain subjects may pose were they to flee, or potential access to weapons nearby. In some instances, the absence of weapon use may raise concerns about the proportionality of the force used, and may be suggestive of other ways of handling the situation, without recourse to Taser.

Yet again, however, these findings point to the need to consider the use of Taser in context. Individuals who were not recorded as using a weapon in their conduct with officers were more likely to be subject to irritant spray (N = 1,569) or baton (N = 547) than Taser (N = 186), despite the latter being widely regarded as more controversial. Such incidents also account for a very small proportion of the 23, 556 use of force cases recorded, and of the 22, 643 cases where subject conduct does not include weapon use.

Conclusion

This chapter has been the first piece of academic work to analyse how Taser and other forms of less lethal force are used by police forces in England and Wales, and has generated findings of both methodological and substantive import. In terms of the former it has highlighted the need to look at changes in

force techniques over time, to consider Taser in the context of other force options, and to differentiate between different types of Taser 'use'. It has also shown the value of controlling for the risk that subjects pose to themselves or others when assessing Taser use in England and Wales – an important methodological innovation.

In terms of the latter, it has found—in keeping with the previous literature—that reportedly higher levels of subject resistance, being male, experiencing mental health issues, and drug consumption are found to increase the odds of Taser being fired. In contrast to the previous literature, subject ethnicity is not a statistically significant determinant of Taser firings or Taser drawing. The finding that incidents involving officers who had received their personal safety training refresher over a year ago were more likely to result in the firing of Taser than incidents involving officers who those who had received their training more recently, is also novel and potentially of interest. The findings also show that whilst clear differences exist between situations in which Taser is fired and situations involving other force options—with the former significantly more likely to involve the presence of a weapon, and threats to subjects or others—Taser, and other LLWs, are sometimes fired on unarmed individuals.

That said the findings detailed here should be interpreted with caution for several reasons. Due to data limitations it has only been possible to analyse data from one force, and there is a need for more systematic data collection and analysis to help assess whether the findings detailed above are isolated examples or indicative of a broader trend. Nor has it been possible to include several factors of interest, including whether Taser was available for use, which officer used the weapon, officer gender, age and ethnicity, and subject age. Neither was it possible to ascertain the order in which different force techniques were used: and how often, and for how long, a particular technique was used. No distinction could be made between instances in which Taser was drawn, drawn and red-dotted or sparked: these various uses were all recorded as 'drawing' of Taser. Similarly, Taser firing conflated firing the weapon in probe-firing, drive-stun and angled drive-stun mode.

Third, even where relevant variables are captured, their interpretation is not clear cut. Instead of seeing statistical analyses as reflective of the 'reality' and

'facts' around Taser, constructivist STS encourages us to examine the way in which particular facts may be created, and come into being. Seen from this perspective, whilst a statistically significant association between Taser use and particular subject characteristics might be a neutral reflection of an underlying pattern, other possibilities also present themselves. It should not simply be assumed that such correlations can shed light on the independent reality of Taser use: instead, these statistical results they produce should be seen as the outcome of complex socio-technical processes and interactions between, for example, officers, technologies, forms, statistical software and researchers – and should therefore be treated accordingly. It may be, for example, that officers are more likely to record additional details around, mental health status, subject conduct, weapon possession, and drug intoxication in instances where Taser was fired, as they perceive its use to need additional justification. They are also used to filling out a detailed additional Home Office form every time Taser is used, which may encourage them to provide more detail on the in-house database than they might do for other uses of force. Such issues also highlight a broader limitation common to many use of force studies – namely, reliance on officer accounts of particular incidents.

Such limitations notwithstanding, this chapter has attempted to focus our attention on a relatively neglected issue: how Taser is being used in England and Wales, and the factors associated with the weapon being drawn and fired. Equally important, however, are questions around the *outcome* of such incidents, in particular the injuries to subjects and officers associated with the discharge of Taser and other force options - and it is to this topic I now turn in the next chapter, before looking, in the following chapters, at officer and subject views of the weapon.

Chapter 4: Taser and Subject Injury Rates: A Multivariate Analysis.

One of the most studied consequences of Taser use is the association between the firing of the weapon and (visible) subject injury - and it is easy to understand why. The relationship between police use of force and injury to subjects is an important one particularly as, under soft law standards, officers have a responsibility to 'minimise damage and injury' to those on whom force is used (UN Basic Principles on the Use of Force and Firearms, 1990). This throws into sharp relief the need to measure and compare the extent, number and type of injuries inflicted by different force techniques to enable officers to make informed decisions about which options may be least injurious.

Such topics lend themselves to statistical analyses and the peer reviewed literature on this topic is highly quantitative (Kaminski et al 2013, National Institute of Justice 2011, Smith et al 2007, Smith et al 2010, Taylor and Bruce 2010, Terrill and Paoline 2012). Whilst this literature, at least theoretically, includes instances where police force has been followed by the death of a subject, in practice fatalities following the use of 'less-lethal' force have not occurred (or have not been reported to have occurred) in the vast majority of studies focusing on injury rates. There thus tends to be one body of work, located within quantitative criminology, focusing on non-lethal injuries associated with Taser firing - and a second, more diverse body of work focusing on police fatalities. However, studies in this latter category often comprise highly specialised debates conducted by physicians, electrical engineers and physicists, amongst others (e.g. Kroll et al 2014, Sheridan 2014, Zipes 2014).

The value this chapter can add is located firmly in the former category, concerned predominantly with the relationship between Taser firing and non-lethal subject injury. Like the previous studies before it, it does not look specifically at the association between Taser use and fatalities, due to lack of deaths in the dataset in question. Nor does it look at consequences of use *other* than visible injury – this discussion is one I return to in the next Chapter. Instead, it aims to add to the quantitative literature on the relationship between Taser and subject injury rates – which, for many, is seen as the only consequence worth considering (Kaminski et al 2013). As such, Section 1 reviews the literature on Taser and subject injury. Section 2 sets out the

research questions arising from this review, and the models used to answer them. Section 3 presents descriptive statistics, Section 4 presents model results and Section 5 provides supplementary analysis, before concluding.

The Existing Literature

On the whole, studies find that Taser is associated with reductions in subject injury. Alpert and Dunham argue that 'the evidence is consistent that…(the weapon) reduces the risk of injuries to suspects' (2010: 248), and Kaminski et al argue that the evidence is 'relatively consistent' (2013: 2). For example, Bruce and Taylor (2010: 260) compared forces who had Taser to those who didn't, and found that the former had 'lower rates of… suspect severe injuries'. MacDonald et al (2009: 2268) conducted time-series analysis of forces before and after the adoption of Taser and found that the 'monthly incidence of injury in 2 police departments declined significantly, by 25% to 62%, after adoption of CEDs'. Studies using logistic regression have also found an association between Taser and reduced subject injury rates (MacDonald et al 2009: NIJ 2011: Smith et al 2007).

However the evidence is not unanimous. Research conducted for the NIJ by Smith et al (2010, 4-8) found Taser use was associated with decreases in suspect injury in two forces but was statistically insignificant in a third. Lee at al (2009) found 'an increase in sudden deaths… in the early period of Taser deployment and then a decrease in these events to pre-deployment levels', whilst Lin and Jones (2010) found that Taser use was correlated with a decrease in subject injuries in one year, but correlated with an increase in subject injury the following year. In addition, many of these studies used the same datasets (Neuscheler and Freidlin, 2015), meaning that any idiosyncrasies or flaws in a particular dataset may be replicated more broadly (a point I return to in the officer injuries chapter). Moreover, almost all of these studies were based in the USA. Whilst the only study to look at subject injury rates in England and Wales (Jenkinson et al 2006) found that they were lower in cases involving Taser, than in cases involving irritant spray or baton, the injury rates following Taser were taken from the Taser International database and the study was unable to control for confounding factors.

The existing literature has other issues, too. A common technique is to set up a dichotomous variable, differentiating between incidents where Taser was fired and where it wasn't fired (e.g. National Institute of Justice 2011: MacDonald et al 2009, Smith et al 2007, Smith et al 2010). Such models have advanced our understanding in several ways, but are unable to differentiate between instances where Taser was used by itself and instances where it was used in conjunction with other weapons, and compare Taser use to broad, general reference categories. The former may mean that the independent effect of Taser on injury is obscured, whilst the latter may complicate efforts to compare it with other force options (Terrill and Paoline 2012, Paoline et al 2012). In addition, in several papers (e.g. Smith et al 2010 and MacDonald et al 2009) the term 'use' is not defined. As such, it is not clear whether Taser 'use' is restricted to those situations where the weapon is fired—which presumably is the case—or also includes situations where the weapon was only drawn or red-dotted. Indeed Lin and Jones (2010) provide, to my knowledge, the only multivariate analysis looking specifically at the impact of drawing the weapon.

In order to overcome such issues, alternative logistic regression models are sometimes used. PERF (2009: 46) differentiated between instances in which Taser was the sole force used (with use defined as firing), and instances where hands on techniques, baton, or pepper spray were the sole force used. This facilitated direct comparisons between Taser and other force techniques. The authors found that Taser was associated with increased odds of subject injury by 27% when compared to a reference category comprised use of weapons 'other than CEDs, baton or OC spray', or of multiple forms of force (2009: 48) – but that it was associated with decreased odds of *severe* injury. Yet, again, this study did not directly compare instances where Taser was the sole force used to instances where Taser was used with other force.

Cognisant of such issues, Terrill and Paoline (2012) and Paoline et al (2012) created a series of models capable of differentiating between instances in which Taser was fired by itself and instances where it was fired with other force options, and of comparing these to a range of clearly delineated reference groups - models subsequently also used by Kaminski et al (2013). Terrill and Paoline's results showed that Tasers, both when used by themselves and when

used with other force options, were associated with a significantly higher probability of injury to subjects compared to cases when no CED was used, and when compared specifically to a variety of other use of force options (2012, though see Kaminski et al 2013).

Several points emerge from this review of the literature. First, there is a need for work analysing the relationship between Taser and injury rates in countries other than the USA. Second, there is a need to build on previous analyses by using statistical techniques capable of controlling for confounding variables, of differentiating between instances in which Tasers are the sole use of force used and instances where they are used with other weapons, and of comparing these instances directly to other force options. Third, there is a need to clearly define what kinds of 'use' of Taser are being considered in the models, and to look *not only* at cases where Taser is physically fired, but also to look at cases where Taser, and other uses of force, are drawn but not fired. This chapter intends to address such limitations and, in so doing, to answer Terrill and Paoline's (2012) call for further research capable of separating out the various types of force used.

The Current Inquiry

The key question this chapter aims to answer is: Whether instances where Taser is fired (either by itself or in conjunction with other force techniques) are associated with decreases in the odds of subject injury when compared to instances where Taser is not fired. Two supplementary questions are also addressed, namely: how do instances where Taser is drawn, but not fired, impact subject injury rates? How does this effect compare to instances where other weapons (namely baton and irritant spray) are drawn but not physically used?

I hypothesise that, in keeping with Terrill and Paoline's (2012) findings—whose statistical models I have broadly duplicated here—instances where Taser is fired will be associated with increased odds of subject injury, whilst instances where Taser is drawing, but not fired, will be associated with decreased odds of such injury occurring.

<u>Dependent Variable</u>

The dependent variable is whether a subject injury occurred as a result of police action, and is binary coded [22]. As the original data provided distinguished between three outcomes: i) no suspect injury: ii) suspect injury caused by the police and iii) suspect injury caused by other, this was recoded as one where injuries were caused by the police, and zero where no injury was present, or an injury was present but not caused by the police. As such, due to data limitations it is not possible to say how many subjects were injured, only that an injury had occurred to at least one subject due to police action.

Unlike some authors (e.g. MacDonald et al 2009), I do not reclassify certain types of officer recorded injury—namely 'skin irritation' from pepper spray, and 'CED dart punctures'—as non-injuries for several reasons, not least the logistical challenges in so doing. Whilst Kaminski et al (2013) were able to subtract Taser probe injuries from their dataset, the structure of my data does not specifically differentiate injuries caused by probes [23]. Moreover, there may well be some reason why the officer has seen fit to record this particular 'laceration' as an injury. My model relies on the officer's judgement—in the same way for injuries as it does for other variables—and doesn't attempt to second-guess this judgement in the coding stage of the work, although I return to such issues in the analysis of results. As such, if an officer has noted that an injury has occurred, it is coded as such on the dataset. However as officers were given no instructions on what constituted an injury (a practice common in other agencies, see Kaminski 2013), it is likely that the definition of injury will vary from officer to officer. Moreover, interviews with officers reveal that many consider it appropriate to record the relatively minor probe marks from Taser as injuries. A fairly representative comment included the following:

> 'If you have got it in flesh I think you would, you would record it (injury) on the form. Because if there is not an operational necessity to take the barb

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22 Please see the detailed description of the dataset in the introduction to Part 2 for further details.

[23] It does allow officers to categorise injury into different categories, including 'lacerations' and 'bruising'—and one could guess that all lacerations in incidents involving Taser were probe lacerations—but this is problematic as the former is not synonymous with the latter. Indeed, it is a broad category, found in incidents involving baton, canines and empty hand techniques.

out they are going to have paramedics or hospital staff remove it, so there is a risk, and there is an injury, at the end of the day'.

**What's social about being Tasered?
The construction of injuries around Taser.**

The debate around Taser and subject injury has long been conducted as if it were simply a matter of revealing the 'truth' about the impact of the weapon – a truth which can be revealed through progressive refinements to our variables, datasets and statistical models. For Terrill and Paoline (2012: 153), there is a definitive 'empirical reality' about injuries caused by the weapon. For Ho (2009: 771), it is time for 'truth about Taser', for Jauchem (2015: 55) we need to clear up the 'incorrect' perception that Taser causes more injuries than canines, and for others we need 'Truth *not* Taser' (Truth not Taser 2008).

In such a situation, insights from constructivist STS studies and ANT can serve us well. In a key paper, Grint and Woolgar once invited us to consider 'what's social about being shot' —and answered that everything was, with so called technical features, descriptions and outcomes 'always' comprised of 'aspects of the social' (1992: 378). If the injuries resulting from firearms use, up to and including death, are subject to considerable interpretation, then the same undoubtedly holds true of injuries and other outcomes said to follow Taser use. The characterisation of something as an 'injury' is not some objective, straightforward assessment, but the product of interpretation – an interpretation that may vary according to the weapon used, and the nature of the harm occasioned. The implications from this are profound, as analyses of injury rates may say more about differing approaches to, and characterisations of, injury and harm, than they do about the 'real' injury and harm occasioned.

Yet, given the far reaching impact that constructivism has had in a number of fields, it should not be presumed that one needs to work from within an STS perspective to generate such insights. Indeed, within criminology the terms of the debate have taken on a somewhat constructionist hue of late, thanks to a recent exchange between Terrill and Paoline (2012), and Kaminski et al (2013)—neither of whom work from an explicitly STS perspective—centring around the classification of certain Taser injuries. The former argue that punctures from Taser probes and other 'minor' injuries should be counted, as

they still constitute injuries. The latter argue that probe punctures do not 'meet the standard definition of injury typically used by law enforcement officials and the courts' and that 'routine minor wounds … expected as part of the deployment of the device should not be included'. In making such arguments, protagonists on both sides recognise the role of social construction in producing injuries. Kaminski et al (2013: 619) explicitly state that 'the definition of injuries resulting from force incidents is a social construct', whilst Terrill and Paoline (2012: 178) note that the inclusion and exclusion of certain injuries in data analyses—in particular the decision to exclude probe marks—are 'decision(s) made by social scientists' and tantamount to 'changing the rules for assessing injuries' depending on the weapon used.

Such discussions serve to highlight that one does not need to be versed in the complexities of STS, SCOT and ANT to make arguments about how 'facts' around particular technologies can be created and constructed, and thus that the novelty of insights derived from these approaches can be overstated. At the same time, however, such discussions also highlight the potential of such approaches, for two reasons. First STS theorists are, at least on paper, motivated by appeals to symmetry, by a commitment to treat claims about the 'truth' of technologies as constructed, contingent accomplishments, regardless from whence they originate (though see Pels (1996) for a discussion of some of the limitations of symmetry). In contrast, in the Taser debate, appeals to constructivism seem to be somewhat asymmetrical. Those whose evidence pointed to the reduced injury potential of the weapon have historically paid little attention to the ways in which this evidence, itself, has been constructed. It was only following Terrill and Paoline's research (2012)—research that used a different definition of injury, and found a markedly different picture—that such issues came to the forefront. One is left with the distinct impression from both sides in the discussion that, whilst they now make space to acknowledge that injuries are a social construct, they see such processes more as a nefarious activity that their opponents engage in to shore up their own interpretations and to obscure the underlying reality around the weapon, rather than as an inescapable feature of socio-technical life.

Second, and relatedly, constructivist STS theorists may have a slightly different

conception of the role of the analyst than do some in the Taser debate. For certain authors, the role of the researcher is not only to engage in increasingly sophisticated models of data analysis to uncover the truth and end 'misconceptions' (Jauchem 2015: 53) around Taser, but to unquestioningly adopt the definitions favoured by the police in order to do so. Thus, for example, Kaminski et al (2013: 617) criticise Terrill and Paoline for including 'actions that law enforcement and others do not consider to be uses of force', for using definitions of injury not 'typically used by law enforcement', and for the 'disconnect… between research and practice' that this has created.

Yet for Venturini (2010: 268), those scholars inspired by Actor-Network Theory are not 'responsible for deciding controversies…It is a matter of respect (as) controversies belong to (the) actors (themselves)… Researchers can certainly express their ideas… (but) in displaying their opinions, they should pay the greatest attention not to hide others'. Similarly, for Mol (2003), STS research has a key role to play not in uncovering a singular reality, but in highlighting the multiple realities that co-exist around any particular entity. So, in the same way that medical professionals and those affected with the disease may have different interpretations of atherosclerosis, so the police and those affected by the weapon may have different interpretations of the injuries associated with Taser. In neither case is the researcher compelled to adopt the interpretations used by any one particular actant in the controversy – particularly if doing so would help to silence the voices of others.

Taken together, such insights from STS studies do not preclude the researcher from drawing their own conclusions, but do usefully remind us that such conclusions should be respectful, cautious, partial and appropriately caveated.

Force variables:

Two variables for Taser firing were created. The first captured incidents where Taser had been fired and other force had also physically been used. Taser was considered to have been used in conjunction with other force if the record indicated that one or more of empty hand techniques, shield techniques, non-compliant handcuffing techniques, fabric restraints, irritant spray, baton,

canines, baton gun, firearm or 'other' force had also been deployed in the same incident. Taser was considered to be the sole force used if none of these force options had been physically used in the same incident. These variables were initially compared to all incidents where Taser was not fired, and then to more specific reference categories, namely: incidents involving empty hand techniques only, incidents involving physical baton use only, and incidents involving the discharge of irritant spray only. In these later models, all other uses of force (i.e. incidents that do not involve Taser firing, and are not in the reference category) are entered as a fourth variable, thus enabling us to retain all cases of interest in the model. This allows us to directly examine whether incidents involving Taser are less, or more injurious, than incidents involving the alternative use of force options.

Drawing, but not physically using, force options was not considered a use of force when calculating these variables, in order to differentiate between instances where a weapon was physically fired, and where it was drawn, and in order to facilitate comparison with the rest of the literature on this topic. Instead the impact of drawing (but not using) weapons is the subject of a separate, final model, whereby variables were created to represent instances where irritant spray has been drawn but not fired, Taser has been drawn but not fired, and baton has been drawn but not fired, to allow us to take a first, exploratory look at how the drawing not just of Taser, but of other force options, is associated with subject injury, if at all. A variety of controls were also used, as discussed in further detail in the introduction to Part 2 [24].

Descriptive Statistics

14% (N = 3,189) of incidents recorded on the database are listed as resulting in subject injury that has been caused by the police. Bruising, CS, laceration and

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[24] Subject level controls comprise subject ethnicity, gender and disability status, as well as whether they have drug, alcohol or mental health issues. Officer level controls include whether firearms officers, response officers and traffic officers attended the incident, as well as officer rank, length of service and the length of time since personal safety training. Incident level controls include: subject conduct, whether a weapon was present on the subject, whether the subject was posing a risk to themselves or others, the type of incident, time of day / level of lighting, the number of officer and subjects present and the number of officers using force. Year of the incident and policy in place at the time are also controlled.

other injury each account for roughly a quarter of all such injuries [25]. By comparison, incidents in which Taser was fired result in injuries 46% of the time (N = 120). Of these injuries, 70% are detailed as 'other' injury, 16% as laceration and 6% are specifically listed as being from other uses of force used in the same incident.

** See Appendix 1, page 274, for 'Table 4.1: Frequency of injury type' **.

As such there is a clear need to differentiate between instances where Taser is the sole force used, and instances where it is used with other force techniques – not least because injuries in the latter category may not be caused by Taser, but by the other force techniques used. It should also be noted that the relative frequency of injuries following incidents where Taser is used is by no means unique to this weapon. Indeed broadly similar rates of injury (between 39 – 50%) are associated with instances in which other force options (namely, incapacitant spray, baton gun and baton) are used [26]. By contrast the use of empty hand techniques, non-compliant handcuffing and other force are associated with a much lower rate of subject injury of between 12 - 15%.

Looking in more detail at the cases where Taser was fired alongside other force options, the other force option in question was often empty hand techniques. Indeed 78 cases (59% of cases involving Taser and other force) involve the use of Taser and of empty hand techniques (either with, or without other forms of force).

**See Appendix 1, pages 275 and 276, for 'Table 4.2: Injury frequency for different force techniques' and 'Table 4.3: Incidents where Taser is Fired with Other Force' **.

Also of interest is the decrease in both absolute and relative recorded subject injury rates over time. Not only have recorded injuries inflicted by the police decreased substantially, they have done so at a time when the number of

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25 Officers are able to select the type of injury inflicted from a range of options, namely: broken bones, bruising, CS, dog bite, laceration and other.
[26] The rate of injury following incidents in which canines are deployed is much lower, reflecting that this variable also captures when dogs are present but are not physically engaging with subjects.

incidents involving force has actually been increasing. Whether this shift reflects differences in the rate of officer recording of injuries, or differences in the rates of injury themselves, is something that deserves further investigation - but it is clear from this analysis that injury rates are time-sensitive, and that year may prove a useful control variable.

See Appendix 1, page 277, for 'Table 4.4: **Decrease in Subject Injuries over Time' **.

With these controls in mind, I move onto the first model: comparing incidents where Taser firing was the sole force used, and incidents where Taser was fired alongside other force, to a reference category of incidents where Taser was not fired – a model described as the 'most straightforward manner in which to assess the probability of CED use on citizen injuries' (Terrill and Paoline 2012: 171).

Results

Model 1: Reference Group Instances where Taser is not fired.
The results of this model showed that both incidents where Taser was fired with other weapons, and where it was the only force used, significantly increased odds of subject injury when compared to incidents where Taser wasn't fired. However, incidents involving the firing of Taser and the use of other force options were associated with larger increases in the odds of subject injury than incidents where Taser was the sole force used.

Some control variables were also significant across the model and, indeed, in all models involving Taser firing (Model 1 – 4). For example, being female was significantly associated with decreased odds of injury and as the number of officers present (but not necessarily using force) increased, the odds of subject injury decreased. Increased levels of subject resistance, the presence of a weapon and two or more officers using force were all associated with large increases in the odds of subject injury of roughly between 30% - 100%. Incidents where officers reported that they needed to use force to protect themselves or others were associated with smaller increases in the odds of subject injury.

Whilst such a model is useful, it is unable to tell us little about how Taser *directly* compares to other force techniques. With this in mind the models now aim, in turn, to compare Taser directly to instances where empty hand techniques are the sole force used, where baton is the sole force used, and where irritant spray is the sole force used – models used in prior research, including Terrill and Paoline (2012), and further discussed in Kaminski et al (2013).

Model 2 - 4: Reference categories: empty hand techniques only, baton only, irritant spray only.

Model 2 compared incidents where Taser was fired, either by itself or with other uses of force, to incidents where empty hand techniques were the sole force used (the reference category). The results indicate that incidents in which Taser is fired are associated with significant increases in the odds of subject injury, when compared to incidents where empty hand techniques are the sole force used. Incidents where Taser is used with other weapons are associated with larger increase in odds than incidents where Taser firing is the sole force used. This suggests that empty hand techniques may be less likely to result in injury than Taser firings.

Model 3 compared incidents where Taser was fired, either by itself or with other uses of force, to incidents where baton was the sole force used (the reference category). Incidents where Taser was fired but no other force was used were insignificant, whilst incidents where Taser was fired with other forms of force were associated with increases in the odds of subject injury, suggesting no clear evidence was available from this model to help one assess whether Taser is more injurious than baton.

Model 4 sought to compare instances where irritant spray was the sole force used (the reference category) to instances where Taser was fired by itself, and with other force. Incidents where Taser firing was the sole form of force used were significant, and associated with decreases in the odds of subject injury, whilst incidents where Taser was fired with other forms of force were insignificant. This suggests that (officer identified) subject injuries are higher in

instances where irritant spray is used than in instances where Taser is used (fired) – a point to which I return shortly.

**See Appendix 1, p280, for 'Table 4.6: Logistic regression models 2 – 4' **

<u>Model 5: Taser drawn but not fired: Reference Group all other uses of force.</u>

Focusing on injuries inflicted in instances where weapons have been fired (or force has otherwise been physically used) is a useful endeavour but, it might be argued, is one that can only take you so far.   The deterrent value of simply drawing the Taser is often described as one of the key advantages of the device (a point I come back to in Chapter 7) and one might expect that, if simply drawing a weapon was effective, there would be no need to use physical force and thus no injuries to subjects at all.

Thus it is necessary to look at the relationship between the drawing of a weapon and subject injury, and for this I turn, again, to a logistic regression model.   It was tempting to follow in the footsteps of Lin and Jones (2010), whose logistic regression models simply compared incidents where Taser was fired, and incidents where Taser was drawn but not fired, to instances where Taser was not used at all.   Such a model has much to recommend it—not least a commendable simplicity—but is unable to consider the similar deterrent value that the drawing of other weapons may have.   Cognisant of such issues, I run a slightly different model.   This model, previously described in the methods section of this chapter, again has subject injury as its outcome measure and includes the same controls as the other models.   Yet, in contrast to the previous models, the variables for the force used are not whether Taser was fired, but whether Taser was drawn (but not fired), whether irritant spray was drawn (but not fired) and whether baton was drawn (but not fired) - or, to put it another way, where drawing was the highest use of the weapon in question.

**See Appendix 1, page 283, for Table 4.7:
Frequency with which weapons are drawn but not physically used'. **

This model thus follows the lead of the NIJ, and others, by introducing into the model a series of binary variables, coded 1 if a particular force technique was used, and 0 if the technique in question was not used.   But whilst the force techniques of interest in the NIJ models were the *physical use* of a weapon (in

their model, OC spray, Taser, baton, canines and empty hand techniques), it is the *drawing* of the weapon that is the force technique of interest in this model. Thus instances where, for example, Taser was drawn but not fired are coded as 1, and are compared to all other instances on the database (i.e. instances where Taser is either not used, or where Taser is fired), which are coded as 0. This allows for cases where, say, both Taser and irritant spray have been drawn, to be in multiple categories.

The model shows that the drawing (but not using) of baton, irritant spray and Taser, are all associated with reductions in the odds of subject injury. Out of the three variables, the drawing (but not firing) of Taser has the largest effect on the odds of subject injury, reducing the odds of such injury by over 70%, whilst drawing of baton and irritant spray are both associated with reduction of the odds of subject injury by around a half. This provides additional confirmation that the drawing of Taser is associated with a reduction in the odds of subject injury. However further work needs to be done to compare the drawing of Taser, irritant spray and baton to a common reference group, and to further differentiate between instances where Taser is the sole force drawn, where irritant spray is the sole force drawn, and where baton is the sole force drawn – an interesting agenda for future research.

**See Appendix 1, page 284 for Table 4.8: Logistic regression models for drawing of Taser, irritant spray and baton **.

Discussion and Conclusion
The models above have shown that a variety of factors impact subject injury. The odds of (reported) subject injury occurring are decreasing over time: a finding that deserves additional attention to ascertain whether this pattern is widespread in other forces and, if so, whether it represents a shift in the nature of reporting, a shift in the frequency of injury, or something else entirely. Moreover, and in keeping with the previous literature (e.g. Lin and Jones 2010, NIJ 2011, PERF 2009, Terrill and Paoline 2012), being female was associated with decreased odds of injury, whilst a number of factors were associated with increased odds of injury, including increased levels of subject resistance and the presence of a weapon at the incident, and the number of officers using force. The control for whether a subject posed a risk to themselves or others

was also statistically significant, and associated with increased odds of injury, pointing to the value of controlling for this hitherto ignored variable.

Interestingly, whilst an increase in the number of officers using force was associated with an increase in the odds of subject injury, an increase in the number of officers present (but not necessarily using force) was associated with a decrease in the odds of subject injury. The mechanisms behind this association are unclear, but it may be that the presence of multiple officers dissuades individuals from using the highest levels of force, or from using force at all, and changes the dynamics of civilian-police encounters in other ways. Whilst not central to this thesis, this finding should nevertheless be explored further in future research, as it may have important safety implications at a time when police budgets are coming under increased pressure.

After controlling for these and other variables, the models indicate, in keeping with previous studies (Terrill and Paoline 2012, Lin and Jones 2010), and partially in keeping with my expectations, that incidents where Taser is drawn but not fired, are associated with decreased odds of subject injury—but that the deterrent value of Taser is far from unique—and that incidents where Taser is fired are sometimes associated with increased odds of subject injury, when compared to a variety of reference groups. More specifically, incidents where Taser firing was the *sole force used* were associated with *higher* rates of reported subject injury than incidents where empty hand techniques were the sole force used, with *lower* rates of subject injury when compared to incidents where irritant spray was the sole force fired/used, and were insignificant when compared to baton. In keeping with my expectations, incidents where Taser was *fired with other force options* were generally associated with significantly increased odds of subject injury than incidents where Taser was the sole form of force used, and when compared with a variety of other force techniques.

Thus it cannot be assumed that firing Taser automatically reduces subject injury, and it is important to look at whether Taser is used by itself, or with other force – and, if so, with what other force. Where Taser is used with other force, it is most commonly used with empty hand techniques, suggesting that consideration be given to training officers on the empty hand techniques that

are the least injurious and most suitable to be used alongside Taser, to the risks associated with them, and to mitigation measures that can be put in place.

Findings on injury rates and other force

However, focusing solely on Taser, at the expense of other force options, would be a mistake. It is particularly noteworthy that incidents involving irritant spray appear to be highly injurious, both in terms of absolute percentages, and when compared to incidents where Taser has been fired. This finding differs from much of the literature in the States (e.g. Terrill and Paoline 2012), which found incapacitants to be significantly safer. These different findings are clearly driven, at least in part, by differences in measurement. Yet it is also possible that these findings point to something more significant than differences in how to operationalise key variables.

Indeed, some of this difference may be explained by the type of incapacitant used in the various forces being studied. Most studies in the States have looked at forces that use some form of pepper spray, often OC, whilst this force used CS spray for most—although not all—of the time period under consideration. There are some indications that the latter may be more harmful than some versions of the former, and that the form of CS used in England and Wales gives particular cause for concern (Rappert 2003b). Not only has the strength of the spray itself been criticised for containing 25 times more irritant than other versions of CS (Grey in Rappert 2003b: 1272), but concerns have been raised around the short and long term effects of the chemical in which it is carried (see Payne-James 2014b). This attests to the need to pay serious attention to the materiality of the weapon, and its particular technical characteristics.

Some STS Inspired Considerations About Injury and Irritant Spray.

Moreover, from a constructivist STS perspective, differences in the injury rates associated with different types of irritant spray may not (or may not just) be reflective of different injuries 'caused' by the weapon and its technical features, but may also be reflective of the different ways in which humans, technologies and texts interact to construct something as an injury (or not). In this case, ACPO Guidance on CS Spray (ACPO 2009) has historically advised that

subjects should make a 'significant recovery' from the spray within 15 – 20 minutes of being moved to fresh air. It is possible that officers are recording the effects of CS spray as injuries because subjects are failing to recover in this timeframe – and there is evidence that this may be happening relatively frequently. Payne-James et al (2014b) looked at 99 cases where suspects were exposed to chemical irritant spray during arrest by the Metropolitan Police, of whom 88% were exposed to CS spray. They found that 50% were still experiencing effects at an average of 2.8 hours after exposure.

Important questions around whether CS symptoms should be classed as an injury notwithstanding, on a practical level, this study provides some additional limited evidence to underscore Payne-James et al's concerns about the effects of CS spray (2014b). It also points to the need for analysts to be prepared to 'unblack-box' particular technologies when interpreting their statistical analyses. Instead of just treating all irritant sprays as broadly similar, and dismissing the findings as a result of human agency (e.g. as stemming from differences in how humans have operationalised injury) it is necessary to take the materiality and the technical aspects of particular technologies seriously, appreciating that the designs and features of some weapons may be more likely to lend themselves to injury than others.

More fundamentally, however, it points to the need to go a step further still and see injuries not as simply produced by these technical features, but as co-produced by the interaction between the weapon, the texts governing its use, and the humans involved – relationships that are hard to capture via statistical models.

From findings to recommendations on Taser use?

At this stage in analysis, it is common to close by discussing the policy ramifications of the work and by making recommendations for the use of Taser (see, for example, Jenkinson et al 2006). Instead, I wish to argue that there are important limitations both to the specific analysis outlined above – and to statistical assessment of subject injury rates more broadly – that should lead us to be cautious in making far-reaching policy recommendations.

As noted previously, limitations of this data set include an inability to incorporate certain relevant controls, to differentiate between probe firing and drive-stun use of Taser and to control for how many times and how often particular force options, including Taser, are used—variables that may potentially have a large impact on subject injury. It should come as no surprise, then, that the Nagelkerke statistics for these models are low (although not unusually low for the literature), which provides some indication that the models are only able to account for a small proportion of the variance in the data. It has also proved impossible to distinguish between the severity of injuries – a key limitation common to almost all quantitative work in this area, and one that risks conflating relatively minor injuries with life-threatening ones. Another limitation well worth reiterating here is that data was drawn from only one police force. As such any attempt to draw conclusions is fraught with difficulty.

More generally, however, some additional issues with this type of statistical analysis should also be mentioned. Several factors suggest the association between subject injury and incidents involving Taser use may not be straightforward. First, within the police force in question, only a limited number of officers are trained to use Taser. Whilst, as shall be discussed in Chapter 7, Taser officers may be sent to the more violent, higher risk incidents, practicalities may mean that non-Taser trained officers may have arrived before them. It may be that other techniques were tried, and resulted in injury, before Taser was used to resolve the situation. As the data does not specify which force technique resulted in injury, any conclusions about weapon safety need to be heavily caveated.

Second, in order for officers to document harm they need to be vividly aware of it – which is perhaps easiest if visible injuries are occasioned. But what about those mechanisms of harm that leave few visible traces? The carcinogenic potential of the solvent, Methyl isobutyl ketone or MIBK, used in the CS spray deployed in England and Wales could potentially present a greater risk to long term health—of both officers and subjects—than many of the minor injuries captured here, but is something that would be systematically missing from the database altogether.

Finally, as I noted at various places throughout this chapter, looking at data analysis through a constructivist STS lens helps remind us that the data is not measuring actual injury, but officer defined injury – and the two things are not necessary the same. Officers may have powerful incentives to minimise the extent of injury inflicted by their use of force, irrespective of the force option used. Conversely, they may also have incentives to err on the side of caution by reporting injury, even if this is not confirmed, in order to 'cover themselves'. Moreover, by enabling officers to easily identify injuries caused by certain force techniques but not others—as the drop-down menu for 'injury' does by allowing officers to specifically select injuries caused by 'CS' or dogs—the structure of the data set itself may predispose officers towards indicating higher rates for some force techniques than others.

Such tensions may be heightened with Taser. On the one hand, some practitioners believe that officers may be more likely to report subject injuries associated with Taser than injuries associated with other forms of weapons. This tendency may be heightened by current practice whereby officers also have to fill out an additional form which is sent to ACPO and the Home Office for additional analysis whenever Taser is used, as well as the fact that the effects of Taser are not always as straightforward, predictable or as easy to assess as the effects of other use of force. Such factors may mean that, unconsciously, officers are more likely to report that injuries occur with Taser than they are with other weapons. Thus one Taser officer noted how:

> 'It's one of those things, its drilled into us that… it (injury) could be invisible. You do (record) it, because you have punctured the skin. And with the potential for secondary injury when they fall and the environment around them, you don't know. It could be the spine, it could be the head, you don't know. If the Taser had been successful and they had gone down… (or) if you are sticking a probe into somebody, there is an injury there' (Taser officer, Force A).

On the other hand, others (Anais 2009) have argued that it is easier for the effects of Taser to be dismissed than it is to dismiss the effects of more traditional weapons – and, of course, both tendencies may be at work simultaneously.

Such issues again draw our attention to the ways in which the data, and the measurements of injury contained within them, may be constructed by those collecting the data – and those interpreting it – leading us to question the ability of such datasets to uncover the 'empirical reality' (Terrill and Paoline 2012: 153) around Taser. It is clear is that any resultant statistics need to be treated with extreme caution. Whilst one intriguing and highly worthwhile suggestion might be to follow the lead of Payne-James et al (2014b), and ask forensic physicians and custody nurses to fill out a detailed form whenever force (or a specific force option of interest) is used, such a research programme would not necessarily completely eliminate the kinds of considerations discussed here. It is therefore necessary to bear in mind that the results of statistical analyses may say more about differing approaches to, and characterisations of, injury, than they do about the 'real' injury caused.

Such limitations highlight some of the difficulties faced not only by myself but by other academics working on the topic, when they seek to draw firm conclusions, and make policy recommendations, on the basis of limited statistical information. As such attempts to make statements about the comparative safety of different use of force options, including Taser, should be treated with caution, given the limits of the statistical models on which they are based, as well as concerns about the ability of any datasets—no matter how complex—to capture important information around the impact that police use of force can have. Ultimately the debate around subject injury, however defined and constructed, can only take us so far. Moreover, injury rates should not be used as a proxy for assessing how new technologies impact those subjected to them: the latter cannot be reduced to the former.   In order to more fully assess the consequences associated with technologies such as Taser, it is necessary to complement quantitative work with qualitative techniques capable of capturing nuances of subject experience that may not always be easily quantifiable. As such, the next chapter aims to discuss the views of individuals subjected to Taser in more detail, in order to rise to this challenge.

Chapter 5: What Statistics on Subject Injury won't tell you: Listening to those negatively affected.

Collecting and using any form of evidence in research brings (or should bring) with it questions about *whose* knowledge, and *what kinds* of knowledge, should be taken seriously, and are worthy of our consideration. Such issues are inherent in any kind of data collection, but are perhaps particularly relevant with analysis of quantitative data sets. In particular, relying solely on the kinds of secondary data examined in Chapters 3 and 4—data collected by the police for the police—means privileging certain voices whilst other voices and perspectives, in particular the views of those subjected to the weapon, are silenced. As such these sources have been described as 'inherently problematic' (Root et al 2013: 145: see also Rojek et al 2012). Perhaps partly as a consequence of this, the peer reviewed literature on the consequences of Taser use for subjects tends to focus on the odds of subject injury, ignoring other consequences that the weapon may have for those exposed to it and other concerns around its use. These important limitations seldom receive extensive discussion in quantitative accounts (e.g. Jenkinson et al 2006: Macdonald et al 2009: Smith et al 2007: for exceptions, see Root et al 2013 and Rojek et al 2012). Neither do such concerns seem to preclude authors from using their data to make far-reaching policy recommendations (a point also noted by Terrill and Paoline 2012).

This is particularly concerning given that 'very few studies… have focused on the consequences that exposure to police use of force has on suspects' and, as such, our understanding of the consequences that police use of force has for subjects is 'underdeveloped' (Meade et al 2015: 1). Indeed, Meade et al call for 'future studies' on this topic (2015: 12). This chapter aims to develop our 'understanding' of subject experiences of the consequences of Taser use—and the barriers they face in conveying these experiences—and to highlight limitations with the quantitative studies that have dominated the literature (and this thesis) to date.

Part 1 discusses methods, looking at the techniques used to research this chapter, their limitations and practical issues. Part 2 outlines some of the issues that individuals subjected to Taser face when speaking about their experiences.

Part 3 draws on Reiss' (1991) fear expectancy theory to outline some of the main concerns that these individuals have—namely the pain, fear and loss of control experienced: psychological correlates with use: and concerns about necessity —none of which are adequately captured by the dataset in use here, or by the quantitative research into Taser more broadly [27]. Part 4 concludes by drawing out the broader implications of these concerns for the assessment of the weapon more broadly.

Methods.

Three different methods were used to research this chapter. First, a search of academic and non-academic sources was conducted (NGO reports, newspaper articles, radio interviews, blogs and other fora, gathered through systematic online searches) to gather testimony from people subjected to the weapon. Second, auto-ethnographic techniques—volunteering myself to be exposed to the weapon in probe-firing and drive-stun mode, and reflecting on my own experiences—were used to generate new insights into the topic in question (Root et al 2013).

These sources were supplemented, third, with interviews with people affected by Taser, or their representatives. Lawyers and advocacy organisations working with those subjected to Taser were identified using existing contacts, and by internet search engines, and were contacted to ask if they would be interested in being interviewed for the research. They were also asked to consider forwarding my details to other lawyers and representatives who might be interested, and to clients that were deemed at a suitable stage in their legal proceedings, and to be mentally well enough, to provide informed consent to the research, should they be interested in participating. As a result of these enquiries I was able to secure face to face interviews with four legal representatives / advocates, who between them circulated details of my research to at least seven of their clients. I was subsequently contacted by four

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[27] Whilst the issue of physical injury is touched on at certain points throughout the chapter, it is not discussed at any length, partly because this has already been covered in the quantitative chapter on injuries, and partly due to the issues raised by those to whom I spoke in the course of the work. Specifically, whilst exploring the qualitative elements of such injuries is highly useful--as, for example, injuries that may appear minor on paper can have extensive, unpredictable impacts on people's lives— and I asked questions about injuries during interviews, none of the individuals involved in the research had suffered such injuries – but did mention the other themes discussed throughout the chapter.

individuals affected by Taser, and was able to interview two of them. (The other two, despite expressing initial interest, did not respond to follow up prompts).

Limitations

Several limitations of these methods should be noted. As the subjects I spoke to were contacted through lawyers and NGOs, they are by definition more likely to consider that they have had negative experiences with the weapon – and I have reflected this appropriately in the chapter heading. Such experiences are by no means universal, and anecdotal evidence suggests that there may be incidents where individuals on whom Taser is used have acknowledged afterwards that the intervention was appropriate. However, perhaps due to the long-documented bias of the media towards bad news, both in general (Galtung and Ruge in Harcup and O'Neill 2001), and in the UK in particular (Harcup and O'Neill 2001), it is difficult to find publicly available testimonies from individuals who have had more positive experiences of the weapon.

Moreover, complaints about Taser use are relatively low. The IPCC notes that the number of complaints referred to them between 2004 and 2013 (including a period, 2009 to 2013, during which it was mandatory for police forces to refer Taser complaints to the organisation) total just under 500 (IPCC 2014a). They estimate that between 2009 and 2013 the number of Taser uses resulting in a complaint has remained stable, at about 1% (IPCC 2014a: 17). But there are many reasons why individuals negatively affected by Taser use may not complain - and evidence to suggest that young people and those from black and minority ethnic groups are less likely to complain than others (IPCC 2015a: 11). There is also general evidence to suggest that some people have initially been denied the right to have their complaint recorded in the first place (IPCC 2015a: 12), although no evidence to suggest that this is an issue specific to Taser complaints[28]. Gauging the scale of those negatively affected – and how representative and widespread the concerns set out by those who participated in this study may be – is no easy task.

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[28] There are, however, related concerns about attempts by some forces to handle Taser complaints via the 'local resolution' complaints mechanism, designed only for minor issues, and concerns that not all complaints involving the firing of Taser were referred to the IPCC during the period in which it was mandatory to do so. These issues are merely footnoted as we shall return to them in Chapter 9.

Furthermore, focusing on the views of those on whom Taser is used—some of whom may, at least in theory, be threatening others with severe violence—excludes the views of bystanders and those who may have been saved from such violence through the use of the weapon. (I have conducted multiple interviews with officers on their views of the weapon—captured in Chapter 7—and many of these points are discussed in more detail there). It should also be noted that, due to time limitations, I did not conduct similar interviews with individuals subject to other forms of police use of force, making it difficult to compare the impact of incidents involving Taser to the impact of incidents involving other weapons. Finally it was not possible to interview the officers involved in the incidents described by participants in order to understand their perspectives (a technique used highly effectively by Rojek et al 2012), and it is not claimed that subject perspectives and perceptions necessarily present an 'accurate' account of events (see Rojek et al 2012).

Despite such issues it is appropriate to include such experiences here, for several reasons. First, whilst such negative experiences may be only a small fraction of overall Taser experiences, they are an important and valid part of a much broader range of experiences around the weapon. Second, for reasons that I detail in the next section, proponents of the weapon, and those who have had only positive experiences with it, often face fewer barriers to getting their voice heard than those who have had negative experiences. Whilst the case for advanced policing technologies, amongst them Taser, can be easily made by its advocates (Bowling et al 2008), it is important to make space to hear those who may otherwise have trouble getting their voices heard. Third, such accounts can provide a useful counterpoint to a debate dominated by quantitative analysis of officer accounts.

Practical issues

One additional limitation should be noted: the small number of interviews conducted. To some degree this may be due to fears (perceived or real) about the research, and the identity of the researcher, not least given my membership of the Metropolitan Police's Taser Reference Group for some of the research. The small number of interviews may also be in part a reflection of the difficulties faced when accessing those subject to Taser. Rojek et al (2012) noted that a

third of subjects contacted for their study into police use of force, including Taser, declined to participate in the research – and such generic difficulties may be heightened for populations on whom Taser has been used. As Oliver Sprague, Amnesty UK's Programme Director for Military, Security and Police noted, the psychological effects of incidents involving the weapon can be far-reaching:

> '(one client has suffered) psychological scarring, he basically can't go outside, he is scared of the outside world. He has become incredibly insular. He doesn't want to talk about what happened to him. His ability to live his life has been has been significantly impaired because of the Taser'.

I return to the issues raised later on in the chapter, but for now it is important to note that such factors may have an impact on subject recruitment. Indeed, a legal representative explained that one client whom they had advised of the opportunity to participate in the research had not responded as he was: 'trying to work out whether he wants to talk about it all, or whether he just doesn't want to. It's going over it again in detail that he finds quite hard. He is thinking 'do I want to keep on trying to make a point about this? Or do I just draw a line under it?'.

Even if subjects do choose to speak about their experiences, they face considerable difficulties in having their experiences taken seriously. As such, before considering what they have to say, it is important to consider such difficulties– the subject of next section.

Disadvantages faced by subjects.
In this section I argue that subjects wishing to convey their negative experiences of Taser are doubly disadvantaged: not only do they face significant sources of disadvantage when attempting to communicate their experiences, when they do communicate they are also faced with a series of strategies which seek to minimise the significance of the pain and suffering they have faced.

<u>Difficulties faced by subjects:</u>

As shall be seen, pain is central to many subjects' experiences of Taser. Yet describing pain is seldom straightforward: indeed, it has been argued that the 'in-expressability' of pain is an 'essential' component of it (Scarry 1985: 3).

Whilst various strategies to convey pain have been developed—including documenting the injuries caused, and making visible the instruments used to inflict the pain (Scarry 1985) – those subjected to Taser are often denied such strategies, for four reasons. First, sometimes the only visible injury from the incident will be the small incisions where probes have entered: incisions which may help make the electric shock possible but are unable to bear full testimony to its painful effects. Without such 'visible body damage', the pain inflicted by a particular weapon—whilst 'indisputably real' to the sufferer—remains 'unreal to others' (Scarry 1985: 56).

Second, images of, for example, batons or more rudimentary weapons such as nails or sticks allow people to imagine the pain inflicted by the devices. Similarly, upon seeing the Taser probes, it is possible to imagine—albeit in ways that may only dimly approximate the experience—the feeling of the metal probes embedding into skin. Yet visually seeing the Taser weapon itself gives little clue as to nature of the pain experienced. This can be a disadvantage for those seeking to convey their experiences for, as Scarry (1985: 16: emphasis added) notes, 'the point… is not just that pain can be apprehended in the image of a weapon but that *it almost cannot be apprehended without it'*.

Third, Anais (2009: 54) has argued that because the 'physiological consequences of its use are not immediately apparent…(Taser does) not bear the same scrutiny as police technologies which had rendered bodies neutral by breaking them'. Watching Taser be deployed is not only (often) less visceral than watching people being exposed to other forms of force, I would also argue that the auditory elements of the experiences are also less available for external examination. Whilst one may hear the thud of a baton hitting the skin, the closing of handcuffs around someone's wrist, if Taser is working successfully, it is completely silent. To this extent, then, 'the Taser strike is decidedly less harrowing and easier to answer for than… baton blows' (Anais 2009: 54). At the same time, however, the awe and mystique engendered by a weapon whose outward effects (freezing, immobilisation, paralysis, collapse) are all too clear, whilst the mechanism perpetrating them remains mysterious and invisible, should not be ignored (Razac 2010). Witnessing a Taser exposure thus manages to be both less and more harrowing than traditional forms of force – and much more difficult to communicate.

Fourth, assessments and interpretations of people's experiences—including of pain they have suffered—are often bound up with judgements about their credibility (Rappert 2004). Highly educated individuals have struggled to describe the pain associated with being Tasered: Rappert (2004: 25) notes that 'trying to convey that sense of pain beyond just saying it was 'painful'… is quite difficult'. Difficulties conveying thoughts and feelings about the weapon were not restricted to the pain felt, but were also experienced by participants when trying to convey other facets of the weapon. Thus, as the following extract shows, when trying to explain why they thought the weapon was different from other use of force options, even exceptionally articulate respondents recognized that they struggled to adequately convey their thoughts:

> 'I think a Taser just feels like it's in a very different category. And I don't know whether that's just an intrinsic feeling about… firing it, I don't know. It's very hard to explain it… It's just very different' (interview with Solicitor).

Additionally, the very factors that may make individuals prone to Taser use may mean that they may not always be able to describe the experiences as eloquently as they might like, and are seen as less credible witnesses (Sussman 2012). Taken together, such 'hurdles' and difficulties may mean that those who have been subjected to the weapon are reluctant to talk about, or raise issues around, their experiences with the weapon.

Dismissal techniques

Such difficulties are compounded by techniques that help to dismiss many of these concerns. If electric-shock weapons are to be widely adopted, Taser International, other electric-shock manufacturers, police officials, and other stakeholders need to highlight the efficacy of being shocked – yet also secure its relative acceptability (Rappert 2004). Marketing materials and strategies by Taser International, and other electric-shock manufacturers, need to make clear the pain suffered, yet simultaneously provide strategies to help audiences, potential users and purchasers minimise any moral discomfort or lingering unease they may experience.

One strategy is to use marketing materials which present 'idealised images of the police… as 'heroes' while discrediting perceived 'villains'' (Wozniak and

Uggen 2009: 276), thus making it easier to justify the infliction of pain upon the latter. Similarly, Anais notes, 'the technical language of patents… and the tactical language of police' rarely refer to those shocked by projectile electric-shock weapons as 'human', but see them as 'unruly', as 'mobs', as 'living targets' (Anais 2009: 55). It has been argued that such themes are also picked up by the media which, at least in the USA, 'cast victims of police killings as physical and social threats and situate police actions within legitimate institutional roles' (Hirshfield and Simon 2010: 155). Whilst such trends did not necessarily originate from England and Wales, they may nevertheless contribute to a climate in which the experiences of those who have been shocked are undervalued.

Another strategy is to minimise the seriousness of exposure. Conferences sponsored by electric-shock manufacturers provide an occasion to show 'light-hearted' videos of staff members being hit by electric-shock weapons, often met with 'wild cheers and applause', and even laughter, from the audience (Wozniak and Uggen 2009: see also Rappert 2004). Similarly, Lim and Seet (2009: 170) express concern about the 'disregard for the potential hazards of TASER use' shown in 'video vignettes' hosted on video-sharing websites. Showing exposures in such ways is not particularly conducive to reflection on the consequences of inflicting severe pain on individuals, or what such pain may mean for those experiencing it.

If witnessing 'light-hearted' exposures can serve to minimise the seriousness of the event, that is not all that it does. As noted above, to witness someone being Tasered is to also bear testimony to the mysterious and overwhelming power of the weapon, and the helplessness engendered. The message underscored is not just that being Tasered is a source of comic amusement. Rather it is that Taser can both paralyse and inflict severe pain upon you, and that, having witnessed your subjection and powerlessness at the hands of the weapon, those present will quite possibly laugh at your predicament (Razac 2010), or at the very least seek to minimise and trivialise the experience. Nothing, notes Razac, could be more disarming - nor more effective in silencing those who have experienced the weapon.

A third strategy is to provide opportunities for people to be exposed to Taser shocks themselves, in highly supportive and artificial settings. Rappert (2004: 23) has noted that, when participants receive shocks together, and recover quickly, such experiences 'provide a basis for downplaying the experiences of others who did not recover with ease' – despite the many differences between collective voluntary exposure and use in the field, where subjects may feel they had little choice over being hit with the weapon.

Taken together, then, this section has shown that such strategies—such as portraying 'heroes' and villains' in marketing material and in the mass media, providing lighthearted footage of those exposed to the weapon, and voluntarily providing people with exposure to the weapon—are combined with very real barriers that subjects face when trying to convey their experiences.

This highlights the difficulties subjects face when seeking to talk about their experiences. Yet it also underscores the difficulties faced when trying to quantify and directly compare the benefits, costs and harms of different weapons. Instead of seeing accounts of benefits, injuries and harms as straightforward reflections of the reality about the weapon itself, such accounts need to be understood in terms of the different socio-technical networks and assemblages around each particular weapon. These assemblages may lead one to conceptualise and make sense of experiences in different ways, to emphasize certain features of the experience whilst downplaying others, and may make expressing certain perspectives more or less difficult. As I have shown, subject testimony may then be received in different ways, and seen as more or less credible.

Yet despite such issues, some people exposed to the weapon are keen to discuss their experiences. As such, in the next section of the chapter I discuss, in turn, three heavily inter-related, significant aspects of their experiences: the pain, fear and loss of control experienced: the short and long term psychological symptoms associated with the weapon: and concerns over the proportionality of force used**.**

Subject Experiences
Pain, fear and helplessness.

Whilst the notion of physical pain is central to many individual's experiences of Taser, the topic is 'barely mentioned' in discussions around the weapon (Rappert 2004: 18), either in the official College of Policing Guidance around the weapon, or in human rights publications. In terms of the former, pain is mentioned once in the College of Policing Taser guidance, in the context of a reminder that it should be used to mitigate specific threats, and not 'solely to inflict severe pain or suffering' (College of Policing 2014: no page number). In terms of the latter, the 'extreme' pain caused by the weapon is certainly a key component of Amnesty International's concerns but takes up only half a page of their report into the weapon (Amnesty International 2008).

Yet pain is important. Taser International themselves stress that Taser use 'can cause startle, panic, fear… temporary discomfort, pain, or stress which may be injurious or fatal to some people' (Taser International 2013) and the UN Committee Against Torture has noted that the 'severe pain' produced by the weapon constitutes 'a form of torture' (2008: point 14). Understandably, then, interviewees tried to convey their experiences of the pain inflicted. Participants described the experience thusly:

> **'**It was something I'd never felt it before, do you know what I mean, to say it was shocking was the least, it was really quite bad. I felt it awful in my body and then I just blanked out'.

> 'I remember the pop going off and the next minute, it's difficult to describe but it's like muscle cramp, very, very severe muscle cramp for those seconds.   And you want that turned off, to be quite honest. I remember saying to myself, no don't do it anymore. Whatever you want me to do, I'll do it'.

Others who have been Tasered describe the pain as 'excruciating' (Rappert 2004) and as 'the most profound pain I have ever felt' (in Sussman 2012: 1353). As such quotes demonstrate, the 'profound' amounts of pain caused are exacerbated its all-encompassing nature. Whilst baton strikes and handcuffs, for example, tend to be experienced as localised pain, many of those subjected to Taser talk about it affecting everywhere, taking over their whole body:

> 'I did feel it and not just between the two areas (where the probes hit). If it had been just between the two areas you could probably put up with it, fight against it, you know. But it was the shock of it, it spread all over my back, it paralysed me'.

A journalist, exposed to the weapon in the course of an article he was writing for the popular publication GQ, similarly described the experience thusly:

> 'My body is rigid, falling, and no longer mine… I have to jump out of my body, but I'm trapped inside it… It doesn't feel like something coming from outside me: it feels like the whole inside of me's been taken over. Being tased is… like what I think it would be to be possessed… Instantly I was not in charge of me, and there was nothing I could do about it' (Gross 2010: no page number).

The familiarity (or otherwise) of the nature of the pain experienced may also be important.   As the quotes above show, many subjects stressed the unfamiliarity of a kind of pain they had 'never felt before'. This is a point also made by many of the lawyers I interviewed, one of whom noted that:

> 'It's a very frightening experience (for many clients) because it's so unlike anything else… The Taser is something quite different, there's something about losing control and being shot at.   For individuals, it's a lasting memory that you can't really get away from, because it is like nothing they've ever experienced'.

Fear:

No wonder, then, that those subjected to the weapon talk about the fear and mental anguish experienced. Reiss' expectancy model (Reiss 1991) holds that there are three fundamental fears: fear of *death/injury*: fear of *negative evaluation* and *fear of fear* (or fear of anxiety) itself. Each of these types of fears are comprised of the individuals' expectations that a particular event might happen (as an event that one individual might perceive to be highly likely, another might see as a rarity) and their individual sensitivity to the event if it did occur (i.e. how perturbed they would be). I argue that the use of Taser taps into all three of these fears, whilst exacerbating expectations of the particular event occurring in the first place.

In terms of the *fear of fear* itself, it could be argued that the anxiety, fear and 'highly emotional' states (Kroll et al 2014: 93) felt by many subjects exposed to police arrest and use of force could be exacerbated by the unfamiliar nature of Taser exposure.   Sussman (2012: 1355) has made exactly this argument, noting that 'the fact that a Taser's … electrical current (is) unlike anything most people have experienced… exacerbates fear because the brain does not know the extent of the bodily threat'.

Fear of *death / injury* is, almost by definition, a fear with which all weapons are associated. Yet individuals' expectations that such an outcome could occur may well be heightened in the case of Taser, given the controversial, high profile deaths surrounding the weapon, and the tendency of the media to over-report incidents where death has occurred (Ready et al 2008). Indeed, fear of death features in many subject accounts of the experience.

> 'I could have died out there as far as I was concerned… Once you get Tasered with one Taser, you could have a heart-attack or you could die. There have been people in Britain that have died from being Tasered once…let alone being Tasered several times'.

> 'As you know, there are 6 or 7 people that have died in the past few years from the Taser use.... Well that could have been me. You may have a heart condition… how do you know that wouldn't have caused the heart to stop? You know you don't know how the individual's body is going to react'.

The third fear identified by Reiss, that of negative evaluation, is also highly relevant. A strong case can be made that not knowing, or being able to control, how your 'body is going to react' to the weapon, brings with it a fear of embarrassment, humiliation and negative evaluation from others (a theme I expand on in my personal account of being Tasered, below). This is less present with other weapons where, whilst the degree of injury may differ, responses to its use tend to be largely predictable. Whilst under certain conditions exposure to certain weapons—such as tear gas—can actually be a collective experience which facilitates resistance, and increases subject's capacity for action (Roelvink 2010, Hynes and Sharpe in Roelvink 2010), exposure to Taser and one's bodily reactions is often highly individual.

Loss of control.

This loss of control, whilst related to fear of negative evaluation, is an important point that subjects raised more broadly in the course of our discussions. To some extent loss of control is an issue when experiencing any kind of violence (Macmillan in Meade et al 2015: 3 – 4). Such feelings may be exacerbated when the violence experienced is inflicted by State agents, such as the police. As one subject noted: 'I didn't have a problem with them before, I thought they

were just doing their job. But now it's completely different, I wouldn't trust a word they said.'

Such feelings may also be exacerbated by Taser, and its interaction with subjects. Whilst subjects may be subdued or cowed by the application of other forms of force, they nevertheless remain in control of their faculties (Anais 2009). When so called 'pain compliance' techniques are used in certain situations, they can present individuals with a choice to submit and to stop what they are doing, or to fight through the pain. Individuals are 'controlled, then, but nonetheless and necessarily in control'. In contrast, argues Anais, when Taser is used 'the freedom to remain in control of oneself and one's body is something that the person… utterly lacks' (Anais 2009: 56). As a result, agrees Klinig (2007: 6), 'Tasering seemingly violates dignity in a way that wrestling into submission does not'.

There are some potential issues with such a line of reasoning. One has to be careful neither to overstate the efficacy of Taser, to understate the ability of determined individuals to fight through the shock (see Ho et al 2012 for further discussion), nor to presume that freezing and loss of control is necessarily a result of Neuro-Muscular Incapacitation, as opposed to the pain and terror of the discharge. Care also needs to be taken not to simply assume such incapacitation is an inherent feature of the weapon, a state externally imposed by Taser, but to recognise it may be a complex phenomenon resulting precisely from this interaction between, and blending of, human and non-human, and the environment in which such interactions occur.

Nevertheless such insights point us to a virtually unique aspect of the Taser experience: the sense of powerlessness invoked and how terrifying this loss of control can be. This is of profound importance to those subjected to the weapon:

> '(Individuals exposed to Taser) can't remember much about the incident apart from the overwhelming sense of pain and loss of control… There is something that makes it slightly different from a baton strike… the fact that not only is it incredibly painful but you have lost all control… You ignore at your peril that feeling'.

> '(Clients) mention the feeling of incapacitation, feeling like jelly, the helplessness they felt…. Not all of them have secondary injuries but...

anybody who has been Tasered will talk to you about having nightmares of being Tasered and feeling helpless and so forth.'

'While its operating you can't move at all... You have no control and you don't know when the thing is going to stop, you just want it to stop. That's why I would say it's a horrible thing to use. So it's not a very good thing to have, is it, they can do all sorts of things.'

Thus some people that have been Tasered by the police highlight a set of interconnected, qualitative aspects of the experience, aspects they struggle to articulate but which include: an intense, all-encompassing, unfamiliar pain and fear, accompanied by a loss of control of bodily functions, and a sense of powerlessness.

My experience of being Tasered

My own, voluntary exposure to the weapon came when Taser International paid for me to visit their Arizona Headquarters in November 2014. I was asked to sign an indemnification agreement and instructed to wear safety goggles, to stand on a padded matt, and had two men either side to control my fall. It was explained that they would fire the weapon into my back for a standard five second discharge. I stood looking straight ahead, and heard a 'pop' indicating the Taser had been discharged. The time it took for the probes to hit me felt like an eternity, and when they did I involuntarily screamed in pain.   The pain was like nothing I had felt before: it was like a throbbing, pulsing sensation all through my body, taking over my body at regular intervals. Whilst it was painful, it was also unfamiliar: the part of my brain that was able to reflect on what was happening was trying to make sense of it all, to classify it and compare it to something more familiar– but to no avail.

The five seconds ended, the discharge stopped and I was lowered to the ground. I was asked how I was feeling and, to my surprise, whilst I felt a little shaken up, I did not feel badly affected and felt back to normal pretty much straight away

After a short break, I asked them to use the weapon on me in drive-stun mode. I felt quite nervous as it is reputed to be extremely painful, and we agreed company officials would touch the weapon in drive-stun mode against my arm for a second or two, instead of the full five, which they then did. The pain from drive-stun was much more familiar—I experienced it as similar to the electric-

shock you would get from an electric-fence—but much more painful. It provoked an instinctive reaction to move my arm away, which I did, resulting in only a fraction of the normal exposure.

What, if anything, did this experience bring to my research? First, prior to my exposure I had been somewhat sceptical about claims people could get back to normal straight away, but I can now see how that might be true, in certain circumstances. I was able to walk about, pain free, minutes after exposure: something I do not believe would have been the case were I to be hit with baton or chemical irritant. Second, I can see how the weapon induces extreme amounts of pain and fear in those subjected to it. After all, my experience was (relatively) manageable not only because I was able to control the time, location and duration of my exposure – and whether I was exposed in the first place— but also because of my prior knowledge of the weapon. Despite this, it was extremely painful and panic inducing, and I can see how it could be deeply traumatising. I also felt a renewed appreciation for calls for drive-stun to be prohibited, given the pain experienced.

Third, the experience heightened concerns about 'secondary injuries'. I was concerned not that I might suffer an adverse cardiac effect, but that I would injure myself during the fall, and/or suffer injury as a result of the intense muscle contractions. The presence of the two men either side of me—and their actions in lowering me to the floor—further highlighted the artificial nature of my exposure and reinforced my concerns about what would have happened in their absence.

Fourth, it also brought to my attention an allied concern, related to this loss of control. I was apprehensive that, in losing control of my body, I would do something to embarrass or humiliate myself (scream, collapse, fall awkwardly, who knows?) and concerned enough that I asked them to Taser me somewhere a little more 'private'. On the face of it, this is itself a trivial concern that is, in itself, slightly embarrassing—after all, who would be superficial enough to worry about how they were perceived whilst being Tasered—but one that points to something more fundamental. Namely that not being able to anticipate how one will respond, or necessarily control that response—whilst simultaneously having one's involuntary bodily responses on show for all to see—is an important

element that both adds to the mystique and fear around the weapon and also impacts on (or threatens to impact on) human dignity. As such this provides a good example of Ferrell's insight that auto-ethnographer's attempts to wrestle with seemingly personal troubles can help shed light on broader public issues (Root et al 2013).<u>Neuro-cognitive and Psychological issues.</u>

Having discussed issues around pain, fear and loss of control, a second set of closely related issues, raised both by DOMILL (2012) and Meade et al (2015)—as well as by those exposed to the weapon, and their representatives—is the psychological effects associated with the use of the weapon, and the need for further research into this area. This is clearly a much broader piece of work which is outside of the scope of this research, and outside of the author's skill set. Yet, having devoted an entire chapter to physical injuries, it would be remiss of me not to discuss other issues associated with the weapon. Indeed exposure to electrical injuries—from electrical sources very different in nature and in origin to Taser—have been associated with cognitive, and emotional problems, as well as depression, schizophrenia-like illnesses, and post-traumatic stress disorder (White et al 2015). At the same time, as Meade et al (2015: 1) note, 'it is logical to expect that individuals who are exposed to police use of force could experience mental health problems.... (affecting) cognitive, emotional, or social abilities'.

The few studies that have been conducted in this area have tended to concentrate on the neuro-cognitive effects of the weapon (i.e. it's impact on learning and memory, visual search abilities, speed of processing, mental flexibility, attention and concentration, and motor function), with less attention given to its impact on the emotional well-being, psychological functioning and mental health of those exposed to Taser. Studies in the former area, some conducted by analysts with links to Taser International, have found no long lasting impact on neuro-cognitive skills following the use of the weapon, and have not found consistent evidence to suggest the effects of Taser to be more severe than the effects of other force techniques (see, for example, Dawes et al 2014).

Studies in the latter area are similarly sparse. White et al (2015) looked at levels of reported anxiety and self-control before and after exposure to different

types of force (physical exertion designed to mimic fighting with an officer: Taser exposure: and physical exertion and Taser combined). They found that, immediately following the event, subject's subjective, self-reported levels of anxiety were significantly higher for those who had been Tasered, and for those who had been subject to physical exertion and Taser, when compared to those who had just undergone physical exertion alone, with differences found an hour after the event, but not present after a day. When compared to the group that had experienced Taser exposure, those that had experienced Taser and physical exertion were also significantly more likely to report higher levels of feeling overwhelmed immediately after the event, and an hour later. (No statistically significant differences of overwhelm were found between the group that had experienced only a Taser discharge and those that had experienced exertion).

Whilst White's study—which excluded individuals previously diagnosed with a psychiatric problem—found anxiety and feelings of overwhelm to be short-lived, evidence suggests this is not always the case. Meade et al (2015) conducted one of the first studies looking at the links between police use of force and subject mental health, although they did not differentiate between the type of force options used, and the definition of force used in the dataset did not explicitly include use of Taser. They used multivariate techniques to analyse a dataset of prison inmates, amongst them people with a recognised mental illness, and controlled for a number of variables, including whether inmates had reported a pre-existing mental health condition. They found that inmates who had force used against them were more likely than people that had not experienced force to report manic symptoms and symptoms of depression. This study is noteworthy for revealing the range of psychological effects experienced, as well as the longevity of emotional disturbances – the average time between arrest date and interview being just under five years.

The two subjects that I spoke to, both of whom had been Tasered more than a year ago—all noted the psychological complications associated with incidents involving Taser:

> 'I don't feel safe or content anymore, do you know what I mean, I'm not the happy person that I was before, as I say psychologically… I've been sort of having nightmares and stuff about it as well. It's not too bad now,

though I have panic attacks sometimes when I see police, I don't like to be around them. If I see them, I'd avoid them'.

'There's no physically long lasting effects but mentally it has made me sort of, more scared of police with Tasers. There's been a couple of incidents afterwards, I was assaulted somewhere else (name of location omitted), and I was going to phone the police but it put me off'.

Similarly, Oliver Sprague, Amnesty UK's Programme Director for Military, Security and Police noted that, in several of the cases they reviewed, the weapon has been associated with far-reaching psychological effects. Indeed, for one particular individual the 'Taser event has been linked to a very significant relapse of PTSD- like symptoms… He's clearly not sleeping, he's having more incidents of paranoia, he has clear agoraphobia.' He argues that some cases are notable for the fact that whilst subjects have:

'had a variety of use of force placed on them … the thing that's causing the flashbacks, causing the traumatic event, has been the use of Taser…. It's clear that the use of the weapon has been deeply psychologically troubling to them and they are reliving those moments time and time again… the only thing I can attribute it to is the painful effects of the Taser weapon are triggering some kind of deep traumatic response and they are reliving that moment over and over again and its sticking in their minds…. So that clearly, to me, is evidence of an effect that's not really understood, because it's not really about physical injury. There's no follow up done on these people, how are they feeling, how has their health issues been affected by it'.

In other cases, whilst Taser is an 'important' factor, it is part of a broader 'package' causing psychological difficulties. One lawyer noted that, for one client:

'Just the Taser would have been sufficient to give him psychological injuries. If he had just been Tasered and arrested that would still have had an effect on him. But I think the whole package, for him, that's what's caused it, the whole thing. It's flashbacks, its nightmares, it's reliving the experience again…(in another case) it isn't to do with Taser necessarily… He said that one of the things that he felt afterwards, his children would run and jump on him and want to play and it would spark off a flashback to that time. I suspect it was more to do with the restraint, I don't know. For most people I think it's the whole experience'.

This is not, necessarily, to suggest that Taser causes more psychological distress than other weapons—indeed, as Meade et al (2015) note, research

suggests that violence in general (not necessarily that generated by police) may induce PTSD symptoms—but simply that this is an area in need of further research. Further research is particularly important because the research outlined in Chapter 3 indicates that Taser may be more likely to be used on individuals who are reported as having mental health issues (see also O'Brien et al 2011): and that, in turn, individuals who are Tasered may then be less likely to engage with the police in the future, should they need to for their safety or the safety of others.

<u>Unnecessary force.</u>

A fourth concern raised by subjects exposed to the weapon is the proportionality of force used. As one solicitor noted, for many clients: 'the thing that has disturbed them the most is (that) the use of Taser… (has) just not been called for at all'. The subjects that I spoke to were keen to explain the incidents in which they were involved, from their perspective, and to explain why they felt the use of Taser had been disproportionate. In one incident, following an argument with individuals in the street, officers went to the house of one of the individuals concerned, who noted:

> 'There are cases when it (Taser) might be the best option. If you've got someone high on drugs, being very violent, that's justification. But what I am saying is in my case, it should never have been used. He (the officer) was on a mission and decided to take a thing against me (some details omitted to preserve anonymity)... He tried to arrest me and they, sort of, tried to push me through the door to put handcuffs on. And of course I held my arms so they couldn't. I wasn't trying to assault them, I was just resisting what was going on. He was straight in (with Taser). It would have been far better if he'd...said 'Excuse me, could we talk to you?'… He should have been composed and calming it down… But he was like a bull in a china shop. And he dealt with it wrong'.

In another incident police were asked to assist medical staff to section an individual. The individual involved described the incident as he recalls it:

> 'I parked up, and got out (of my car). The police were asking me my name… they were talking to me at first so why couldn't they carry on in that manner?... They were saying I was trying to get something out of my trousers… they were saying I was going for a knife… but because my arms were spread, I think I was just trying to get them down, to, like, put my keys in my pocket. (They Tasered me and) I fell to the ground. I was

wondering, then, why they didn't arrest me… But they let me walk away, and Tasered me, then let me walk away again, and Tasered me again. They didn't have to Taser me… they chose to'.

Such vignettes illustrate the complexity of many of the issues involved, as well the difficulty in trying to reach an 'accurate' account of what 'really' happened. They also illustrate the overlapping concerns of many of the individuals involved, who are concerned both about the propriety of using Taser specifically, but also have concerns over the necessity of using any force whatsoever in the incidents as they have described them. In both situations subjects felt that the communication tactics had not been appropriate, and that opportunities for engagement had not been exhausted before Taser was deployed. They also felt that their cases were not isolated incidents, but part of a larger trend whereby officers used the weapon in circumstances where it was not required. Indeed, subjects identified the incidents in which they were involved as part of a trend where officers use the weapon 'willy nilly and use them on certain people', and where they are 'trigger happy' - 'shoot first, ask questions later'. One subject noted:

'They think they've got a harmless weapon… they just go Tasering everybody, thinking that it's safe. The Taser makes them behave differently, they've got an instant way of control and they're trigger happy, you know. (In my case) I'm quite certain it was the mind-set of the officer, combined with the trigger happy way that officers use it (Taser) and also with the fact that… he didn't like the idea that I was suddenly a citizen standing up for my rights… Using it in situations where a person might harm themselves, commit suicide, or to stop a violent crime… I can understand that but it's being abused'.

Points such as these might not ever use the complex terminology of the constructivist STS literature, or of ANT, but clearly come close to what academics might call an STS inspired understanding of the weapon. Attention is given to the role of material devices such as Taser, which are not assumed merely to be passive tools, but are seen as having the ability to 'make them (humans) behave differently'. Yet at the same time negative outcomes (in this case, the 'abuse' of the weapon) are not seen as determined solely by the weapon, but are seen as resulting from complex interactions between the weapon, beliefs about that weapon (it's 'harmless' nature), individual 'mind-sets' and the nature and kind of interactions between human actants (in this case, an

interaction involving 'a citizen' claiming his 'rights'). Such accounts also highlight that concerns about necessity and proportionality should not be seen in isolation but are heavily intertwined with issues around fear, pain and suffering, loss of control, and the mental health issues and psychological effects experienced by subjects both before and after Taser deployment [29].

It should not be presumed, however, that such responses are unique to incidents involving Taser. Indeed, as one representative noted:

> 'In all my cases, clients would say that the use of force *as a whole* is unnecessary. It's not just the Taser, it's the whole thing, and it's difficult to differentiate between them. You know, at what point is Taser completely disproportionate but not other force? It's a difficult line to draw'.

Indeed, Rojek et al (2012: 314-6) observe 'unanimous' themes of 'injustice' and 'excessive force' throughout all citizens' accounts, regardless of the type of force that was used on them. There are thus risks in assuming that such concerns are unique to Taser.

Moreover, whilst some people subjected to the weapon have concerns about its necessity and proportionality, others have no such qualms and are 'glad' for its use, as the following testimony demonstrates. In this case, the individual concerned had been sectioned by police after threatening members of the public with a knife. After waking up in hospital, the woman describes how she smashed a bowl and:

> 'picked up a sharp piece of crockery. I was saying to people I was going to kill them… At one stage I walked towards one officer with the shard in my hand saying I was going to kill him too. It was at that point that he pulled out the Taser. It was very scary. It was the one thing that made me stop… It made me step back. I put the crockery to my throat and that point he drew the Taser again and said I needed to take it away. Eventually I did put it down on the ground. I am really glad they had the Taser with them. Had they not had the Taser, perhaps they would have tried to restrain me physically and it would have been a dangerous

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[29] Concerns about disproportionality are intertwined with concerns about accountability and redress – a topic discussed at length in Chapter 9 of the thesis. One subject noted: 'the whole incident upset me - and also how it had been dealt with. It's a bit of a bug bear to me and this is, well this is nearly two years ago since the Taser incident happened, and it goes on and on. You feel like there's no apology, no help, no effort to apologise or deal with it. That's upsetting because you feel that you have been done an injustice'. I do not deal with this issue here, as it is dealt with later, but wish to note that it is an important feature raised in interviews.

situation all round. The police were very professional and they handled it exactly as they should have done. There was a positive outcome for them and for me, and we got away with no injuries' (BBC Radio 4 2013).

Thus it should not be assumed that all experiences of the weapon are negative, or that all of the negative issues associated with Taser use are restricted solely to that particular force option. Such contrasting viewpoints also highlight the degree of 'interpretive flexibility' that exists around the weapon, with different interpretations, assessments and verdicts—ranging from the 'positive' to 'not very good' to 'horrible'--being offered by those who have been subjected to it: a point I shall also return to in Chapter 7, when looking at police officers' views on the weapon, which broaden the scope for interpretive flexibility out further.

Conclusion

To date the literature assessing the use of Taser has tended to focus on abstract statistical assessments of the physical injuries associated with the weapon – and the two previous chapters have been no exception. Yet use of force experiences are also highly personal and meaningful for those involved and, in contrast to much of the literature, this chapter has aimed to bring to the fore some of the qualitative experiences of those subjected to the weapon. In so doing, I have sought to offer an important counter-point to officer accounts of the weapon, and to highlight some of the micro elements around police use of force (Root et al 2013). As such, this chapter has highlighted some of the difficulties subjects face when talking about their experiences as well as the techniques used to dismiss the impact that the weapon causes. Whilst the possibility of physical injury should not be discounted, participants also stressed more intangible elements of their experiences. They were concerned with the pain, fear and loss of control—and, in some cases, long term psychological impacts—experienced as a result of what many believed to be part of a trend towards gratuitous, unnecessary use of force.

Interestingly, many of these accounts shared certain features with constructivist STS accounts of technologies inside of academia—including an emphasis on the role of the non-human, and attention to interactions between human and non-human. This reinforces the concerns of critics (e.g. Fuller 2000: 8) that, whilst such approaches might 'appear radical', they are 'equivalent to the prose

that everyone else outside the paradigm has been always speaking', and suggests that such approaches may not be as novel as they seem.

Such accounts can also highlight some of the limits to statistical accounts, which tend to focus on physical injury, and have traditionally provided the main way of assessing the impact of the weapon. This is important for several reasons. First, a focus solely on physical injury may serve to downplay the pain and suffering that Taser, and other police weapons, inflict, and that has been so vividly described here. Severe pain and suffering often constitutes a key element of subject experiences, and is central to definitions of torture and ill-treatment (see, for example, Article 1 of the UN Convention Against Torture, 1984, henceforward UNCAT) – yet, as it is hardly amenable to quantitative analysis, can be left out of academic and other debates. Second, the difficulties that those subjected to the weapon face when expressing their experiences also complicates attempts to directly associate particular harms with particular weapons. Instead of seeing such harms as stemming inexorably from and being produced as a direct result of the material properties of, say, CS or Taser, accounts of injuries and harm also need to be understood in terms of the different socio-technical networks and assemblages around each particular weapon, which may make expressing certain features of one's lived experience more or less difficult, and may mean that, once expressed, they are received in different ways, and seen as more or less credible.

Third, focusing solely on injury caused draws attention to the *outcome* of using force: but what about the *process*, and *rationale*, for having used such force in the first place? The focus on the former brackets key questions about proportionality of the force that was used: the latter brings them sharply into focus (see Kleinig 2007 for a similar discussion on the debate around Taser saving lives). Taser may, or may not, cause fewer serious injuries than other options available. Yet, as the evidence from subjects detailed above reminds us, a focus on such topics can mask another important question: whether any such injuries that could arise—and the pain and suffering that almost undoubtedly will—were justifiable in the first place, or whether they were the product of an unnecessary use of Taser and / or an unnecessary use of police force. Whether or not a weapon such as Taser is likely to cause serious injury is immaterial if it is used in situations where it's use is inappropriate,

disproportionate and thus potentially illegal. Article 1 of the UNCAT excludes from its definition of torture and ill-treatment 'pain or suffering arising only from, inherent in or incidental to lawful sanctions'. If the sanctions are not legal then, irrespective of the nature or severity of any 'injury' incurred, attention must also be given to the pain and suffering injured.

Fourth, the concerns raised here about the longer psychological impact of exposure to police force—including Taser—reinforce Meade et al's (2015: 2) call for more attention to be paid to 'whether exposure to police use of force impacts suspects' long-term psychological well-being'. As Meade et al (2015: 2) noted, 'police use of force may function as a trauma, similar to violent victimisation. Researchers have observed that youths exposed to violence in the home or in the community display greater…aggressive behaviour, and antisocial attitudes'. Similar tendencies may be at play following police use of force—and are all the more likely when that force is seen to be disproportionate—and if this is the case, using such force may create as many problems as it solves. However it is important that such effects can be captured systematically, and attempts made to analyse whether particular weapons have a bigger psychological footprint than others, and to what extent it is the forceful encounter with the police itself that causes problems.

Some of these issues may be more or less amenable to quantitative analysis. Yet in any case, quantitative work should not be considered the sole form of evidence (Weisburd and Neyroud 2011: Moore 2006). Even if further study in certain areas may be problematic, the qualitative evidence discussed here serve as a useful reminder of the utility of such approaches, as well as a warning not to jump too quickly to real-life policy suggestions and solutions from quantitative evidence alone (see also Terrill and Paoline 2012), or to assume that all effects associated with incidents involving Taser are a direct result of the weapon. Such caveats and limitations to the value of quantitative work are important to bear in mind as I turn, now, from looking at consequences of the use of Taser and other force options for subjects, to looking at the consequences for officers.

Chapter 6: Taser and Officer Injury Rates: A Multivariate Analysis.

Having looked at issues around Taser use and its consequences for subjects, this chapter focuses on consequences for officers. More specifically, it aims to answer the most question most commonly asked about Taser use and its impact on officer safety—namely, whether it reduces officer injury rates—using the techniques most commonly used to provide answers, namely descriptive statistics and binary logistic regression. Given its practical importance for policing, this topic is a crucial area of study for many academics, both from policing and governmental backgrounds (NIJ 2009, 2011, PERF 2009) and from more critical perspectives (Terrill and Paoline 2012). It is of additional importance given the (often unsubstantiated) claims that are often made about the impact of less-lethal weapons, including Taser, on officer injury rates (Lin and Jones 2010) and the 'requirement' that the risks officers face are 'minimised as far as reasonably practicable' (Health and Safety Executive 2009: 2).

Thus this chapter aims to provide a quantitative study of officer injury rates specifically. Yet I also recognise that Taser may have wider, more complex consequences for officers, and the following chapter (Chapter 7) uses qualitative techniques to widen out the focus from officer injury to officer safety more broadly. For now, however, this chapter proceeds as follows. After reviewing the existing literature in the first part of this chapter, I then set out the methods and models used in Part Two. Parts Three and Four presents descriptive statistics and model results. Finally Part Five discusses these results and their broader implications.

Existing literature

So what does the existing literature—a literature, almost without exception, based on data from the USA—tell us? The majority of studies on Taser and officer injury (Alpert and Dunham 2010, Jenkinson et al 2006, NIJ 2009, NIJ 2011, Neuscheler and Freidlin 2015) suggests that its' use is associated with decreased rates of injury to officers. Whilst many of these studies, mine included, apply logistic regression techniques to datasets from forces that have *already* adopted Taser, other researchers have been able to look at officer

injury rates prior to, and following, the introduction of Taser - and tend to come to similar conclusions. Lin and Jones (2010: 163) look at officer injury rates before and after the introduction of Taser, and find that 'the adoption of ECD did indeed reduce the rate of officer injury to a noteworthy extent' – although they are unable to control for relevant factors impacting injury rates. Macdonald et al (2009: 2270) show a reduction in officer injury when time-series analysis is used, and after controlling for relevant variables, but find 'no relationship between CED use and officer injury' using logistic regression. PERF (2009: 55) conduct analysis of forces before and after the introduction of the weapon, and also compare these forces to matched forces with the weapon. They find that 'agencies that have deployed CEDs are associated with fewer cases of officers receiving medical attention for injuries related to use-of-force'.

As such, most work finds that Taser reduces injuries to officers – but there are some exceptions, as the results for Macdonald et al's (2009) logistic regression models, described above, indicate. Similarly, Smith et al (2007) also found that Taser had no statistically significant effects on officer injury in one force, although there was a significant reduction in a second force. Paoline et al 2012 found that Tasers were associated with a decreased probability of officer injury when used by themselves, but an increased probability of injury when used with other forms of force. It is tempting to agree with follow Neuscheler and Freidlin's assessment that, whilst the literature is 'by no means unequivocal', it offers 'significant support for the contention that ECWs reduce injuries to officers to some degree' (2015: 41).

Why, then, another study on officer injury rates? There are at least three reasons. First, at present, not enough is known about how less-lethal force is actually used in the England and Wales to ascertain whether, and to what extent, findings from the USA also hold true here. There has only been one article assessing comparative injury rates to officers from Taser and other less lethal options (Jenkinson et al 2006: 229, 232), which found that officer injury rates were lower with Taser than with irritant spray and baton use, but focused on an old Taser model no longer in use, and failed to control for any variables that may have been confounding the relationship.

Second, as Paoline et al (2012) indicate, much of the literature on officer injury rates suffers from the same limitation as the literature on subject injury rates: namely, a failure to distinguish sufficiently between the different types of force used. Many statistical models are unable to differentiate between instances where Taser was used by itself and instances where it was used in conjunction with other weapons, and are unable to compare outcomes from Taser use with outcomes from the use of specific force options (instead tending to compare Taser use to all other incidents involving force). Yet, as Paoline et al's work indicates, such distinctions are crucial, and more work along such lines is needed.

Third, and relatedly, with the exception of Lin and Jones (2010), the empirical work around Taser tends to focus on firings, and leaves unexamined the impact of drawing, but not firing, the weapon. It is, as Lin and Jones note (2010: 153 - 6), an 'article of faith' that drawing of Taser prevents serious injury to both suspect and officer' – but an assumption that should be empirically tested.

The Current Inquiry

The key question this chapter aims to answer is: <u>Whether instances where Taser is fired (either by itself or in conjunction with other force techniques) are associated with decreases in the odds of officer injury when compared to instances where Taser is not fired.</u> Two supplementary questions are also addressed, namely: how do instances where Taser is drawn, but not fired, impact officer injury rates? How does this effect compare to instances where other weapons (namely baton and irritant spray) are drawn but not physically used?

I hypothesise that, in keeping with Paoline et al's (2012) findings—whose statistical models I have broadly duplicated here—instances where Taser is drawn but not fired, and instances where Taser firing is the sole form of force used will be associated with decreased odds of officer injury, but instances where Taser is fired with other forms of force will be associated with increased odds of officer injury.

The models adopted to investigate these associations mirror those adopted in Chapter 4 to look at subject injury. The outcome measure is a binary variable, coded 1 if injury occurred to one or more officers and 0 if no injury occurred.

Given findings from my qualitative work, which indicated that officers were interpreting the 'officer injury' field in different ways—some recording officer injury only if they, themselves, had been injured, and others recording officer injury if any officer present had been injured—it was not possible to say how many officers were injured in a given incident, only that an injury had occurred to at least one officer. One particular limitation of this is that, as with previous data sets (e.g. Jenkinson et al 2006), the unwanted effects of CS spray—which can often contaminate officers, as well as the intended subject—may be underestimated.

The control variables are the same as those discussed in Chapter 4[30], as are the force variables used, and are also discussed at length in the introduction to Part 2 of the thesis. To briefly recap, two variables for Taser firing were created. The first captured incidents where Taser had been fired and other force had also physically been used[31]. Taser firing was considered to be the sole force used if no other force options had been physically used in the same incident. These variables were compared to all incidents where Taser was not fired, and then to more specific reference categories, namely: incidents involving empty hand techniques only, incidents involving physical baton use only, and incidents involving the discharge of irritant spray only. In these later models, all other uses of force (i.e. incidents that do not involve Taser firing, and are not in the reference category) are entered as a fourth variable, thus enabling us to retain all cases of interest in the model. These latter models allow us to directly examine whether incidents involving Taser are less, or more injurious, than incidents involving the alternative use of force options available to police officers in England and Wales – and thus follow the methodology used by Paoline et al (2012) and Macdonald et al (2013).

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[30] As previously discussed, subject level variables comprise subject ethnicity, gender and disability status, as well as whether they have drug, alcohol or mental health issues. Officer level variables include whether firearms officers, response officers and traffic officers attended the incident, as well as officer rank, length of service and the length of time since personal safety training. Incident level controls include: subject conduct, whether a weapon was present, whether the subject was posing a risk to themselves or others, the type of incident, time of day / level of lighting, the number of officer and subjects present and the number of officers using force. The year of the incident and policy in place at the time are also controlled for.

[31] As previously discussed, Taser was considered to have been used in conjunction with other force if the record indicated that one or more of empty hand techniques, shield techniques, non-compliant handcuffing techniques, fabric restraints, irritant spray, baton, canines, baton gun, firearm or 'other' force had also been deployed in the same incident.

Drawing, but not physically using, force options was not considered a use of force when calculating these variables, in order to differentiate between instances where a weapon was physically fired, and where it was drawn, and in order to facilitate comparison with the rest of the literature on this topic. Instead the impact of drawing (but not using) weapons is the subject of a separate model, whereby variables were created to represent instances where irritant spray has been drawn but not fired, Taser has been drawn but not fired, and baton has been drawn but not fired, to allow us to take a first look at how the drawing not just of Taser, but of other force options, is associated with officer injury, if at all.

Before turning to the results of these regression models, it is first necessary to take a brief look at some descriptive statistics for the data set as a whole.

Descriptive Statistics.

10% of incidents recorded on the database (N = 2,446) are listed as resulting in injury to at least one officer. Due to data limitations it is not possible to give more detail about how many officers were injured, the nature or severity of the injuries inflicted, the cause of the injury, or the point in time at which the incident occurred. Incidents in which Taser is fired have an officer injury rate of 13%, but further subdividing these incidents shows that the bulk of these injuries occur in situations where Taser is used (fired) with other force. Incidents where Taser is the sole form of force used (fired) have a relatively low officer injury rate of 7%, but incidents where Taser is used (fired) with other force options has a higher injury rate of 20% - providing further evidence of the need to differentiate between the different types of incidents in which Taser is used, following Paoline et al's (2012) models.

**See Appendix 1, page 286, for 'Table 6.1:

Injury frequency for incidents involving different force techniques'.

In 42% of incidents where Taser is used (fired) with other force, it was used alongside at least two other force options. In 24% of incidents where Taser was used with other weapons, empty hand techniques were the only force used alongside Taser, and in 15% of cases Taser was used alongside non-complaint handcuffing techniques only. In 42% of all incidents where Taser was used with

other force options, multiple forms of force were used, which often included empty hand techniques.

**See Appendix 1, page 287, for 'Table 6.2:
Taser Fired with Other Force' **.

Turning to incidents where weapons are drawn but not fired, incidents involving the drawing of Taser result in recorded officer injury in 5% of cases, compared to 9% of cases where baton is drawn but not fired, and 13% of cases where irritant spray is drawn but not fired. This provides an indication that the deterrent effects of drawing Taser, and its benefits for officer injury, should be further investigated. I come back to this issue in the logistic regression models, to which I now turn.

**See Appendix 1, page 288, for 'Table 6.3:
Injury frequency for incidents involving drawing of force options' **.

Results

Model 1: Reference Group Instances where Taser is not fired.

In the first model, incidents where Taser firing was the sole force used, and incidents where Taser was fired alongside other uses of force, were compared to a reference category of incidents where Taser was not fired. This model has been described as the 'most straightforward' way to assess the association between Taser use and injury (Terrill and Paoline 2012: 171).

The results from Model 1 indicate that, when compared to instances where Taser was not fired, incidents where Taser firing is the sole force used are associated with decreased odds of injury, but not statistically significant at the 0.05 level. Incidents where Taser is used (fired) alongside other weapons are statistically significant and associated with increased odds of officer injury: findings broadly in line with Paoline et al's (2012) work. Multi-collinearity was assessed and found to be within accepted parameters.

Several of the control variables are also worthy of note. In this model and most, if not all, of the models discussed in this chapter, subject drug consumption, presence of a weapon, presence of three or more subjects, multiple officers using force, and higher levels of subject resistance are all significantly associated with increased odds of officer injury. However results were

insignificant for incidents where subject resistance involved the physical use of a weapon - perhaps given the amount of diversity present in this category. Incidents involving violent crime are also associated with increases in the odds of officer injury, whilst incidents involving detention under the Mental Health Act, or taking place in detention, were associated with lower odds of officer injury. As the number of officers present increase, the odds of an officer being injured decrease. The odds of injury significantly decrease over time, with incidents in later years less likely to result in injury than those occurring in 2007, as discussed above.

The type of officers present at an incident also made a difference. Whilst incidents where firearms officers were present were associated with a decreased risk of officer injury (when compared to incidents where firearms officers were not present), incidents where response officers were present were associated with an increased risk of officer injury (when compared to instances where response officers were not present). Such a finding, which initially seems counter-intuitive—surely, one might assume, given the higher risk incidents to which they are sent, firearms officers would have higher odds of injury—may make more sense when one considers the enhanced deterrent value of firearms officers, the additional training they receive, and the fact that they work in teams and are rarely (if ever) single crewed.

**See Appendix One, page 289, for 'Table 6.4: Logistic regression results for Model 1. Reference Group: Incidents where Taser is not fired' **.

Whilst these results are interesting, they have little to say about how Taser *directly* compares to other force techniques. With this in mind the models now aim, in turn, to compare Taser to instances where empty hand techniques are the sole force used, where baton is the sole force used, and where irritant spray is the sole force used.

Model 2 - 4: Reference categories: empty hand techniques only, baton only, irritant spray only.

Model 2 compared incidents where Taser firing was the sole force used, and Taser was fired alongside other weapons, to a reference category of incidents where empty hand techniques were the sole force used. Incidents where Taser

firing was the sole force used were insignificant, and associated with no substantive change in the odds of officer injury, whilst incidents where Taser was fired alongside other weapons were associated with increased odds of officer injury, when compared to incidents where empty hand techniques were the sole force used. Similar results were found in Models 3 and 4. Model 3 compared incidents where Taser firing was the sole force used, and Taser was fired alongside other weapons, to a reference category of incidents where baton techniques were the sole force used. Model 4 compared incidents involving Taser (fired by itself or with other weapons), to incidents where irritant spray was the sole force used. Both models returned similar results, where incidents where Taser firing was the sole force used were found to be insignificant. Incidents where Taser was fired with other force were associated with increased odds of officer injury, when compared both to incidents where baton was the sole force used, and to incidents where irritant spray was the sole force used. Multicollinearity was tested for all models and was found to be within acceptable parameters.

** See Appendix 1, page 291, for 'Table 6.5: Logistic regression models 2 – 4 **.

Model 5: Drawing, but not firing, Taser.

The final model looked at incidents where Taser was drawn but not fired, where irritant spray was drawn but not fired, and where baton was drawn but not used. None of these results were statistically significant, although the P value for the drawing of irritant spray was .058, and the P value for the drawing of Taser was .063.

** See Appendix 1, page 294, for 'Table 6.6:
Model results for drawing of Taser, irritant spray and baton' **.

Discussion and Conclusion

This chapter has used quantitative techniques to look at the association between Taser use and officer injury rates. In contrast to the hypotheses set out at the start of the chapter, these models have generated relatively inconclusive results. Whilst incidents where Taser firing was the sole form of force used were associated with a decrease or little change in the odds of

officer injury, these results were all statistically insignificant, as were the results from the model looking at instances where Taser is drawn but not fired. Incidents where Taser is used with other force are significantly associated with increased risk of officer injury when compared to a variety of reference groups but it is unclear why this might be the case, and what role, if any, Taser might play in such instances. These findings remind us that, whilst Taser may often be associated with a statistically significant reduction in officer injuries (e.g. Alpert and Dunham 2010), this may not necessarily always be the case (NIJ 2009, NIJ 2011, Neuscheler and Freidlin 2015).

These results nevertheless have several implications, of which I will mention three. First, from a methodological perspective, these findings confirm the importance of differentiating between incidents where Taser is fired by itself, and where it is fired with other force (following Paoline et al 2012) and of considering and testing analytically the impact that the drawing of police weapons, including Taser, may have on officer injury rates (Brandl and Stroshine 2015, Lin and Jones 2010) – measures that could usefully be incorporated into future work.

Second, however, the findings also point to a methodological issue that has received less attention in the literature: that the precise ordering of subject resistance, officer injury and the use of different force options matters - and being unsure about the order in which these in inter-related events occur, and the relationship between them, undermines the ability of analysts to reach conclusions about the association between Taser use and officer injury rates. In most analyses conducted so far, including mine, there is no indication of at what point in a particular incident subject aggression resulted in officer injury or, crucially, whether this was before, or after, the application of Taser. Nor is there any indication as to the order in which different forms of force were used, how these intertwined with subject resistance, and how subject resistance altered over time, if at all.

Yet the question of such ordering may be an important one. For example, the association between incidents involving the use of Taser with other weapons and higher rates of officer injury, found in my work, and that of Paoline et al (2012), might lead some to be cautious of Taser use. Yet instead of this

association reflecting the fact that Taser increases officer injury (if, for example, officers become over-confident in its use, or if the weapon is ineffective), it might instead reflect the tendency for officers to use the weapon following injury to themselves or a colleague. Thus Taser might be enhancing officer safety, even though the correlation could suggest the opposite. So whilst controlling for subject resistance is essential, because the control is time invariant—and the outcome measure is not the rate of injury following Taser firing, but whether an injury occurred at any point during the incident—it does little here to clarify whether the association is one of officer injury *necessitating* Taser use, officer injury occurring *despite* Taser use, or other variations. The interconnections between, and ordering of, subject resistance and use of force is also important so as not to ignore the possibility that, in some cases, resistance can be a reaction to, not a cause of, officer force.

Third, if the results have highlighted the need for caution when assessing the relationship between subject resistance, Taser use and officer injury, they also highlight the extent to which the impact of the weapon on officer safety can also be mediated by a wide range of other factors. In this regard, it is instructive that increases in the number of officers present at an incident (whether or not they use force) are associated with decreases in the odds of officer injury—a finding particularly relevant in the context of recent budget cuts to police services—and that the odds of such injury occurring vary depending on the kinds of officers attending an incident. Specifically, incidents where firearms officers were present are associated with decreased risk of officer injury (when compared to incidents where firearms officers were not present), whilst incidents where response officers were present were associated with an increased risk of officer injury (when compared to instances where response officers were not present). The introduction of a technological innovation, such as Taser, is not only affected by such dynamics but, as shall be shown in the next chapter, also affects them in turn.

Thus, if one needs to take care when talking about the impact that 'the Taser', conceived of as a discrete technological entity, may have on officer safety, one similarly needs to take care when referring to officer safety as a singular entity. Generalising about the impact that Taser, or other innovations, may have on

officer safety and injury rates as a whole may not always be appropriate: in England and Wales, much depends on the roles that officers carrying the weapon are trained to do, and are asked to perform, as well as how the weapon impacts on these roles. The impact of Taser on officer safety, and the extent to which officers are put at risk, is then also closely intertwined with a number of related dynamics, such as the number of officers at an incident and the characteristics of incident in question, all of which occur in the context of a statistically significant reduction in the odds of officer injuries over time: a trend that also merits further investigation.

Such findings highlight the continued relevance of constructivist STS studies, and in particular their warnings about the difficulties encountered when trying to assess the impact of a particular technology in isolation from the socio-technical network which surrounds it. In turn, they also highlight a weakness of binary logistic regression models—or at least those that do not include interaction effects, which includes the vast majority of models in the literature on Taser—in trying to capture the complexities of such relationships. For whilst such models can point us towards factors, such as officer numbers, that might impact officer safety, they are unable to calculate the ways in which the number of officers interacts with Taser, and how in turn these interactions might affect officer safety. These models assume that the two variables—Taser use and the number of officers at the incident—are independent from each other, and affect officer safety in different, unrelated ways. In fact, however, as I shall show in the next chapter, it cannot be assumed that these variables are independent of each other, as an officer equipped with Taser may be more (or less) likely to be single crewed than his colleagues without the weapon. And, of course, the relationship between Taser and officer numbers is only one of many relationships that may interact in complex ways to affect the outcome of interest.

I come back to the substantive implications of the relationship between officer numbers and Taser in the next chapter, but for now I wish to note the broader methodological implication that, whilst statistical analyses can usefully highlight some of the broader factors that may impact officer safety, bringing out the complexity of interactions between these different factors, and capturing the complexity of the network around Taser as a whole, remains a perennial

challenge – and it is here that the constructivist STS literature can help encourage us to attend to such complexities, and to consider technologies not as discrete variables but as part of a broader assemblage.

Given these issues, and concerns over the ability of statistical analyses to capture the full nuance and complexity of dynamic use of force situations (Rojek et al 2012: Klahm et al 2011), it is fair to say that the impact of Taser on officer safety in England and Wales is unclear, complex, and unlikely to be determined with reference to solely quantitative forms of analysis. Such findings contrast with the bulk of the literature—which tends to argue that Taser is associated with reduced officer injury rates—but lend some support to the work of Macdonald et al (2009) and Smith et al (2007), who similarly found that Taser did not always have a statistically significant impact on officer injury. Given this complexity, it thus seems helpful to go to the officers that are charged, on a day to day basis, with the responsibility of carrying the weapon, to gain a fuller, more rounded perspective on Taser – and it is to this task that I turn in the next chapter.

Chapter 7. 'I don't think there's anything bad… about Taser': What Officer Injury Statistics won't tell you.

The last chapter used quantitative techniques to look at the association between Taser and officer injury, but closed with the recognition that there is a need for more qualitative work in this area. Qualitative work is particularly valuable because, as De Angelis and Wolf (2013:4) note, very little research has been conducted to ascertain the views of the officers armed with the weapon. Paoline and Terrill (2011: 179: 187) concur, stating that studies of 'officer attitudes toward less lethal force are rare' (Paoline and Terrill 2011: 187, see also Rojek et al 2012).   Noting that qualitative work 'is somewhat unconventional in police research', De Angelis and Wolf explicitly call for more work on officer perspectives on Taser (De Angelis and Wolf 2013)– a call this chapter tries, in part, to answer.

The chapter aims, in Part 1, to complement the quantitative data on officer injury with qualitative data, presenting a snapshot of officers' views on Taser and officer and subject safety – the first time that this has been done anywhere outside of the USA [32].   The account that officers present, and which is advanced in Part 1, is broadly positive, and has much to recommend it. Yet other accounts around the weapon are also possible, and a range of factors might help explain why officers tend towards one particular account instead of others. After examining some of these factors, Part 2 presents an alternative account, one that draws on officer views to highlight slightly different, and less positive, features of the relationship between Taser, officer and subject safety. In so doing this chapter also provides an opportunity to discuss the utility and novelty of constructivist STS and ANT insights—focusing on the added value of their symmetrical approach to truth claims, such as those made around the Taser weapon—and also provides an opportunity to explore the limitations of quantitative methods. Such methods, it is argued, are unable to capture the complexities and nuances of the relationships between Taser use, officer and subject safety discussed here.

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[32] With the partial exception of the IPCC (2014a), although they did not interview officers directly.

Methods

Interviews were conducted with over 25 Taser officers and trainers at two forces in England and Wales —referred to as Force A and Force B—including firearms and non-firearms officers, male and female officers, officers completing their initial Taser training, and experienced Taser officers, in order to get a cross section of views. Participants were predominantly participants on Taser training courses, and the Taser trainer(s) and Single Points of Contact in each force were also interviewed. Interviews were also conducted with a cross section of Taser trainers from various forces, who were both attending, and teaching on, the College of Policing's Lead Instructor Taser training.

Participants were asked a series of questions which were deliberately broad and open-ended. The exact questions varied slightly from interview to interview[33], depending on context, time constraints and the stage at which the interview was conducted, with later interviews allowing me to explore points raised in earlier discussions. However, the interviews generally covered questions including: 'what are your views on Taser', 'what role do you think Taser plays in policing', 'how safe do you think the weapon is', 'why did you decide to carry the weapon', 'should the weapon be made more widely available' and 'do you have any concerns about / risks with the weapon' and their views on the medical implications of the weapon. Officers were also asked to describe their experiences of using the weapon. Participants were also given an opportunity to add any additional comments, or talk to points they felt might not have sufficiently been covered, at the end of the interview. These interviews were supplemented by analysis of nearly 70 anonymised use of Taser forms from Force A. These were selected by random stratified sampling in order to ensure the forms selected covered a number of years, covered different types of Taser use, and included cases where injury occurred to the subject.

In both Force A and Force B individuals who had previously been Taser officers, but were no longer carrying the weapon, were also emailed and invited to participate in the research. However, only one officer responded to this

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[33] Therefore, where figures and proportions are stated, they should be treated as a rough indication of the extent to which officers expressed such views, not as an exact amount.

email, and indicated that he felt that he had nothing to add to the research. Therefore, in keeping with the only other qualitative study in this area (De Angelis and Wolf 2013), this chapter focuses exclusively on officers who train and / or use Taser, and their views about how the weapon may impact their safety – a topic to which I now turn.

Officer views on Taser safety.

In their work with Taser officers in the USA, De Angelis and Wolf found that many believed Tasers 'were safe… (and) resulted in an overall pattern of injury reduction' to officers and subjects alike (2013: 7). In general, officers in England and Wales also held similar views, identifying several ways in which the weapon advanced officer safety (often seen as closely intertwined with subject safety).

The majority of officers I interviewed spoke to the value of the 'red-dot' function with one officer, for example, describing it as 'the best thing about Taser'. Many officers also told stories about times when they believed the function had been particularly effective. Officers also described how the weapon that could act as a 'deterrent' by its' mere presence:

> 'Merely having it as an option is a deterrent to a lot of people. You don't even need to draw it… You turn up to somebody who recognises…that you could be carrying it, it just changes their state of mind' (officer in Force B).

> 'Because it's more commonly known, people that have known it before, or seen it on telly, just the sight of it can act as a deterrent' (officer in Force B).

Such findings are in keeping with De Anglis and Wolf's research, which found that officers emphasised how Taser allowed them to 'de-escalate potentially volatile encounters without resorting to dangerous types of physical force' (2013: 9-10). They also underscore that, whilst the material features (the red dot, the physical presence of the Taser) and the 'it' of the weapon are important, it is not sufficient to say that the resultant effects stem solely from such material features alone. Instead, they are produced from these material features interacting with other factors—the fact that it is 'commonly known', and its presence on 'telly'—to produce a set of factors that can be best understood as a mix of the socio-technical, and to produce effects that cannot easily be attributed to either 'technical' or 'social' factors.

154

Officers also felt that, on those occasions where they did need to fire the weapon, it helped ensure their physical safety more readily than would CS or baton, for several, interconnected reasons. Officers stated that they valued the extra distance that they felt the weapon gave them:

> 'It gives you a bit of distance and I think that's the key thing - it's the distance. Whereas (with) the other PPE (personal protective equipment), you've got to be close. (officer in Force B).

> 'I would always, more often than not, go straight for my Taser rather than CS or baton, as long as the circumstances dictated. Its proximity, rather than having to be fighting and get myself injured as well' (officer in Force A).

This was linked to beliefs about the effectiveness, reliability and consistency of the weapon:

> 'It's nice to have something extra that *you know would work*. Baton might not work, I don't really fight with a baton if I can help it. CS… could affect me as much as it will affect them... Most girls are not fighters. It's not in your nature to go into some strike, strike someone with a baton, it doesn't occur to me to do that' (officer in Force A).

> 'I guess it (Taser) gives you the option to control. They have no choice: if you are accurate they will go down' (officer in Force A).

Such statements speak to Collins' work on violence, which emphasises how difficult it is—even for those, such as law enforcement and military officials, engaged in more so-called 'legitimate' forms of violence—to perpetrate violent behaviour, and to do so accurately and effectively. Instead, he argues, 'violence on the micro level is largely incompetent and abortive' (Collins 2009: 17). In such circumstances, the attraction of a weapon which appears to help cut through human incompetence and messiness, taking responsibility for proportionate and effective violence solely from human hands and delegating them to the non-human actor of Taser—which can be relied on to deliver a constant 'dose' of force and which 'you know would work', should not be under-estimated.

The targeted, accurate nature of Taser was also compared favourably to the other force options available, in particular CS which is the other medium range option available to officers. CS is highly indiscriminate and often affects officers, subjects and bystanders alike. As such Taser was claimed by some to be especially useful, particularly in confined spaces. Officers noted that:

'I tend to use Taser because it's far better… It has got so many benefits that you think about. The environment's one of the key issues. You're in confined spaces a lot of the time and you can't swing your arm back for the baton you're not going to go to CS… Taser is the go-to' (Officer in Force A).

'(I was faced with a situation) the initial threat was 'where's the knife'… I had a foot (of distance) to work with. CS spray would not have worked in a confined space… (baton) there's not enough room... Taser with the drive stun, it was the best option available' Officer in Force B.

The weapon was also described as offering benefits for subject safety. Officers described the weapon as 'very safe' and 'essentially completely safe' for subjects, for several reasons. First, when compared to the other force techniques available, the injuries from Taser were seen to be 'minimal'. Officers noted that:

'There is no lasting injuries, is there? Whereas with a baton strike you can cause lasting injuries and I think that's the key thing. Other methods … all have potentially damaging effects… If you are in general good health, and no hidden medical conditions that we know of, then the only, sort of, risk is where you fall, but you have to consider that when you are going to deploy it. But generally I would say it's the safest, least damaging… You could end up in a big struggle…everyone gets bruised and hurt… whereas with this it is minimal' (Officer in Force B).

'Having used batons and… (seen) dog handlers before, I know on both of these occasions, the damage that you can do to people…is very high. With the Taser that isn't the case. ' (Officer in Force B).

This viewpoint was widely expressed, with the majority of officers stating that the risk of injury was relatively low, when compared to the other options. In order to bolster such accounts, officers often made a distinction between the effects of the electrical current itself—which was seen as not presenting an 'issue'—and so-called 'secondary injuries' (i.e. the falls resulting from the incapacitation caused by the current). Such injuries were seen not as an overarching risk, nor as something unique to Taser, but as something to be managed on a case-by-case basis:

'I think Taser is very safe, I don't think there are any issues with it at all. We have had some extremely well educated and well-funded individuals test that machine until destruction trying to find elements about it that are unsafe. In its basic design and its basic use I don't think it's dangerous at all. The danger comes from the secondary injury… that's where the injuries come into it, not the Taser itself' (Taser trainer, force with-held).

'I can understand why…the public perceive it to be almost brutal at times… They don't realise that, from a health point of view, apart from the risks that we've identified, it's not going to hurt like CS or a baton, or inflict a fatal injury. And unless it's as a result of a fall, I don't think there's any-one whose died from the actual shock' (Officer in Force A).

Second, the sophisticated, less 'intrusive' nature of the incapacitation produced by the electric-shock is contrasted to the 'crude' effects of using other weapons. Whilst fewer officers (N = 3) made this point during their interview, it was striking enough, to deserve a mention. Thus officers noted:

'I don't like CS, I've never used it… The baton, it's cumbersome… and in any case it's a big wooden stick and it's not a natural thing for girls to do. I don't like hitting people and its short term. To incapacitate someone is a lot nicer than breaking someone's bones, isn't it? There's less blood, less bone breakage, its indirect control. If I can control someone by not hurting them, I'm happy... You can control their physical actions without holding them… It's less physical, less caveman' (Officer in Force A)'.

'I tend to use Taser because its… it's the best option all round and it's the least intrusive. You are not going to injure anybody with it' (Officer in Force A).

'CS, it doesn't sit well with me, hitting people with a baton it's a bit crude. Taser I tend to use more than anything else, just because that is my decision to go to that first' (Officer in Force B).

Such views, especially when seen in context with the aforementioned quote from a female officer, that 'its' not in your nature to… strike, strike someone with a baton', fits with Collins' insights that most individuals are inherently reluctant to engage in violence, particularly that which involves face to face contact (Collins 2012), and that engaging in violence at a distance is one way in which individuals may be able to over-ride such reticence. By contrast to other forms of police use of force, then, Taser may seem to offer a way of using force that is more remote and distant, more 'indirect' than other force options. The weapon can thus be seen as offering a win-win: a weapon that enhances the safety of officers, whilst being a 'minimal' use of force for subjects, and which allows those who fire the weapon to distance themselves from the violence they are inflicting. Indeed, when asked for their views on the weapon, few officers (N = 4) proactively mentioned limitations of, or downsides to, the weapon. When specifically asked about its risks and disadvantages, officers did mention certain limitations, including:

- *Weapons retention*: 'My biggest concern is that someone is going to have it

off you, use it against you. That is a real risk, if you get into a struggle' (Officer in Force B).

- *Secondary injury* (as discussed above).

- *Pressure from colleagues to use the weapon*: 'In certain quarters there a mentality amongst officers that don't have Taser, 'Oh just use Taser on him, he's not doing what he's told'… There is that pressure, because they don't understand' (Officer in Force A).

- *Pressure of decision-making:* 'It is useful but obviously it's a lot of pressure that comes with the responsibility of carrying one, it's not something you can pick up and use willy-nilly, you know' (Officer in Force A).

- *Efficacy:* One officer noted 'you've got to be careful… (not to think) I've got Taser, I can do anything, because you can't' – a theme also discussed, briefly, by some other officers, and one to which I return below (Officer in Force A).

- *Single shot capacity:* 'If I'm going up to a car and there's 4 people in there, I don't necessarily want to be stuck to someone with a Taser and there are three other people presenting themselves to me, and other officers not close by' (Officer in Force A).

Overall, the vast majority of interviews (with perhaps one exception) were overwhelmingly positive about the weapon, with many officers talking about it in glowing terms. Officers noted that:

> 'It's an extra piece of equipment that is essentially completely safe and that's becoming far more essential working in the rurals' (Officer in Force A).

> 'It's a brilliant piece of kit so long as it's used properly' (Taser trainer, force omitted).

> 'You have to take certain things into account, your surroundings and things, have to be careful but it is a tool that's good, I don't think there's anything bad that I can say about Taser' (Officer in Force A).

Such findings are broadly in keeping with American research which found a pattern of 'widespread support' (De Angelis and Wolf 2013) for the weapon.

At this point in the argument, one might be tempted to make several conclusions. First, officers tend to report to outsiders that they view Taser as enhancing their personal safety, particularly when compared to baton and CS,

due to its efficacy and reliability, its ability to incapacitate subjects, and the fact that it can be used both at distance, and at relatively close quarters. Officers also state that they view the weapon as being relatively beneficial to subjects. Second, taking such accounts at face value, one might be tempted to trace these benefits back to the material features of the weapon, and its inherent, innate qualities (see, for example, White 2014) – instead of looking at how such benefits are construed, constructed and brought into existence.

A third conclusion might be that these officer identified benefits are not fully captured in many statistical analyses, including those presented earlier, for several reasons. Many datasets, and the one I have access to is no exception, are concerned with collecting data on instances where force has been used. Such data cannot provide evidence in support of the claim that the mere presence of the weapon stops many potential use of force incidents from materialising. Moreover, if the datasets are not able to capture what officers perceive are the full benefits of Taser, neither are they able to full capture the disadvantages of other force techniques, in particular the noted tendency of CS to affect not only the subject, but bystanders and officers.

Other conclusions could also be drawn from officer interviews, and could suggest a promising avenue for future research. Thus a fourth conclusion might be that officers may (more or less consciously) favour Taser because it seems to tap into, and sit well with, pre-existing conceptions and beliefs they may have about the role of policing, the need to use of force, and their attitudes towards using it. These conceptions operate at the individual level (with one individual noting, for example, 'I don't like hitting people') and also interact with processes of gender socialisation ('it's not a natural thing for girls to do') and with broader occupational attitudes, and even subcultures, within the police service (Paoline 2004). These attitudes may well influence the force options that different police officers choose to adopt, and the manner and frequency with which they use force – and may also have implications for their safety in use of force incidents.

A final conclusion might be, however, that it is not as simple as saying that Taser appeals to a certain type of officer, or to officers with a certain set of (stated) beliefs. Not only might the (stated) appeal of the weapon change in various contexts—with officers valuing different facets of a weapon in an

interview than they might in an operational context—the weapon may appeal to different officers for different reasons. The fact that it can do so is, in no small part, a testament to the marketing techniques used (Wozniak and Uggen 2009). For example, some officers—perhaps those who have what Paoline (2004: 224) calls a 'peacekeeping' orientation towards police work, and who place a high emphasis on 'non-aggressive order maintenance' (Paoline 2004: 224)—may value Taser because they perceive it allows them to use less force, and a style of force that is 'nicer' than the alternatives. Other officers place more of an emphasis on the ability of the weapon to help them protect themselves (commenting that 'before anyone is going to hit me, they're going to get Tasered', and 'I use it as I feel fit, at the end of the day I want to go home') and on its ability to help them achieve their preferred policing style, being 'the first to get there' and being 'proactive rather than reactive'. Still other officers may hold attitudes more akin to Paoline's traditionalist, tough cop perspective, and be more likely to show more of a preference for aggressive styles of policing, and less aversion to human rights violations. For such police officers, the weapon may be seen as attractive for quite a different reason – its appeal to 'hyper-masculinity', and the values of 'toughness, power, and control through coercive force' (Wozniak and Uggan 2009: 276) [34].

Citing such findings and calling for further research into the topic would, I argue, be a perfectly acceptable way to close this chapter. Yet, if we are interested in examining the impact of the weapon on officer and subject safety, and in taking officers' views 'seriously', it is important not just to note their beliefs about the success and efficacy of Taser—and to see these as reflective of what Terrill and Paoline (2013: 153) might call the 'empirical reality' of the weapon (Terrill and Paoline 2013: 153)—but to examine these beliefs more closely: a task I attempt in the next part of this chapter. In so doing, I seek to advance an alternative account based on the views officers expressed to me – one that does not intend, necessarily, to argue against the account that Taser improves the safety of officers and subjects alike – but simply seeks to demonstrate that this may not always be the case. Such a move, I will argue, is perfectly compatible with constructivist STS notions of interpretive flexibility, and of a symmetrical

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[34] Of course, as Wozniak and Uggen (2009) note, the challenge for electric-shock manufacturers is to appeal to such a diverse range of views simultaneously, whilst minimising the inherent tensions that this brings with it.

approach to truth claims, but one does not need to use such theories in order to take this important step.

But why might one need to go beyond officer accounts? This is important, I argue, because three perennial processes—first, the common-place fallacy, as identified by STS scholars, to assume that 'efficiency (of a technology) explains success' (Feenberg 2010: 15), second the closely related concepts of 'interpretive flexibility' and 'closure', again taken from constructivist STS, and third, the trend towards 'confirmation bias' identified in the social psychology literature—might encourage us to examine officer statements as accounts in their own right, and not as simple reflections of the truth around a particular technology. The first process refers to our tendency to assume that the efficacy and usefulness of a given technology explains its success. Applied to Taser, such reasoning would lead one to assume—as does White (2014)—that Taser is popular *because* it is effective. Yet Feenberg argues the reverse is true: 'efficiency does not explain success, success explains efficiency' (2010: 15). Feenberg notes that a multitude of potential factors—from 'economic and technical criteria' to 'social or political requirements'-- help explain why a device might be adopted and that, once adopted, additional resources, research and development are devoted to such devices, helping increase their efficiency. The technology must have been 'more or less efficient' in the first place, but that fact alone does not explain why it became adopted (2010: 7).

The second concepts are those of interpretive flexibility and closure. These concepts, as outlined by Pinch and Bijker (1984), state that whilst there is considerable 'flexibility in how people think of, or interpret, artefacts', over time the degree of interpretive flexibility erodes and a broad consensus emerges – a process known as closure. Whilst there is still a large degree of controversy around Taser in general, this research shows that there seems to be an equally large degree of consensus within the police that the weapon is safe and highly effective (see, for example, Lin and Jones 2010: Neuscheler and Friedlin 2015). Under conditions of closure differing opinions can be held, but it may be harder for officers to express reservations about the weapon, whilst doubts may be assuaged by the degree of consensus that does exist around its utility, and its popularity.

The third process, confirmation bias, refers to the tendency for individuals (including police officers) to 'bolster a hypothesis by seeking consistent evidence while minimizing inconsistent evidence' (O'Brien 2009: 315). This tendency has been well documented in the social psychology literature amongst the general population, as well as in serving police officers. Whilst studies of confirmation bias in the police have traditionally been focused on presumptions of guilt or innocence of suspects during interrogation (see Powell et al 2012 and Taslitz 2010), the issue of confirmation bias is particularly salient in the case of Taser. Because officers are not automatically issued with the weaponbut have to volunteer to carry it, it is highly likely that self-selection effects apply, and that volunteers already believe it is effective, or that it will have benefits. Conversely, those who are more sceptical about the weapon may be more reluctant to apply in the first place.

Given such tendencies, is there any room for alternative accounts around the weapon, and what might these look like? I advance one possible alternative account next, starting with the issue of officer safety.

An alternative account: Officer safety.

In light of the views detailed in the first half of this chapter, it will come as no surprise that many officers stated that they wanted the weapon due to a desire to improve their safety. This was explicitly stated in around a quarter of interviews, but was also an underlying, implicit theme in many more interviews. The weapon was particularly valued given relatively low staffing numbers, which some officers felt had been exacerbated recently. Thus officers noted the importance of:

> 'The safety aspect – we are now in a rural area and I cover an area which is... I'd say 8 times what it was before…I have got less staff so I'm very that aware we are single crewed... I want to have the confidence to stop a car, go to an incident and just be a little bit more protected. I can't create more officers... but it's an extra piece of equipment that is essentially completely safe' (Taser Officer, Force A).

> 'Now that firearms officers are so few and far between… if I wait for them, or my other backup, which is equally far away, someone's going to get hurt. So it just gives me an extra tool' (Taser Officer, Force A).

> 'I cover 137 square miles around (location omitted) and I just thought that it is such a large area and it's a useful tool to have for myself and my colleagues. Because it's not necessarily me that would be in a situation

162

to need it, but it's a useful tool to have as a backup for my colleagues as well' (Taser officer, Force B).

Yet the impact of Taser on officer safety might be slightly more complex than these accounts suggest, for three reasons. First, officers can adopt a fluid definition of success. Thus an officer described the weapon as 'useful' in the following situation:

'The first cartridge didn't work. He dropped to the ground on the first cycle (of the second strike), but he was that angry that he pulled the barbs out and I had to go hands on… It's a very useful tool. He was in a place where he was (still) fighting. But it gave me that advantage to be able to go hands on with him' (Officer in Force A).

Another officer described the following incident (in both cases some details have been omitted for anonymity):

'I had a chap… being arrested for an…assault (details omitted)… (he) pulled out a weapon (specifics omitted). So I Tasered him but he broke them (the wires) with the (weapon). And I had to exit quite rapidly and I Tasered him again as he came out the door, so a messy one' (Officer in Force B).

Such accounts indicate that Taser does not always incapacitate (see Orbons 2015) and, whilst it is often described as preventing the need to use hand-on tactics, this is not always the case. Should the weapon be ineffective, the distance between officer and subject can be closed quite rapidly, and officers may find themselves in a dangerous situation quite rapidly.

Second, whilst the weapon is often favourably compared to baton and CS, both often said to be impractical to use at close quarters, and/or in confined spaces, Taser is not universally effective in such conditions. Using the weapon in *probe firing mode* in such a scenario has its limitations: indeed, research by Ho et al (2012) indicates that Taser is less effective at very close ranges. Using the weapon in *drive-stun mode* is also limiting and may, on some occasions, exacerbate the situation. In one case, officers went to arrest an individual who was:

'Violent towards officers… possibly in possession of a weapon (details omitted) only one week before… There were many persons present being aggressive towards the police and this aggressive behaviour was escalating the longer the arrest took… (The subject was) Tasered (in drive stun mode) allowing officers to take him to the floor and attempt to restrain him. However (he) immediately became more aggressive and

violent following the discharge of the Taser' (Taser reporting form, Force A)

Indeed, the IPCC note that in 'several' cases, the use of drive stun 'either did not result in the control the officers were hoping to achieve or it made the person involved struggle and resist further' (2014: 21).

Third, many of the stories officers tell in order to demonstrate the safety benefits of Taser involve situations where one officer is engaging one individual. However, these occasions only represent a portion of the work that police do. As noted above, when used against multiple individuals, or in situations involving crowds of people, it is much less likely to be effective [35] – and thus likely to present risks to officer safety, particularly in light of the enhanced risk factors (e.g. single-crewing and deployment to high risk incidents) listed above.

Such points are important precisely because of the confidence officers have in the weapon - and because of the 'confidence' that simply having it can instil in officers.   However, there is a fine line between a healthy level of confidence, and a potentially dangerous level of complacency, particularly if this confidence leads officers to handle situations differently. Thus officers noted that:

> 'It'll give me the confidence to be a bit more proactive where I think... people would be far less confident' (Taser Officer in Force A).

> 'It does make you feel a bit safer. Because I'm not a huge person like some of the other guys. If I was on my own and a large man was to kick up, it's something else that I can think about' (Taser officer in Force B).

> 'It lets you deal with situations you possibly couldn't deal with before. Whereas you might have had to back off, wait for more units to come in, or (have) more force used in a different way by shield teams, things like that' (Officer in Force A).

> 'The majority of scenarios I have been to were domestic related… (but) you never get trained how to search a house properly if you are just a Taser officer... so they might put themselves a little bit at risk, because some people think because they've got a Taser, they're immune, they're superhuman... You might go into the house a bit too quickly and get disarmed, say, if you breach the door too quickly (Officer in Force A)'

> 'People with a knife, how would you have approached them before? You would have had to wait for armed support or you tackle them with the knife itself... A lot of the time, if you draw your Taser and point it at

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[35] The Taser X26 model currently in use in the UK has a single shot capacity. However a Taser model, the X2, is currently being tested for use in the UK which has a two shot capacity.

them…generally they stop and you've got your outcome earlier' (Officer in Force A).

Whilst on many occasions such strategies may have positive outcomes, they may also risk exposing the officer (and potentially subject) to more harm. This risk is also exacerbated because, as some interviewees suggested, those with Taser are expected to 'take control of the situation' and to be 'the first through the door', potentially putting them at more risk.

Thus there is some evidence to suggest that some officers' stated views about the safety and capabilities of the weapon may encourage them to handle the situations that they come across in different ways – ways that may, at times, risk compromising their safety. This evidence also suggests that, far from being inherent to the weapon, qualities such as success, efficiency and effectiveness are, at least in part, constructed via a complex interplay between the material features and affordances of the weapon, those who are using it, and other socio-technical factors (e.g. how subjects respond to the weapon, the presence of countermeasures).

There is also evidence to suggest that since having the weapon, not only do officers handle situations differently, but that the very nature of the incidents to which they are called has changed, in at least two ways. First, when asked, some officers felt that they were now sent to riskier incidents than had previously been the case. All officers that were asked whether the nature of their work had changed since becoming Taser officers[36], indicated that they were now sent to a higher proportion of incidents with a potential for violence than had previously been the case. Officers noted:

> 'The biggest issue you have sometimes is with spontaneous incidents where you have bladed weapons... I get sent to jobs with 'presence in public with knives'… (We) get deployed as Taser now. That would have been a firearms job… If that Taser fails they become a victim' (Officer in Force A).

> 'The jobs with weapons and stuff, you start hearing 'any Taser officers on duty', whereas before it was always 'we will see if we can get you a firearms unit'… I feel we definitely get called a lot more to jobs for violence… The only thing that puts us in more danger is because of the jobs they send us to (Officer in Force B).'

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[36] Picking up on a chance comment made halfway through interviews which indicated that this might be the case, I asked the question 'has the nature of your role changed since you have had Taser' in the remaining five interviews).

'Up until recently nobody carried it (Taser). But… we had a firearms team on the ground alongside our team and that's all gone now… So I think there is going to be a much bigger shift in relying on district Taser trained officers to provide some kind of support… ' (Officer in Force B).

This trend should not be overstated, and two respondents—whilst acknowledging this trend—introduced some notes of caution. For example, whilst a trainer noted that 'there has been a drift from what would have traditionally been a firearms call into what is a Taser call', he was at pains to stress that 'in some respects it hasn't made any difference… They have always sent us to jobs where you think 'this is a firearms job''.

Nevertheless, this trend may still raise concerns for officer safety, particularly as specially trained Taser officers do not have the specialist equipment or training given to firearms officers. As one Taser trainer explained:

> 'Firearms have a different mind-set to your average police officer just because of the training we have: a minimum of 14 days a year just training in firearms tactics and weapons… (After) years of experience in a particular role, we just think differently, we ask different questions, we think more tactically'.

Risks to officers' safety may also be exacerbated by a second change – the observation that Taser officers may be more likely to be single crewed, which was explicitly noted in around a quarter of interviews. Trainers and officers noted that:

> 'Our recommendation is that there is a double Taser crew… However the assessment scenarios are single crewed as that's what you guys will be... If you've got three staff, one Taser trained, the Taser trained officer will be single-crewed. *That person is you – you are going on your own*' (emphasis added). (Taser trainer, Force details omitted)

> 'My understanding of how I was trained was that officers would attend a scene, supported by Taser officers… (who) could then concentrate on their use of Taser if it was needed. Numbers wise in the police service it doesn't happen so much now... Now you've got officers who are wearing it routinely going to the job, so they've got to deal with the job, and also think about the Taser… That increases the pressure' (Taser trainer, Force details omitted).

> 'Taser officers are single crewed every day… If you have a Taser, you volunteer to go, to up the numbers… (But) single crewing is never safe in any front line situation, Taser or not' (Officer in Force A).

Thus, whilst many officers chose to carry the weapon, at least in part, to enhance their safety, doing so may actually place them at more risk, under certain circumstances.

An alternative account: Subject safety.

Officers also described the weapon as, broadly speaking, relatively safe for subjects. Yet other readings and possibilities are also suggested by the accounts they have offered. One claim made by officers was the predictability of the Taser discharge, and the low probability of injury to subjects, compared with other force options that may bring with them a higher risk of physical injury, and / or more serious injuries. Thus the 'consistent and predictable' effects of Taser, which will 'not injure', or 'hurt', are compared to other force techniques which 'can cause lasting injuries' and have 'potentially damaging effects' (see also the IPCC 2014a).

Such characterisations may well be accurate and helpful, up to a point and in certain circumstances. Indeed, as was discussed in Chapter 4, much (although not all) of the literature coming from the USA finds that Taser firings cause fewer injuries to subjects than other force options. However, again, such characterisations should not be seen purely as due to the Taser 'itself', but should better be understood as resulting from a mix of these technical features, and the understandings and interpretations that have built up around them. Such characterisations should not be seen as a simple reflections of reality, but as the product of a large amount of socio-technical work.

For example, such characterisations—which represent a 'best-case' scenario—require one to put on hold the distinct possibility that individuals incapacitated by Taser might fall and incur significant injuries. Whilst this is often achieved by making a distinction between injuries from 'the shock' itself and so-called 'secondary injuries', such distinctions would seem to matter less for subjects involved in the incident, who may still incur significant injuries as a result of Taser having been used. It also requires one to downplay the unpredictability around the weapon.

Moreover, my research has shown that, in around a half of cases, Taser is used with other force options. It may well be the case that, in many of these scenarios, Taser is the last force option used. Yet in some situations other

force techniques are used *after* Taser has been fired – and in other situations, several types of force may be used simultaneously. Thus positing Taser as an alternative to, and comparing it with, other force options is not always helpful. Furthermore, comparing Taser to other weapons also misses the key question of whether force actually needed to be used in the first place – a key point of contention for subjects. Indeed, noting that officer explanations for using Taser include reference to other forms of force causing more injuries, the IPCC commented that in place of such comparisons, they 'would expect to see greater emphasis placed on… using communication and the information they have rather than a quick escalation to use of force' – i.e. a consideration that the use of Taser, regardless of its benefits, may not be warranted (IPCC 2014a).

Another feature of some officer accounts is a distinction between the 'physical' and 'crude' force options they have at their disposal, and the technologically advanced incapacitation achieved with Taser which may help to produce the distancing effect that Collins (2009, 2012) notes can assist individuals in dealing with the tension and fear that violent situations provoke. Whilst officers may perceive that Taser is 'nicer' and less brutal than other forms of force, as Chapter 5 demonstrated, for some subjects it is experienced as just the opposite – as highly painful, brutal, and panic-inducing. As the IPCC have noted, 'there is an obvious mismatch between the public perception that Taser is a high level use of force that should only be considered when faced with the most serious threats of violence and… (the police's rationale) that Taser presents a lower risk' than other options (IPCC 2014: 25). Thus Taser may not always be seen as the 'nicer', 'minimal' use of force option that some officers would like it to be.

Conclusion

In this chapter I have presented two differing accounts on Taser and officer safety: a traditional account, which stresses the benefits of the weapon, and a second, more challenging account. Whilst it is up to the reader to decide which account, or blending of accounts, they find most convincing, I want to use the conclusion to pull together some conclusions—substantive, theoretical and methodological--that I feel can be drawn from the foregoing discussion.

Substantively, whilst many officers view the weapon as enhancing their safety, and it does appear to bring many benefits, the possibility exists that carrying it may, under certain circumstances, actually place them at more risk. Specifically, they may be more likely to be single crewed, to be sent to riskier jobs and to take the lead in managing such situations when there. Interestingly, however, these issues were generally not seen as negative by officers, and were only discussed in response to specific questions posed by the researcher.

This, in turn, highlights a second substantive point worthy of attention. Whilst recognising some limitations of the weapon, officers are generally highly positive about it. Such views are highly compelling, have much to recommend them and it is certainly has not been my intention to 'prove' them wrong. I simply hope to have demonstrated that the generic human tendencies towards confirmation bias, and to assume that efficiency explains success, when combined with the clever marketing used by electric-shock manufacturers (Wozniak and Uggan 2009) and the loyalty the Taser brand inspires (Stanbrook 2008), may lead to an underestimation of the disadvantages of the weapon and the socio-technical network surrounding it, and that these should not be overlooked. Whilst the efficacy of the weapon has clearly played a key role in its success, it is also possible that the reverse tendency is also at work and the weapon's success and positive evaluations are, in turn, influencing officer's perceptions of the benefits it has for their safety, and the safety of those on whom it is used. Instead of just assuming that the weapon is successful because it is effective and relatively safe, it is necessary to consider the possibility that its success, and high status, may mean that individuals perceive and interpret events and possibilities (including the likelihood of injury, and an effective outcome) in particular ways. Any accounts of its safety and efficacy— including my own—should not be seen as explaining the weapon's success, but as features in need of further investigation.

Verdicts on the weapon's effects, safety and efficiency should therefore best be understood as the product of a range of socio-technical factors—including, but most certainly not limited to, the material properties of the weapon—instead of being seen as straightforward reflections of the 'true' effects of the weapon's properties. The advantages and disadvantages associated with the weapon are not predetermined by its properties, but are—at least in part—the products of

socio-technical constructions around the weapon; an insight broadly in keeping with constructivist STS and ANT perspectives.

Moreover, the chapter has also shown that distinctions between the social and the technical are not so easily made. So-called 'technical' features (e.g. the nature of the electrical charge producing incapacitation, the red-dot laser sight)—themselves products of human and non-human agency—seamlessly interact with so-called 'social' features (the fear of the 'red-dot', awe of the incapacitation effect) to produce particular results, whilst the (perceived) efficacy of the weapon may be precisely what puts officers at more risk, increasing their changes of being sent to more dangerous incidents.

Theoretically, whilst certain features of the constructivist Science and Technology Studies literature can assist us in reaching such conclusions, such insights are by no means unique to, or the preserve of, those working from such a perspective. Many STS tenets resonate closely with much of the prior discussion in this chapter. STS's symmetry postulate usefully reminds us not to explain away the success of certain technologies by reference to their inherent technical features or predetermined material impact, nor to explain away failure simply by reference to the 'social'. The success or efficacy of a technology should not be simply explained by the 'fact' that it *is* successful or effective: instead, the fact that it is seen by many to be successful or effective is exactly what needs to be explained in the first place. Similarly, the STS focus not on a given technology, but on the broader sociotechnical network surrounding it, has also been useful here.

Yet the utility and novelty of such approaches can be overstated. For example, the analytical technique of interpreting, reinterpreting and advancing different accounts of interviewees' views—instead of taking them at face value—has a long history in academic analysis, and not least in policing research. Similarly, the insight that new technologies, and the socio-technical networks around them, might impact police practice in ways which can improve or detract from officer safety is hardly new. Thus in reaching the substantive conclusions that I have here, STS may well be a rich and interesting ingredient, but is hardly an essential one.

Nevertheless, on a related *methodological note,* this chapter has highlighted that attempts to assess the safety of the weapon should look not only at the technical features of the weapon, but at the socio-technical practices surrounding it – and thus techniques capable of capturing some of this nuance should be used. Statistical analysis is only able to capture a fraction of what officers feel are the merits and demerits of the weapon, and only a fraction of the complex impacts that the weapon may have on their safety, and the safety of others. Whilst such statistical analyses are still highly useful, one must not assume that they can provide definitive assessments, and should explore how such analyses can usefully be complemented by qualitative techniques, including those drawing on constructivist STS approaches.

The chapter has also suggested several avenues for further research. An area for further exploration is the possibility, noted earlier on in the Chapter, that officers may favour Taser because it seems to tap into, and sit well with, pre-existing conceptions and beliefs they may have about the role of policing, the need to use of force, and their attitudes towards using it – but that the weapon may appeal to different officers for different reasons. Further research into what pre-existing attitudes and beliefs the weapon is appealing to, and how such attitudes may, in turn, affect what kinds of force officers use, and the frequency with which they use it, is a matter for further research (see also Klahm et al 2011, and Terrill et al 2003). Such research would not only help advance our understanding of how and why Taser is used, and how it impacts on officer and subject safety, but would also advance the literature on police culture and police subcultures. It may also help explain the puzzle that whilst officer level characteristics are statistically significant, and important in explaining variation in the use of force (Klahm et al 2011), neither officer gender, ethnicity, education levels or length of service are able to explain the degree of variation present. Further research into the role that cognitive biases play in officers' assessments of weapons may also be helpful.

Taking such gaps in our knowledge into account, it is clear that the impact of Taser on officer safety is complex, with the 'technical' and 'social' facets of the weapon inextricably linked. These facets need to be carefully studied, and appropriate mitigation measures considered, before making any pronouncements on the weapons' impact on officer safety.

Towards Part 3.

Taken as a whole, Section 2 of the thesis has attempted to tackle important questions about how Taser is used in practice and the impacts of this use for subjects and officers (Research Questions 1 and 2, as set out in the introduction to this thesis) and has explored the utility and novelty of constructivist and ANT approaches (Research Question 5). In order to investigate such topics I have temporarily had to bracket important questions about the legal framework, policy, training and accountability mechanisms around Taser. Yet, in reality, these issues are all closely connected. Bearing this in mind, I now move to the third and final section of the thesis, which seeks to continue to explore question 5, whilst providing an answer to Research Question 3) and 4), namely: how is, and what stories are told around the weapon, how complete are they, and how is Taser regulated and accounted for.

Part 3: The Stories and Regulatory Frameworks around Taser.

In Part 3 of the thesis, I focus on three inter-related stories around Taser—the notion of decision-making around the weapon being a responsibility for the individual officer, an image of the weapon as a neutral 'tool', and the existence of sufficient accountability mechanisms—and argue that these are not wholly inaccurate, but that they are incomplete.

Chapter 8 focuses on the stories of 'individual responsibility' and 'Taser as a tool', whilst Chapter 9 focuses on the story of 'robust' accountability mechanisms. This division of labour also allows Chapter 8 to focus on the mechanisms in place prior to Taser use—i.e. the guidance and training provided to officers before they use the weapon—and Chapter 9 to focus on mechanisms in place after its use. Finally, Chapter 10 provides an overall conclusion to the thesis.

With these points of clarification addressed, then, I start by turning to Chapter 8, and to the legal, policy and training framework in place around the weapon.

Chapter 8: Individual Decisions, Neutral Tools?

This chapter seeks to engage with two commonly heard stories around the Taser weapon. I start by outlining the commonly encountered theme that decision making around Taser is an individual responsibility for the officer tasked with carrying the weapon, and discuss how this intersects with police discretion, a prominent theme within the academic literature. In so doing, I highlight the relative lack of guidance given to officers about when, how and in what conditions to use the weapon – a situation that contrasts markedly with the situation in some other countries. In Section 2, I outline the notion, again widespread in both academic and non-academic circles, of Taser as a neutral tool. Yet a key concept in ANT, that of generalised symmetry, sensitises us to the notion that technologies may be more than mere tools, and asks us to consider the possibility that they can 'make others do things' (Latour in Waltz 2006: 58) – and Section 3 aims to explore such possibilities. It draws on a rich variety of sources—from constructivist Science and Technology Studies and Actor-Network Theory to cognitive neuroscience, in particular Dror's (2007) theory of police use of force decision making—and a range of methods, from interviews to Freedom of Information Act (FOIA) Requests, to argue that such stories are not necessarily inaccurate but are incomplete, and should be complemented by a focus on agency other than that of the individual officer.

In particular I use the example of the police training curriculum to argue both that there is a need to focus on the decisions made by other human actants elsewhere in the Taser network – and that the agency supposedly exercised by humans is not unlimited, but subject to certain constraints. This is particularly important given the weight that case law from the European Court of Human Rights has attached to issues of planning and control and training in assessing potential violations of the right to life (Skinner 2014, see also De Sanctis 2006).

 I then discuss the role of Taser, illustrating the need to consider not just the role of human actants in decision making, but to consider the possibility that technologies such as Taser may be more than mere tools, and engage in a 'dance of agency' with human actants in ways that can impact decision making. This work is particularly important because, as Sousa et al note (2010: 38), 'a wider range of options (of force techniques) may change the decision-making process' – but this area has been little studied, and 'researchers and

policymakers have not yet fully explored the impact of (Taser)… on police decisions' to use force. This chapter aims to go some way in filling this gap.

Overall I argue that, whilst decisions around the use of Taser in probe-firing mode are often seen as ones for individual officers, human and non-human agency and decisions taken elsewhere in the chain of command will influence the ways in which officers make such decisions – thus bringing into question the extent to which they can truly be said to be individualised. Moreover, such influences may combine to make officers more, not less, likely to use Taser in probe-firing mode. Such findings have implications for police practice as well as for academic debates around discretion, which could benefit from a serious consideration of the role that non-human actants may play in shaping discretionary decisions. I further argue that that, whilst this line of argument demonstrates the relevancy of constructivist Science and Technology Studies insights, it also demonstrates some of the weaknesses and challenges in applying such approaches to empirical research of this kind.

It is important to start, however, by examining the stories themselves, beginning with the notion of Taser use as an individual choice for rank-and-file officers to make.

Decisions around Taser use as an Individual Responsibility.

<u>Law and Policy Documents</u>

The notion of decisions around the use of Taser (and the use of force more generally) as ones for individual officers is a cornerstone of the English and Welsh legal system. Section 3(1) of the Criminal Law Act 1967 states that: 'a person may use such force as is reasonable in the circumstances in the prevention of crime, or in effecting or assisting in the lawful arrest of offenders or suspected offenders or of persons unlawfully at large' and Section 117 of the Police and Criminal Evidence Act similarly states that an officer can use 'reasonable force, if necessary, in the exercise of the power'. Section 76 of the Criminal Justice and Immigration Act 2008, building on Section 3 of the Criminal Law Act 1967, clarifies that 'the question whether the degree of force used by… (the officer) was reasonable in the circumstances is to be decided by reference to the circumstances as (the officer) believed them to be'. Whilst the Act notes that 'the reasonableness... of that belief' is 'relevant' to the question of whether

or not the officer genuinely believed it, if it is determined that the belief was genuinely held, then it doesn't matter whether the belief was 'mistaken', or whether it was 'reasonable' for the officer to hold it.

The European Convention on Human Rights and its case law, with its emphasis on proportionality and necessity as criteria for helping to assess the reasonableness of force used is also highly relevant here given that Section 3(1) of the Human Rights Act (1998) states that 'so far as it is possible to do so, primary legislation and subordinate legislation must be read and given effect in a way which is compatible with the Convention rights', whilst Section 6 makes it unlawful for a public authority to 'act in a way which is incompatible with a Convention right'. Case law under Article 2 of the ECHR does move beyond a focus on the individual officer to encompass a focus on the control and planning of a particular operation, and of training received by the individual officer (Skinner 2014), however, as De Sanctis (2006: 32) notes, this approach has not been adopted consistently by the Court, and there is a need to consider issues around rules of engagement and training 'in a more thoughtful and comprehensive way'.

I return to relevant case law, and assessments of proportionality and necessity, in more detail in the next chapter of the thesis. For our purposes here, however, the key point is that, in making decisions about the proportionality, necessity and reasonableness of force used, the locus of responsibility, legal and otherwise, is placed firmly on the individual officer, who is empowered to exercise his or her discretion (see also Squires and Kennison 2010: 335) –even whilst ECHR judgements may (quite rightly) consider not just the individual exercise of discretion, but also consider broader factors including training, guidance and rules of engagement and planning and control of the operation.

The College of Policing Authorised Professional Practice (APP) on Use of Force is even more explicit on this point. It notes the latitude that officers have to 'exercise their discretion' (College of Policing 2013a) and states that 'when a police officer makes use of a… less lethal weapon by deliberately pointing it or by discharging the weapon… that will constitute a use of force for which the officer is both legally and organisationally accountable… If the force used is not reasonable and proportionate, the officer is open to criminal or misconduct proceedings' (College of Policing 2013a). It further notes that officers are

'individually responsible and accountable for their decisions and actions… (including) decisions to refrain from using force as well as any decisive action taken, including… the use of a less lethal weapon' (College of Policing 2013a: no page number).

Similarly the College of Policing APP for the use of Taser (College of Policing 2014a) sets few, if any, parameters on the use of the weapon. It notes that 'it is not practicable or possible to provide a definitive list of circumstances where Taser would be appropriate', but instead notes that it can be used 'when dealing with an incident with the potential for conflict'. Thus the guidance enables the weapon's use in a very broad range of circumstances, and stresses that it is for the officers 'decide on the most reasonable and necessary use of force'. Moreover, whilst officers are 'expected' to 'have regard to' the APP, it is noted that they can 'deviate from…(it), provided there is a clear rationale for doing so' (College of Policing 2014b).

Whilst this might be seen by some as providing officers with insufficient guidance around the use of the weapon, the document reassures us that officers who use the weapon 'will be both legally and organisationally accountable', and that 'officers are individually accountable in law for the amount of force they use on a person' (College of Policing 2014a: no page number) – wording to which I shall return in the next chapter. It also notes that officers are provided with assistance to help them make such decisions. Specifically, when deciding whether or not to use Taser, the guidance states that officers should apply the National Decision Model (NDM) to assist them, and may 'only' use the weapon after they have done so. As one Trainer noted, 'there are no specific deployment criteria for Taser officers to meet: no other standard. *The NDM is the standard*' (emphasis added: Lead Instructor's Training).

National Decision Model
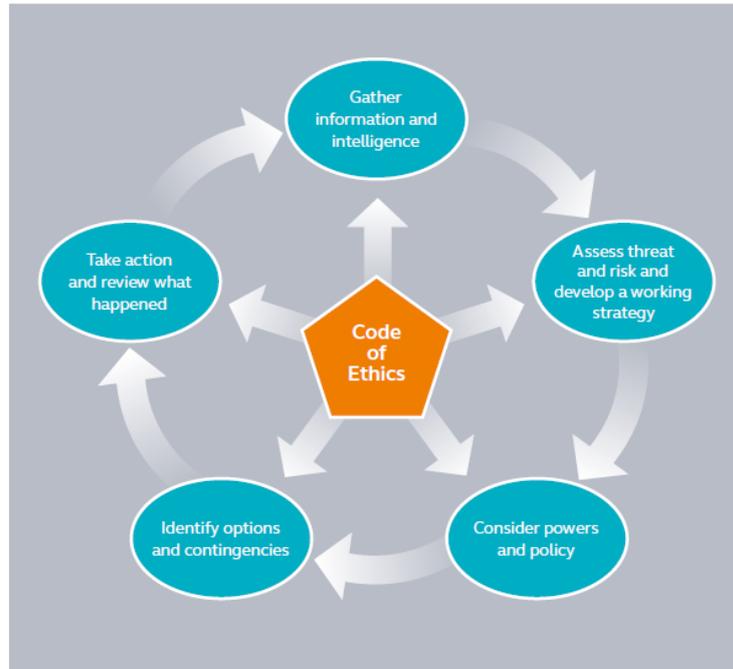
© College of Policing Limited (2014c) [37].

Centred around the Code of Ethics, the model (shown above) sets out five areas that should be considered by officers before making a decision. Thus officers must try to consider, define and clarify the information and intelligence available to them, analyse the threat posed by the situation or individual and consider the powers, policies and legislation that apply. Using the results of this information and analysis they are then required to identify the different options and contingencies at their disposal, before taking action.

As the above illustration shows, the NDM is a general decision making model intended for use in any situations where decisions have to be made in policing, and is not specific to decisions involving the use of force or Taser. Thus officers are provided with very little specific assistance, from either the law, APP or from the National Decision Model, as to when the use of Taser may be more or less appropriate. Indeed, in some of the training courses I attended, officers were advised that a vast range of decisions could be compatible with the NDM. Hence trainee Taser officers were advised that:

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[37] Information licensed under the Non-Commercial Government Licence v1.0, further details available at http://www.nationalarchives.gov.uk/doc/non-commercial-government-licence/non-commercial-government-licence.htm

'The threat and risk is… the most important element, as everything else is outside of your thought process. Every decision you make is influenced by what you put in that box – it influences everything that comes after it. If you were scared, say 'I was scared' – personalising that threat assessment is the key to your success'. (Taser trainer, Force details omitted).

Such an approach is in stark contrast to the more traditional approaches to use of force regulation, many of which have taken the form of use of force continuums (Miller 2010). As Miller notes, in many jurisdictions such as the USA, many forces use such a continuum, which detail different levels of subject behaviour on a continuum from no resistance up to deadly resistance, and then specify the degree of resistance that should be present before particular use of force options, including Taser, can be used (Adams and Jennison 2007, Miller 2010). As Adams and Jennison (2007) have noted, agencies differ greatly on where Taser goes on this spectrum, with little consensus on the appropriate place for the weapon. Whilst such models have, quite rightly, been subject to considerable criticism along various lines (Dymond and Corney 2015, Flosi 2012), it is important to note that, in specifying deployment criteria, including the kinds of circumstances and levels of subject resistance to which Taser is an appropriate response, they provide a marked contrast to the model in England and Wales, which sets out far fewer standards and guidelines for use.

Taser training

Drawing, as it does, on such policy documents, it should be no surprise that the training is often unable to give much in the way of additional guidance, feedback to officers about when use might be appropriate, or flag up questionable decisions or policing styles. Instead, Trainers explained to trainees during the course of the Taser training that 'there's no right or wrong, just bounds of reason', and noted the number of divergent ways in which officers might handle a situation. One trainer described to me how 'I can go into certain circumstances and deal with it by talking whereas... a specific colleague, who I know, would revert directly back to incapacitant or baton without even trying to talk their way out of it… (and) there might be somebody else who goes straight into the same situation and they'll look at it and they'll go straight for Taser'. He noted, however, that:

'I don't have an issue with that because that is their threat perception. And if their threat perception is up through the ceiling somewhere then they have to justify why they've gone for Taser... As a department we tend not to criticise people, we would say to people 'did you consider this option, that option, before you tasered them? The chances are they're going come back and say 'Well actually yes I did but my threat assessment was so high I decided to (use it)' (Taser trainer, Force details omitted).

In a similar vein, a trainer noted on several occasions that 'it's not for us to change your policing style' and that 'we're not out to change how officers police'. Whilst this is understandable, officers on Taser training came from a wide range of background and operational duties. Some had policing styles that were a lot more confrontational than others. For example, my contemporaneous observations from one training course describe how different officers reacted to a training scenario where they were faced with 'an individual breaking and entering a property, holding a crowbar and pickaxe, and carrying a bag with a screwdriver and knife inside'. I noted that, of the three officers I observed face the scenario on a particular day:

'The first two situations were peacefully observed (sic) without any use or drawing of the Taser whatsoever, and the suspect was searched and handcuffed. The third officer came in and was aggressive off of the bat, immediately pointed Taser, asked him (the suspect) several times to drop the weapon and then Tasered him. The officer then Tasered him again, as he went to move his hands to his pockets when he was lying down (NB the subject had the knife in his pockets). In the debrief for this officer he was described as being 'proactive straight away' - but the inference was that he could justify it, and he wasn't criticised for this. Instead it was noted that 'you could have spent longer talking but you had asked him three times'.

Whilst trainers may not see it as their job to change how individuals police, not all policing styles may be equally compatible with, or suitable to, the Taser weapon. Indeed, as the example above shows, some styles might encourage officers to use the weapon relatively early on, or to use the weapon in situations where a different approach might have negated the need to use force (see also Squires and Kennison 2010: 32-33, who note the risk of officers discharging firearms as 'necessary' responses to a situation that their 'own interventions may have provoked'). However, some trainers did not see it as their job to alter policing styles, and also noted the difficulties involved in questioning officers' handling of situations. Thus, when explaining to me how officers could fail the training, an instructor noted that:

'The usual thing (that causes officers to fail) is people that can't fire it... its quite black and white there. You could say 'well I'm not sure that person's tactics are right' but that's a subjective thing from our experiences and we could argue with the student about that' (Taser trainer, force omitted).

Thus officers are taught, via the training, to make their own decisions about when to use the weapon – with these decisions not always open to challenge. This approach was contrasted, favourably, with earlier models that had been used in policing. Thus trainers noted that:

'Over the years officer... training has changed. You used to have charts of what an officer did and the subject did and it had to match.... Whereas now...they (the officers) make a decision as to the most appropriate option... it puts a bit of pressure on the officers but actually I think it's better, because then you can justify (it)' (Taser trainer, force omitted).

Officers 'can turn up to a job and, in line with NDM, make their own threat assessment without having to have someone else, who is sat in a control room, make that assessment for them.... the officers make the decision (and) justify their own decisions' (Taser trainer, force omitted) .

This notion of police use of force as an 'individual responsibility' accompanied by relatively vague guidance around when to use the weapon, was also one echoed by Taser trained officers at various stages of the policing hierarchy. Many Taser trained officers took pride in their decision making skills and relished the responsibility, seeing the decision to use the weapon as theirs, and theirs alone:

'They don't give you much guidance, but I think that's a good thing. I wouldn't want to get to an incident and have to be thinking 'what would (the trainer) want me to do in this situation? (Taser officer, Force A).

'(Some officers) don't want to be responsible, perhaps, for using Taser... (but) it's the same as everything, it's down to your decision making…. I'm not worried as I'm sure of my decision making skills' (Taser officer, Force A).

Thus decisions around whether (and how) to use the Taser weapon are seen as individual choices to be made by individual officers, with relatively little assistance offered by the legal framework, by Authorised Professional Practice or by their training, as to when its use might be appropriate. (For interested readers, a longer discussion of Taser training has also been published as

Dymond (2016b, where I discuss some issues around the content of Taser training, as well as notable gaps and 'silences' in the training curriculum).

It could be argued that this situation contrasts markedly with the situation faced by firearms officers who, although they are ultimately responsible for their decision to discharge firearms, nevertheless discharge this decision making under what Squires and Kennison (2010: 18) describe as 'the virtual umbrella of legal accountability established by the command structure' – a structure which authorises their actions and alleviates their 'burden of responsibility'. <u>Academic Literature</u>

In the academic literature, too, the notion of police use of force as a product of 'individual decision and action' is also prevalent. The so-called 'discovery' (Nickels 2007: 570) of discretion in the 60s allowed for a shift away from the previously dominant 'legalistic' view of the police—which saw officers 'unthinkingly' applying the law (Sherman 1984: 69), including via the application of force—and a corresponding shift towards models that stressed the agency of individual officers in making complex decisions. Thus many authors tended to paint a sharp distinction between legal and policy restrictions on the one hand, and free choice and human agency on the other. Davis' (in Holmberg 2000: 181) original definition of discretion argued that a 'public officer has discretion whenever the effective limits on his power leave him free to make a choice among possible courses of action or inaction'. Dworkin's classic formulation sees discretion as 'the hole in the doughnut...an area left open by a surrounding belt of restriction' (Dworkin in Campbell 1999: 80).

Similarly, later authors have also defined discretion in terms of the 'power of choice' (Holmberg 2000: 181) and the ability to 'exercise free choice' (Campbell 1999:79). Whilst critiquing some of the ways in which the term is used, Nickels also finds value in a definition of the term as the 'perceived authority to make choices' (2007: 575). Law and legal guidelines are thus contrasted with the free choice of the officer.

Moreover, the officer's choices, and the decisions he or she makes, are often seen as the product of conscious, rational deliberation. For example, Goldstein's classic article (1960) gave several examples of discretion in practice. One such example, concerned with the use of informants in the drugs

trade, officers used rational cost-benefit calculations in order to make a decision on how best to proceed. More recently, Rowe's (2007: 298) study of police officers' exercise of discretion in domestic violence incidents in the UK similarly posited a largely rational, conscious process of calculating and weighing up the importance of various factors—namely the possibility of getting into 'trouble' with their superior officers in light of the Department's positive arrest policy, the risk of the perpetrator offending again, and the risk of injury to the subject–when deciding whether or not to make an arrest. Much of the literature on police discretion, then, puts the emphasis firmly on the agency of individual officers in making decisions and, more specifically, on conscious decision making processes.

Of course, the literature around police discretion has been subject to several critiques. Yet these critiques often seem to operate within a human centric paradigm. Pepinsky (1984: 266) was one of the first to argue that analysts were equating 'individual autonomy' with 'freedom of choice'. He argued that the absence of relevant laws did not therefore mean that officers had 'absolute' freedom of choice, as the expectations of others, whether formally codified or not, could impact decision making. As such, the 'discretionary' choices officers made were, in reality, 'as much as product of social control' and as 'fully influenced by people' as outcomes governed by the applicability of formal rules (1984: 266). Nearly fifteen years later, Campbell (1999) argued that the 'misconceptions' identified by Pepinsky had not been rectified. Campbell invoked Giddens' structuration theory to argue that 'human agency is rarely, if ever, voluntary… all human behaviour is both structured and structuring' (1999: 80) – and is structured, in this case, by notions such as 'democratic policing' and the organisational structure of police forces. Yet, she lamented, this was seldom considered in the literature on discretion, which failed to consider how 'free choice may be already… ordered, routinized and structured by (a range of) phenomena' (Campbell 1999: 80).

Of course, some work has been done to identify such 'phenomena'. Thus Finckenauer's study of police decisions to arrest those who had committed a range of potential crimes stressed the role of 'the community' in perpetuating 'selective enforcement depending upon the socioeconomic status of the offender' (1976: 31, 36-7). His research also suggested that the desire to

maintain a positive public image of policing, as well as the experience and education level of the officers involved, were important factors in police decision making. The voluminous literature on police subculture (as critically discussed, for example, in Shearing and Ericson 1991, and revisited in Paoline 2004) also provides an important source of insight into factors that can influence what may appear to be subjective, personal decisions. More recently, the emphasis on 'implicit bias' from both the College of Policing (2015b) and the Independent Police Complaints Commission (2016) speaks to the continued interest in the importance of less conscious processes in informing individual decision making.

Yet, as Latour (2005: 21) notes, all too often sociological studies such as these adopt a 'shrinking definition of the social' and, in this case, a 'shrinking definition' of the kind of factors that might influence discretionary decisions. Many of the factors listed above are often conceived of as largely human in origin, either because they are factors somehow internal to the individual officer, or because they are shaped by external human influences, norms and values. Thus, when analysts attempt to identify the 'phenomena' structuring discretionary choices, more often than not the phenomena they identify turn out to be human in origin. These factors are important, but focusing almost exclusively on human actors ignores the important roles that non-humans can play, and risks adopting a 'knee-jerk reaction' which denies that there 'exist many more figures than anthropomorphic ones' (Latour 2005: 53 -4).

Seen in this light, even critiques of discretion typically have the same 'kneejerk reaction'. Pepinsky's powerful critique, and his calls for more attention to be paid to the factors that might influence decision making, falls back on the notion of the decisions of officers being 'influenced by people' – thus reaffirming the notion that these factors are solely human in origin (1984: 266). Similarly, Campbell's article uses structuration theory – a theory which sees 'social structures are both constituted by human agency, and yet at the same time are the very medium of this constitution' (1999: 81). As Greenhalgh and Stones argue, the 'technical dimension' is 'undertheorised' in structuration theory, leading them to suggest that the approach may be profitably combined with the constructivist STS literature, including ANT (2010: 1287).

Even authors that explicitly consider the role of technology in influencing discretion do so in human centric ways. Thus Bayley and Bittner's research into police training programmes (1984) usefully discussed the issue of officer discretion, and factors that may influence it. In their description, the very reporting forms that officers use to record encounters with the public, and specific actions that they have undertaken, are seen to exert a 'powerful' influence (1984: 40). Thus the authors note that:

> 'These forms structure choice, because officers know that if they take an action not specified, they will be required to provide an explanation. Explicit and detailed forms not only simplify reporting, they raise the cost of exercising initiative' (1984: 40).

But read a little closer and these forms are seen as little more than what Latour might term 'intermediaries' (Latour in Waltz 2005: 61). Bayley and Bittner note that the forms simply 'convey' the expectations of human actants, namely 'supervisors', 'sergeants' and 'lieutenants' (1984: 39 – 40). Thus when technologies are given a role, this role is simply seen as one of passively implementing human agency.

Overall, then, much of the academic literature provides a highly human centric account of police decision making. As such, it places a high emphasis on the agency of individual officers in making use of force decisions at exactly the same time that legal standards, APP, the training curriculum and the stories of senior and grass-roots officers all conceptualise and reduce the issues around police use of force to individual decisions made by individual officers.

Taser as a tool.

This focus on human actants is mirrored by a conception of technologies as mere tools. The active consideration given to human actors is accompanied by a *lack* of consideration given to the distinct contribution that technologies might make, and how they might impact decision making. Indeed, a recurring theme that emerged time and time again from my field work, my empirical research and my reading of peer-reviewed articles, was the tendency to describe Taser as a tool. At the highest levels of policing, the NPCC and the UK's largest police force, the Metropolitan Police, note that:

> 'On some occasions officers will have to use force and of course there will always be a risk when force is used – whether the tool chosen is an

open hand… or indeed a Taser… Officers must be held to account when they use force regardless of the tool that is used' (NPCC 2015a).

'Tasers can be a useful tool in safely subduing drug affected people who might otherwise be very difficult to restrain' (NPCCb 2015).

'Taser is an additional tactical option that allows officers to manage situations where violence is threatened or likely from a safe distance' (Metropolitan Police, nd).

Thus Taser is a 'tool', option' or piece of equipment that can be easily interchanged with other force options, and is another tool assisting officers in meeting predetermined goals (e.g. managing violent situations, safely subduing drug affected people). Similarly, Taser trainers noted that:

'We have to provide the tools that are effective for the job… there has to be something there that helps boys and girls when they are out there to do their job effectively, and Taser is that less impact weapon'.

'We're not looking to change your policing style, (but are) just giving you an extra tool to use'.

Similarly, Taser officers from Forces A and B noted:

'It's another tool in the box, really and it does make you feel a bit safer' (Taser trained officer, in Force B).

''It's another tool in the box, it's an extra option, not suitable for every-time but suitable sometimes... It's gonna stop someone running up the road with a knife..., self-harming and attacking me, so It should resolve an issue before it gets really out of hand' (Taser trained officer, in Force A).

'The opportunity was offered (to become a Taser trained officer)… and I just thought that it is such a large area and it's a useful tool to have for myself and my colleagues' (Taser trained officer, in Force B).

As I noted in Chapter 1, in the academic literature, too, Taser was also commonly referred to as a tool to assist humans in achieving various, more or less progressive, pre-determined aims and objectives (see Anais 2015, Jauchem 2010, Oriola 2012, Spriggs 2009, Wright 1991). These differing accounts—those offered by the police, the medical community, critical criminologists and statisticians—nevertheless share a similar conception of Taser as nothing more than an 'intermediary'. Indeed, as Anais notes in her analysis of the literature on LLWs more broadly, the most common conception is of them as 'neutral objects that do not do anything until human beings pick them up, form intent, and use them to act on that intent' (emphasis in original

2015: 27). She thus criticises the existing literature for 'neglect(ing) the possibility that technologies take a range of contingent forms, have a range of unintended consequences and exist in... complex and often inarticulate relationship(s) ' (2015: 13: 138) – possibilities I intend to explore further here.

Beyond these stories.

It is perfectly understandable why these actors would use the common sense term 'tool' to describe Taser – and, indeed, to describe other weapons (Latour 1991:31). Yet there is also a danger with such accounts for, as Latour notes, describing something as a tool is to describe it as a 'medium, a neutral carrier of will' (1994: 31). Waltz (2006: 56) agrees, noting that the use of the term acts to 'deflect analysis' because technologies are simply 'subsumed by human intention, design, or drive'. The term tool implies a neutral, passive entity, and encourages one to skip over the technology and to focus on the human actant wielding it.

Similarly, it is understandable why many academics and practitioners alike stress the importance of individual decisions to use force. Clearly, the use of Taser cannot be understood *without* an emphasis on the decision making of the officers charged with using the weapon. Yet there is a danger that, in focusing solely on the responsibility of officers, we ignore the role of the socio-technical network around Taser in shaping the decisions that have to be made. Taken together, then, these stories encourage the belief that the agency of the officer is the only agency that matters, when there are multiple sources of agency—both human and non-human—at play.

In the remainder of this chapter, then, I use two empirical examples to demonstrate that so-called 'individual decisions' can be affected by a range of other influences. I look first at the impact the design of the officer safety training curriculum may have on 'individual decisions'. Whilst this serves to make the general point that officer decisions are not theirs and theirs alone, but are structured by decisions that have been made elsewhere, it maintains a focus on human actants and, in particular, on senior officials who design and implement the training. As such, my second example thus directly examines the question of the non-human agency of Taser. In putting forward these examples I use the ANT concept of generalised symmetry to abandon a priori

assumptions about the importance of various actors. Instead I seek to explore which actants, if any, have agency, are able to make distinct contributions and are active mediators, and which actants are passive, simple mediators – without simply assuming that such distinctions simply map onto human / non-human dualisms.

Officer Safety Training.

Regular, formalised officer safety training – including training on use of force techniques – has a relatively short history in England and Wales, being introduced in the early 1990s (Buttle 2007). Such training is crucial: as Geller and Toch note, officers need to be highly skilled in order to be competent users of force (in Buttle 2007). It is also imperative that officers have a range of options—up to and including the use of force—at their disposal if they are genuinely to be able to exercise choice in a given situation. This necessitates providing officers with a range of communication skills and tactics to enable them to resolve situations without recourse to any force whatsoever. It also requires that officers receive sufficient training on force techniques available to them *other* than Taser—options such as empty hand techniques, baton strikes, or use of irritant spray—so that they are able to make decisions based on which force technique is the most appropriate in a given situation, as opposed to ruling out certain options because they do not feel confident in their use.

However, evidence suggests that training in each of these areas could do with improvement. The IPCC has recently highlighted room for improvement around officer communication skills. They found that, of the 191 cases of police use of force which were independently investigated or managed by the IPCC between 2009 and 2014, inadequate communication was found to have taken place in 10% of them. The IPCC have thus recommended that the police 'provide training for their officers in communication techniques to help them manage and de-escalate situations without using force… (this) can be particularly useful to give officers the skills and confidence to communicate with groups with specific needs' (IPCC 2016a: 76).

In terms of the second area, training on other use of force techniques, ACPO historically recommended that a minimum of two days a year was spent on

officer personal safety training —training which encompasses the use of everything from batons to incapacitent spray, handcuffs to empty hand techniques (HMIC 2007). Yet it is not clear whether two days training is sufficient to cover these techniques. Personal safety trainers, who admittedly depend on such courses for their livelihoods, noted:

> 'The National guidelines say *a minimum* 12 hours contact time... but as soon as someone who is paying bills see that, they immediately go 'that's two days then' (Personal Safety Trainer, Force location omitted).

> 'If we were to go with the minimum time for everything that is included in the pack, that needs to be taught (in line with) the recommendations from ACPO, we'd need three days. (With two days) we can get them back to where they should be, (doing) maintenance rather than development' (Personal Safety Trainer, Force location omitted).

Moreover, my Freedom of Information survey of all 43 territorial police forces in England and Wales found that several forces were not giving their officers two days of training. Of the 43 territorial police forces in England and Wales, 16 responded to an FOI request asking for the number of hours police officers received in personal training each year between 2009 and 2013 (the most recent full year for which data was available at the time the request was issued) – a response rate of 37%. Of these 16 forces, 5 (31% of respondents) confirmed that their officers received personal safety training of 2 days / 12 hours, with one force providing more than 12 hours training. The remaining 11 forces (69% of respondents) gave their officers between 6 – 8 hours of refresher training. These findings also fit in with the IPCC's more recent research, which found that 'officers considered the training (on police use of force) provided to be sufficient and adequate, but they did raise some concerns about the reduction in time dedicated to training… Some training modules around personal safety were considered insufficient and too infrequent to ensure that knowledge stayed up to date' (2016: 16).

Insufficient training has consequences for the individuals exposed to such force and for the officers involved. Crucially for the purposes of our discussion here, it may also mean that officers are not fully equipped to be able to choose between the different use of force options that they should theoretically have at their disposal. These themes came out strongly in interviews, with trainers noting:

'(Post-incident, officers will) be asked to justify why they've used a level of force... (and) maybe they can, but there's a greater potential that they could use excessive force and not be able to justify it, or work out why they have done what they did, (because) they couldn't reproduce the skills necessary' (Personal Safety Trainer, Force location omitted)

'Officers need to know they must be able to justify their decision making process with regard to 'is it proportionate, is it legal'? 'Am I using a recognised technique'? If they don't know how to do it, or if they are making it up, then they are very literally taking their career into their own hands. They risk injuries to themselves, injuries to their colleagues, injuries to the subjects they are dealing with. (Personal Safety Trainer, Force location omitted) .

'If they (senior officials) are saying we haven't got time to run… (2 days' training) who's signing that off? If a police officer is in court and the Barrister says 'I put it to you that you are not trained'... where do they then stand to say that 'I do make the right decisions, and have the right skills?' It's a bit of a funny area, isn't it?' (Personal Safety Trainer, Force location omitted).

Such issues with training mean that, in practice, officers may have less use of force options available to them – and, moreover, may be less able to make clear, conscious decisions about the use of force options that they do have. In some instances, this may mean that they resort to 'animalistic' behaviour – but in other instances, could mean that they fall back on using the Taser, given their lack of confidence with other techniques. Indeed, whilst not mentioning Taser specifically, one trainer noted that those with fewer empty handed techniques 'do rely on their kit quite a lot. They shouldn't have to, they should be able to rely on their empty handed techniques'.

Similar points have also been made by Buttle (2007), who conducted his research prior to the widespread roll out of Taser but nevertheless made some relevant observations about officer safety training. He noted that the practice of tailoring officer safety training in response to officer feedback about the techniques used had unintended consequences. He found that the relatively low levels of skill that officers possessed were leading them to choose the simpler, more offensive empty hand tactics over more complex, defensive strategies – strategies that were then, in turn, favoured in training. This, in turn, encouraged officers to 'take offensive action to pre-empt violence' – including the use of LLWs such as CS (Buttle 2007: 170).

In such ways, then, the decisions that officers make around police use of force are not theirs alone. Their agency is not unlimited, but is shaped by prior decisions taken elsewhere, such as decisions made by the NPCC and by senior officials on the frequency and content of training on communication skills and use of force techniques other than Taser. In this case, there is a possibility that the comparative lack of training that officers receive on other force options may lead them to favour Taser over other techniques.

The roles of non-humans.

Thus far I have focused on the role played by other human actants in the network. But what about the non-humans? The ANT concept of generalised symmetry encourages us to consider that, instead of Taser being just a passive tool, a series of complex interactions between the Taser and the officer carrying the weapon just might alter officer perception and mind-sets. These interactions might impact how officers make decisions and exercise their discretion, and may make officers more likely to use force. At the very least, argue ANT theorists, it is necessary to investigate the possibility that the non-human may also have a role to play. So exactly how might interactions between Taser and the officer alter discretionary decisions around the use of force?

To help me answer this question, I draw on the framework advanced by the cognitive neuroscientist Dror (2007). Dror differentiates between three distinct sets of factors that influence police decision making around use of force. The first set of factors are 'decision factors' or variables associated with the decision itself: namely decision complexity, and the 'pay-off' matrix, or the consequences of different choices. The second set of factors are 'internal' to the officer making the decision. These include 'the experience of the decision maker, their confidence, cognitive abilities, state of mind (and) personality' (2007: 268). The third set of factors are 'external', specifically time pressure and accountability mechanisms. Whilst Dror's model is concerned with police use of force decision making in general, and is not concerned specifically with how technology may impact officer decision making, it nevertheless gives us space to consider the ways in which this may occur – and I argue that policing technologies (in this case, Taser) can impact all three parts of the model.

First, the presence of Taser or, more precisely, the interactions between the physical object of the Taser and the human actants who are wielding it, can affect the first part of Dror's model, the concept of 'decision factors' by altering the 'pay-off' matrix (or the consequences) that using force may have. Dror notes that less-lethal weapons can alter the 'pay-off matrix' around police use of force in positive ways, as 'shooting a suspect has more severe consequences than…(using) Taser' (2007: 267) - but it also seems possible that they can alter this matrix in less positive ways.

As discussed in Chapter 7, officers saw the weapon as 'minimal', 'nicer' and 'less intrusive' for subjects than other forms of force. At the same time, the ability of the weapon to be used at a longer distance than many other force options may appear to remove another potential 'pay off' or 'consequence' for using force, namely the risk that harm may occur to the officer. These factors may heighten the likelihood that the weapon is used – not (just) as an alternative to firearms, as Dror (2007) would have it, but in a much broader range of circumstances where officers might otherwise have chosen other force options, or may not have used force at all. Indeed, as the former ACPO Lead on Taser, Simon Chesterman, notes when commenting on Taser use in the USA:

> 'if you are faced with the choice of grappling with a drunk guy and wrestling him to the group or standing ten feet away and firing your Taser, it is easy to see which is more attractive. There is a danger that the Taser will become the default weapon… Our national training, guidance and scrutiny is there to minimise this risk' (quoted in Brown and Hanlon 2014: 206 -7).

It is thus possible that such interactions between the beliefs of the officers, the affordances of the Taser weapon and its physical presence—particularly when combined with the concerns over the lack of use of force training—might alter how officers consider use of force decisions by altering the 'pay-off matrix', or consequences, that using force may have.

If Taser can affect the first part of Dror's (2007) model, it can also affect the second part of Dror's model, that is the so called 'internal' factors, such as 'confidence' and the 'state of mind', of the decision maker. As discussed in Chapter 7, simply having the weapon increases the confidence that officers have in their ability to handle a situation. Thus even 'internal' states can be

affected by the presence of a non-human actor, and beliefs about its efficacy. Moreover, the presence of the weapon may also impact officers' states of mind by priming them to act in aggressive ways. This point has been made in the psychology literature on weapons effects (see, for example, Berkowitz and LePage 1967, Klinesmith et al 2006, Brennan and Moore 2009). This literature found that the 'presence' of a weapon (either physically or indirectly through some form of representation) was associated with increases in aggressive behaviour, when compared to the absence of such a weapon: a correlation described as 'the gun pull(ing) the trigger' (Anderson et al 1998: 313).

Applying such studies to police use of Taser is clearly fraught with difficulties for several reasons. First, one of the authors of the original study noted that 'the effects depend to a considerable extent on the meaning these…(weapons) possess for the person' (Berkowitz in Bartholow et al 2005: 50 – although the Klinesmith study found that the weapon exerted its effects via increases in testosterone levels). Such studies were conducted on civilian populations, and when similar studies were recreated on those with specialist knowledge of guns (in this case, hunters), the effect diminished (Bartholow et al 2005). One can only speculate as to how trained police officers might respond – but Leyens et al (1976) provided some evidence that aggressive responses can indeed be reduced as a result of specific interventions and training. Second, it seems likely that reactions might vary according to the weapon displayed – a gun might provoke different reactions than a Taser, which in turn might elicit different reactions than would a baton, or irritant spray, for example. Nevertheless, such studies provide some evidence that the presence of weapons may produce subtle changes in individuals charged with using them – changes that may not always be readily apparent to the individuals themselves.

Indeed, trainers often noted the risk of over-use of Taser. Typical of such comments was a statement made by one trainer that 'it's amazing how I give you this yellow bit of kit and you forget to use your mouth'. Another commented on the 'Taser officer walk', where officers 'walk around with your hand protecting your Taser'. Students were warned, however, that this could be a self-fulfilling prophecy, because 'if you put your hand on Taser (as you approach them), all you think about is Taser'. Such concerns were under-scored by comments from a Taser trainer who explained that:

> 'The big problem I've got, is that some of the ones who are not firearms officers… are jumping far too quickly to red-dotting them, to thinking about Tasering… Unarmed skills? Empty hand skills? Errr.. (Officer mimes having a blank expression). Taser? Bang' (Taser trainer, Force omitted).

Such statements, said both during interviews and more publicly during training, may well have been exaggerated for dramatic effect, intended to emphasise to trainees—and myself—both the potential risks with this equipment and the dedication of the forces in question to tackling them. Nevertheless, such statements do speak to the potential for the presence of the weapon to more or less subtly impact officer behaviour and to encourage the use of force.

Third, the presence of Taser may also interact with the final part of Dror's (2007) model, that of 'external factors' that impact decision making, amongst them time pressures. Taser can impact the 'time pressure' that officers are under, for the flip side of one of the key 'advantages' of Taser—that it can be used at a distance—is that it *should* be used at a distance for it to be most effective. When officers are faced, for example, with a potentially aggressive subject who is walking towards them, they have to make a decision earlier on in the encounter (i.e. when the subject is further away) whether or not to use the device – thus increasing, not decreasing, the time pressure that officers face. This particular time pressure is less present with other techniques, such as empty hand and baton, which can *only* be used at close quarters. Thus the design of the weapon may encourage officers to use it sooner rather than later (see Buttle 2007 for a similar point on CS).

Relatedly, the Taser cartridges in use in England and Wales can be used at a maximum distance of 6.4 metres but are at their most effective when used at slightly shorter distances than this. Thus officers may be tempted to get within Taser range of particular individuals so that they have the option to use it, should they need to. Yet this action could not only put them more at risk if an individual was to turn violent, but could also further risk inflaming the situation. The possibility of officers responding differently—in this case, getting in too close—because of the presence of Taser and, as such, affecting the event outcome were testified to by various trainers. One trainer noted that:

> 'In our force (we had a situation) where the (Taser trained) officer was just simply too close... (when someone) was kicking off and he jumped him. Distance, distance, that's what we try to teach our non-firearms

officers (on Taser courses), don't jump on… Because they have spent their whole career jumping on, getting hands on but actually if you think about… maybe thinking about it, talking about it, getting some space will resolve the issue' (Taser trainer, Force omitted).

Another trainer backed up these concerns and explicitly linked them to Taser:

'Conventional tactics with vulnerable people is to give them distance and space… The thing with Taser is, it is very good… but you have to be at a relatively close distance in for it be effective. If I'm 7 -1 5 feet from you and you are in an agitated state that might not be great. The person could now be thinking 'You are starting to close me down', the subject is feeling threatened. *If you go into Taser range you could up the ante with the subject*' (Taser trainer, Force omitted).

Thus, in some circumstances, the design features of the weapon may interact with officer thought processes in ways which may mean that they are more likely, not less likely, to decide to use force. Indeed, a study in America, which found Taser deployment to be 'associated with a substantial increase in in-custody sudden deaths in the early deployment period', theorised that this might be due to 'early liberal use of Tasers… possibly escalating some confrontations to the point that firearms were necessary' (Lee et al 2009).

Overall, then, the presence of Taser, and the way in which it interacts with human agency, can impact on each of the three key decision making variables - 'decision factors' or variables associated with the decision itself, internal and external factors – that Dror (2007) argues can impact on how police officers make the decision to use force. Moreover, as Sousa et al's (2010) randomised control trial (RCT) shows, the nature of the incident itself is also important. Sousa et al's RCT sought to examine the 'impact of equipping police officers with TASERs on their use-of-force decisions during field-training exercises' (2010: 35). They found that the presence of the weapon did not impact how officers handled non-aggressive resistance but that, when faced with a subject showing aggressive physical resistance, officers with the weapon were more likely to favour its use over the use of pepper spray and baton. Similarly, when confronted with a situation that was 'potentially lethal', the evidence suggested that officers were using Taser as an alternative to a firearm – even though such a decision was potentially in contravention of force policy. So having Taser present did not affect the choices officers made in some circumstances, but did in others. Such findings may further demonstrate that Taser is not a mere 'tool'

but may interact with human agents to have a range of surprising and unpredictable effects.

Conclusion.

This chapter has discussed two of the mainstream stories around Taser that are used by academics and practitioners alike—namely a conception of Taser as a neutral tool, and of decision making around the weapon as an individual responsibility for officers—and reached conclusions that are substantive, practical and theoretical.

In terms of substance, its key findings are three-fold. First, those stories are not necessarily inaccurate, but are incomplete. Emphasising the decision making of individual officers is important but so, too, are decisions—such as the content of the training curriculum or, indeed, the decision to introduce the Taser—that have been taken elsewhere, and have the potential to impact on the decisions that officers may make. As Punch (2010: 130) notes, with respect to firearms, 'when operations go wrong it should be senior officers high in the chain of command who should also appear in court and not just those officers at the front-line'.Similarly, whilst, in certain circumstances, Taser may appear as if it were just a passive tool, in other circumstances Taser, and the broader socio-technical networks in which it sits, may make a difference, influencing decisions and situations in more complex ways. Such factors mean that the decisions that officers take should not be considered solely as their personal responsibility, but should be considered an outcome of a variety of phenomena, including human and nonhuman agency. Indeed officer decision making around the use of Taser exists in, is informed by and cannot be understood without, the broader socio-technical network that exists around the weapon. Thus whilst Dror (2007: 269) is cautiously optimistic about the potential of 'the use of technology in general' to 'contribute to higher quality decision making in policing', this analysis shows that the impact of 'technology' on human decision making is more complex than that, and also helps answer Sousa et al's call (2010: 38) for research into how use of force techniques may 'change the decision-making process'.

Second, many of the factors discussed above—the stories that see Taser as a simple tool, the relative absence of training on communication skills and other uses of force, and the physical presence of the weapon—have the potential to impact officer decision making, subtlely incentivising officers to use the weapon. Third, the relative lack of guidance and standards contained within the relevant laws and standards, authorised professional practice documents, and training curriculum, mean that it is difficult to guard against such tendencies and to provide standards that might assist in preventing the misuse of the weapon. However well-intended, statements such as 'there's no right or wrong, just bounds of reason' mean that the standards for the use of the weapon are highly, and inherently, subjective. Reference to more objective elements—for example, the presence of certain levels of threat, or specific clauses limiting the use of weapon in certain circumstances –which can be found in other models, such as the use of force continuum approach popular in other jurisdictions (Adams and Jennison 2007, Miller 2010, Terrill and Paoline 2013) are conspicuous by their absence.

This hardly reassures observers that the policy is able to provide clear guidance as to what constitutes appropriate use of Taser – and contrasts markedly to the approach taken by other jurisdictions, including those where use of force continuums are used, and those which adopt similar approaches. For example, in 2008 the Police Service of Northern Ireland (PSNI) set out the guidance for the use of Taser as follows:

> 'The use of Taser will be justified where the officer honestly and reasonably believes that it is necessary in order to prevent a risk of death or serious injury' (PSNI 2008).

This guidance still gives officers flexibility—indeed, there is room for discussion as to what level of injury might be considered 'serious', and an acknowledgement that the situation must be judged against the facts as the officer 'honestly and reasonably' believed them to be—but also sets out some kind of standard against which Taser use can be judged.

Whilst it cannot be assumed that policy wording will simply translate into action on the ground, Bishopp et al (2014) have demonstrated that changes to Taser policy in the USA—in this case, changes that further restricted when officers could use Taser—were associated with levels of Taser use dropping

significantly, suggesting that 'officers will follow policy directives' when these are available (Bishopp et al 2014: 11). Thus, on a practical level, further consideration should be given to the level of specificity and detail given in the current guidance and training around the use of Taser -and, arguably, use of less lethal force more broadly. More broadly, this chapter also highlights the need to pay attention to the use of force guidelines in use in England and Wales. Whilst traditional use of force continuum approaches have quite rightly been subject to criticism, this does not necessarily mean that alternative approaches, such as the NDM, are a panacea. Instead, it is important to look carefully at such alternative options, and at their pros, cons and unintended consequences – a point to which I shall also return in the next chapter.

Additional practical recommendations also flow from this chapter. In particular, whilst the emphasis on individual responsibility is both important and necessary to help achieve accountability when force is used, responsibility for ensuring appropriate use of force also rests elsewhere within the police service. Indeed, ECHR case law has demonstrated—albiet somewhat inconsistently (De Sanctis 2006, see also Skinner 2014)—the need to pay attention to broader issues around guidance, training, control and planning, when assessing cases with implications for the right to life. As such, senior practitioners should undertake further additional measures to ensure they are discharging their responsibility to assist individual officers in making use of force decisions. In particular, officers should be given additional, high quality regular training on communication skills, as well empty hand techniques and other alternatives to Taser use. Statistics on each officer's use of force should be collected and analysed, to assist police forces in identifying whether individual officers, or groups of officers, may be, in the words of the police officer quoted above, 'jumping to Taser too quickly', and how the use of Taser, and its consequences, compares to other force options. In such ways, senior officials can ensure that, whilst the use of Taser is an individual responsibility for the officer concerned, it is not *solely* their responsibility, but a responsibility that is shared by others in the network. Whilst diffusing responsibility for actions broadly amongst networks has been seen by some as a way of weakening accountability, recognising the different points where responsibility can be shared—instead of conceptualising it as something that is solely the task of the officer in question—can also point to additional

ways to regulate particular technologies, and tame some of the consequences of the networks in which they are embedded. I shall return to these practical recommendations in more detail in the concluding chapter.

Theoretical findings

As this point demonstrates, then, this chapter also has implications on a more theoretical level, helping to demonstrate the continued relevance of constructivist science and technology studies to contemporary empirical issues, and to academic debate. Indeed, I have shown how insights from constructivist STS—and in particular, the ANT notion of generalised symmetry—can usefully add value to Dror's (2007) discussion on use of force decision making factors and to discussions around discretion, both of which have tended to neglect the role of the non-human. Yet the evidence given here also speaks to some of the shortcomings of such approaches, of which I will pick out four.

First, ANT tends to differentiate between three sets of outcomes. The first is the familiar story discussed in the first half of this chapter, a sociological story where 'what matters is what you are, not what you have'. In this story technology is a 'tool, a medium, a neutral carrier of will' to achieve the goal of killing another human (Latour 1994: 31). The second is a materialist, technologically determinist outcome, whereby technology and its material components transforms human goals and actions. In this story, for example, a 'good citizen…without a gun might simply be angry', but with the gun will commit murder (Latour 1994: 31). Yet, Latour argues, these two stories are often mistaken. Instead of starting with fixed essences of either human or technology, we need to take seriously the interactions and associations between human and technology that help constitute both identities and can lead to unpredictable consequences, up to and including 'the creation of a new goal that corresponds to neither agent's program of action… You had wanted only to hurt but, with a gun now in hand, you want to kill' (Latour 1994: 31).

This is a very helpful distinction. The third story is a very productive area to explore, and one which can often shed light on the dynamics between human and technological actants. Yet this chapter also helps clarify—much in the spirit of Latour's 1994 work, which talked about 'possibilities', some which are 'more

commonly realised' than others (1994: 31)—that, whilst the third outcome may happen in certain circumstances, the other two outcomes should not be dismissed (see also Schulz-Schaeffer 2006). For example Sousa et al's work (2012) demonstrates that, in at least some cases, the presence of Taser has no discernible, statistically significant effect on the decisions made by officers. Thus whilst, in some circumstances, associations between human and non-human may produce unintended outcomes and new goals, in other circumstances non-human agency *seems* to have little impact. It is possible that we may end up with a socially deterministic, 'old-fashioned story of technology as a means to human ends' (Schulz-Schaeffer 2006: 134).

The post-humanist 'dance of agency' is only one possible outcome, and, under certain circumstances, other, more traditional stories that stress the strong pull exerted by social and/or technological factors may also be persuasive. Thus perhaps one should not draw too sharp a distinction between ANT inspired accounts and between instrumentalist and substantivist perspectives. Indeed, in allowing for a dance of agency, ANT approaches concede that technologies and their material properties may influence others, and have distinct effects, even whilst countering the notion that such effects are pre-determined. As such, they may not be a million miles away from what Kaplan refers to as weak technological deterministic approaches, which argue merely that technologies can influence the humans and institutions with whom they interact (see also Callon and Latour in McLean and Hassard 2010). Indeed, Leonardi and Barli (2008: 163) note that 'those who might claim that the material properties of a technology can influence the organization of work risk being labelled ''determinists', a term that has become something of a slur in academia'.

Second, and relatedly, it is not always as easy to demonstrate empirically what ANT theorists would have us believe via conceptual fiat. Latour's examples often work because they are highly theoretical and abstract, and give the analyst the ability to accurately discern the intent (or lack of intent) of another and then to measure how this changes over time with the introduction of a non-human actant. However this is seldom possible when conducting empirical research.

There may well be a statistically significant difference between the decisions made by those armed with Taser compared to those without it—after all, officers need to be equipped with the weapon in order to decide to use it—but what does this actually tell us? It does not help us ascertain whether the weapon is a mediator or an intermediary, an active agent or a mere tool, or whether it helped shift the original goals of the human actant, if these even existed in the first place. In the case of Sousa et al's (2012) potentially lethal scenario, for example, the introduction of Taser might have resulted in the creation of a 'new goal' – for example, to disarm without injuring –or might have been a tool used to achieve the pre-existing aim of disarming the individual as quickly and effectively as possible. Actor-Network Theory can help alert us to such questions, and to the possibility that interactions between humans and non-humans can produce new goals, 'programmes of action' and outcomes, but cannot necessarily help us answer whether or not this happens in practice. This is particularly relevant in policing scenarios, as expecting officers to accurately remember and recount their rationales for using force to a relative outsider is a big ask (see, for example, Rojek et al 2012). It is particularly challenging given the generic human tendency towards 'rationalisation', the (often subconscious) tendency to find 'the most rational and convincing reason for behaviour with the goal of making it look better than it actually is' (Hall and Holmes 2008: 138).

Latour criticises those who 'try to understand techniques while assuming that the psychological capacity of humans is forever fixed' (1994: 31), but one potential extension of this observation is surely that assessing these human goals and capacities in the first place—let alone unpacking the role that non-humans, and their complex relationships with human actants, may play in their formulation—is beset by a host of complexities and empirical difficulties that should not be dismissed. To return to our earlier point, if it should not be assumed that human goals and 'psychological capacities' are fixed, neither should it be assumed that they are always, endlessly fluid.

Third, the notion of generalised symmetry has been useful here – up to a point. Instead of assuming that humans have unlimited agency, and technologies are their passive tools, the concept of generalised symmetry has allowed us to explore which actants, if any, are able to make a difference, and are active mediators, and which actants are passive mediators. These are important

empirical questions, and it should not be assumed that such distinctions simply map onto human / non-human dualisms. It may be that both humans and non-humans have some kind of agency, and that they both face a number of possibilities and constraints when exercising it. Having done that, ANT then invites us to go a step further, and to go beyond human / non-human divides, to see agency not as a property of individual actants, but of combinations of actants. I can see how the first part is helpful and relevant: I struggle somewhat with the latter.

In this case, this chapter has shown, on the one hand, that non-humans have more agency than expected and, on the other, that whilst humans are certainly not simple intermediaries, and they do have a large degree of agency, this agency is nevertheless curtailed in important ways – including by human and nonhuman actors. Moreover, and at one level, agency that appears to be exercised by either 'humans' or 'nonhumans' is, of course, exercised by combinations of actants. Humans can only decide to use Taser, for example, if they have the weapon in their possession in the first place: Taser (often) requires the presence of human beings in order for it to act, and has only come into being because of interactions between humans and material properties in the first place. If this kind of recognition is what is meant by agency being a property of combinations, then all well and good. Push this too far, however, and you not only risk producing 'trivial' insights—'of course', even Latour admits 'a piece of technology must be… activated by a human subject'—but you also risk losing a sense of actors as discrete entities in their own right, a notion that it would seem important to retain.

Fourth, then, whilst historically much space has been given to discussing the differences between—and the relative strengths and weaknesses of—SCOT and ANT, understood broadly as types of constructivist Science and Technology Studies, both seem to be pragmatically useful to a degree, and this empirical study gives little ground for choosing between them. ANT's insistence not just on troubling, but on collapsing, distinctions between human and non-human has been helpful for much of this chapter. For example, can one talk of a human actant, if that actant unconsciously behaves different with Taser in hand? Can one talk of 'Taser' as a non-human technology knowing that key

features have been designed and programmed in by humans? The emphasis on 'the co-construction of machines by humans and of humans by machines' (Lee and Brown 1994: 775) is a very helpful one. At the same time, however, the notion that something non-human, that a technological entity such as Taser, can influence *human* decision-making processes and *social* practices, can help capture useful insights – perhaps because of its binary nature. (Indeed, it is very difficult to write an account incorporating the non-human without using traditional categories). Both sets of insights can be helpful, and it can be useful to think of Taser *both* as a discrete technological entity in its own right, whilst simultaneously recognising it is also a hybrid actant, comprised of human and non-human networks.

Moving away from STS, this chapter also raises some interesting discussion points for police discretion. I have helped to demonstrate that the notion of an arena in which officers are 'free to make a choice', and within which they are able to exercise 'free will', can be overstated. Decisions that might appear to be free from any legal or policy restriction, and subject to the whims of officers, may well be structured not only by the human agency of others (for example, choices made in the training curriculum) but also by the presence of non-humans and the socio-technical networks within which they are embedded. Whilst the literature on discretion has recognised the human and societal influences impacting officer decision making, it may also need to make space to consider the role of the non-human, and of interactions between human and non-human.

Having explored in this chapter two of the stories that accompany Taser use in England and Wales—Taser as a neutral tool, and decisions around Taser as the responsibility of individual officers—it is time to turn to the third, inter-related story: that of 'robust' accountability mechanisms. This third story plays a key role shoring up the other two: after all, the devolution of decisions down to individual officers is often justified precisely because accountability mechanisms can impose negative sanctions and act as a powerful corrective force should such decisions be seen to be wrong. With this in mind, it is to a closer examination of these accountability mechanisms that I now turn.

Chapter 9: Accountability for Taser Use.

The last chapter examined two stories commonly told about Taser: that it is a neutral tool and that its' use is a decision for individual officers. There is, however, a third, complementary story that is often told – that there are a 'raft' of 'robust' accountability measures in place to ensure appropriate use of the device by rank and file officers – and that story is the topic of this penultimate chapter.

Achieving some kind of accountability in policing is as crucial as it is challenging (Mawby and Wright 2005, Savage 2013, Chan 1999), and I make the argument in this chapter that, whilst there are certain positive features of the accountability mechanisms in place for officers in England and Wales—and the processes put in place around the Taser weapon are stronger than most—there is nevertheless room for improvement in certain areas.

Before developing this argument, it is first necessary to provide a definition of the term 'accountability', as it is highly ambivalent. Accountability is often seen as a spectrum. At one end of this spectrum lye 'explanatory and co-operative' models of accountability, models that require decision makers to provide reasons and information on their decisions without any obligation to take opposing views into consideration. At the other end of the spectrum are 'subordinate and obedient' or 'control' models—models that not only ask the police to *provide accounts*, but aim to hold them *to account* (Marshall in Chan 1999: 252, 253). I follow Schedler in defining the term to include both 'answerability'—that is, the 'obligation of public officials to inform about and to explain what they are doing'—and 'enforcement', or the ability to 'impose sanctions on power-holders who have violated their public duties' (Schedler 1999: 14). In order to be accountable, then, individuals and organisations must not only 'tell what they have done and why' but must also 'bear consequences for it, including eventual negative sanctions' (Schedler 1999: 15). As the UN Office of Drugs and Crime note, accountability mechanisms should ensure that 'police carry out their duties properly and *are held responsible if they fail to do so*' (2011: iv, emphasis added). In this respect I argue that whilst there are

positive features around the accountability mechanisms in England and Wales, there is also room for improvement.

Before making this argument, some further points of clarification are necessary. First, my focus here is on formal, institutional mechanisms and the various actants that comprise and enact them. I recognize that a wide variety of other influences—including citizen accountability or 'sousveillance' (Mann in Reiner 2015: 133), and police culture (Davids and Boyce 2015)—are also crucial, and highly interconnected with more formal accountability mechanisms. Yet, as Davids and Boyce (2015: 105) note, these elements 'must be separately recognised and addressed' and, sadly, I lack the space here to give all of these elements the consideration they deserve. I focus on formal accountability mechanisms because, more often than not, they take centre stage in discussions around accountability, and are often pointed to as examples of 'robust' mechanisms.

Nor do I have the space to delve, as Savage (2013) has done so convincingly, into the internal culture and shared beliefs of those working for these institutions – but in line with his work, I recognize the dangers in assuming that 'independence' or 'accountability' simply 'exists' a priori (or doesn't, as the case may be). Rather, effective accountability mechanisms and appropriate sanctions are negotiated and produced in complex interactions. Thus institutional safeguards are necessary, but not sufficient, to produce effective oversight.

Second, and relatedly, in my consideration of these accountability mechanisms I intend to give space not just to the human actants involved in overseeing Taser use, but also to the non-humans at work in such processes—namely the accountability mechanisms embedded within the Taser, the legal framework surrounding the weapon and the functioning of the NDM—and the way in which they interact to produce particular effects. If Savage (2013) asks us to pay attention to the ways in which the interactions between IPCC investigators, police officers and experts co-create particular forms of independence and accountability, so too must we pay attention to the ways in which these individuals interact with a wide range of non-humans—from the National

Decision Model, to the Taser weapon and its particular features—to create particular notions of accountability.

Third, Reiner makes a useful distinction between the 'individual accountability' of particular officers and 'policy accountability': the 'degree of influence exercised by external democratic bodies over police organizational policies concerned with overall goals, resource allocation and policing styles' (in Jones 2008: 1). Given the emphasis that has been placed on the actions of rank and file officers throughout the thesis, this chapter focuses (somewhat reluctantly) on accountability in the former sense of the word. For this reason, combined with the fact that they were not in post for most of the duration of the PhD, I do not focus here on the role of the Police and Crime Commissioners in any detail, but come back to this issue in a little more detail in the concluding chapter.

Section 1 outlines the internal and external accountability mechanisms around Taser use and demonstrates that these mechanisms are characterized, by the police and by external agencies alike, as robust and effective. Section 2 delves a little more into this story and shows that, whilst there may be some validity in this conclusion, there is room for improvement if these mechanisms are to live up to the adjectives commonly associated with them. I look at internal accountability mechanisms in force, before moving onto discuss external accountability mechanisms, focusing predominantly on the IPCC, but also looking at the role played by SACMILL and HMIC. Finally, I look at the role of the criminal and civil courts, before concluding.

Accountability mechanisms in England and Wales.

There are a range of interconnected internal and external accountability mechanisms in place in England and Wales pertaining to the use of Taser by individual officers.

Accountability Mechanisms In Force.

Anti Felon Identification Devices (confetti like tags which provide confirmation as to which cartridge(s) were fired), and collecting the wires and probes can confirm at what distance the weapon was fired. Additional documentary evidence can be provided by the weapon's internal data logging system, which records the time and date that the current was discharged as well as the length

of discharge. Thus, unlike other weapon technologies, technical features of the Taser provide the ability to confirm how many times the weapon was used, for how long, at what distance, and when. Such details can be crucially important when it comes to investigating deaths following police use of force, and can also be equally important in helping reach determinations about whether particular use of force incidents are proportionate and necessary. Moreover, the ability to clarify which cartridges were used, and from which weapons, may be critically important in fast-moving situations where there is confusion about how many times the weapon has been fired, and / or by whom.

This differs markedly from many other weapons technologies which have no such systems built in. Take, for example, weapons such as CS or baton, often held up as 'alternatives' to Taser. No matter how sophisticated the baton designs, they are unable to capture key pieces of information around how often, and at what time, they are used. Those wishing to shed light on conflicting accounts of events, and the number of times batons have been used (or, in more extreme cases, beatings administered) have often had to resort to examination of the injuries inflicted – a notoriously difficult task (United Nations 2004).

Whilst irritant sprays, such as CS canisters, might theoretically be able to yield information about the amount of spray used, via the weighing of the canister before and after use, such information is not available in an easily accessible form. It also relies on appropriate measures being taken before the event in question. This is not impossible as, for example, Police Service of Northern Ireland guidelines show (PSNI undated), but nor is it automatic. With Taser, however, the information is readily recorded, and easily available to officers should they wish to use it (indeed, College of Policing guidance states that the data from the weapon must be downloaded 'at least' every eight weeks). Such features can be a useful complement to Body Worn Cameras, which, even if they are available, may not be able to pick up such fine details. The Taser weapon is thus relatively unique in having the capacity to provide records which are capable of confirming or denying the accounts provided by officers.

In addition, whenever officers use Taser (with 'use' defined in the broadest sense of the word, so as to include drawing of the weapon), they are required to

fill in an 7 page Taser Deployment Form – but have historically been under no obligation to fill out a form when they have used other less lethal force. . The completed form is then sent to the Taser Single Point of Contact (SPOC) officer in each force, who clarifies 'any information on the form, disseminate(s) any updates and learning to staff in their own force' (College of Policing 2014a), and submits the form to ACPO and the Home Office.

As discussed in Part 2 of the thesis, it is possible that the simple act of filling out a form—and particularly filling out a form for some uses of force, but not others—shapes the details that officers provide, enabling and influencing them to record particular recollections and versions of the event in particular ways. Use of force reporting forms, then, are not a simple intermediary, a neutral, passive way of collecting and transmitting information about particular incidents, but come closer to a mediator, having the ability to shape, and frame, the recording of incidents, both via the questions that are asked, and the pre-selected answers that are made available.

In many forces the SPOCs appear to play a highly useful role, both in reviewing the completed forms, and more broadly. Some see their role not just as performing the administrative function of receiving and submitting the forms, but as providing additional scrutiny around the weapon. Moreover, in certain forces, the role of the SPOC is accompanied by additional accountability mechanisms. According to HMIC, these include the following:

- In South Wales, 'each time a Taser is used the circumstances are reviewed by the on-call inspector. If the deployment involves a firing, drive-stun or accidental discharge the officer temporarily loses their authority until after the inspector has deemed the usage appropriate… South Wales Police have (also) established a Taser review group... (with a remit) to identify trends, lessons learned and consideration of the use of Taser on protected groups' (HMIC 2016b: 41).

- In Greater Manchester Police, 'the force has an established peer review process… (which allows) concerns to be addressed… (via) referral for individual guidance: changes in training delivery: the withdrawal of an officer's Taser authority: or formal misconduct investigation' (HMIC 2016c: 41).

- In Warwickshire and West Mercia there is a joint Taser reference group 'that considers strategic issues in relation to the use of Taser and reviews all the relevant data… (and) provides routine informal updates to the assistant chief constable' (HMIC 2016d: 38).

There are additional internal mechanisms in instances involving a complaint about Taser use. In these circumstances, it is for an officer of at least Chief Inspector rank (or a member of police staff of equivalent seniority) to decide how the complaint will be dealt with. In some cases the initial complaint can be dealt with via the provision of information or an explanation, in which case a complaint is not actually formally recorded in the first place. If, however, the complaint needs further action or investigation, it may be dealt with via a process known as 'local resolution'—a process deemed suitable for 'lower level complaints, such as rudeness or incivility' (HMIC 2016a: 22), which is normally be handled by officers' supervisors—or alternatively will be investigated by the police's Professional Standards Department who will produce a report detailing findings against each aspect of the complaint (IPCC 2013a). The difference between these two mechanisms is considerable. Unlike police investigation, local resolution cannot lead to disciplinary action against the officers. And whilst the complaint can appeal to the IPCC if they are dissatisfied with the outcome of the police's investigation, if they have gone down the 'local resolution' route, they are only able to appeal about the process, not about the outcomes (IPCC 2010).

Thus human actors, such as Taser Single Points of Contact or police investigators, interact with non-human actants—such as the completed Taser forms and the weapon's internal data logging system—to produce a degree of internal scrutiny around Taser that is seldom present for others uses of force.

The Independent Police Complaints Commission (IPCC)

These internal accountability mechanisms are closely linked to, and reinforced by, the Independent Police Complaints Commission (IPCC). As the name suggests, the IPCC—which was established by the Police Reform Act of 2002, and became operational in 2004—has a mandate to 'oversee the police complaints system in England and Wales and set the standards by which the police should handle complaints' (IPCC undated a).

There are many routes by which a Taser related incident may make its way to the IPCC. As indicated above, the incident may reach them in the form of an appeal about how the police have handled a Taser related complaint. Police forces are also mandated to refer certain cases to the IPCC—which may, or may not, involve Taser—irrespective of whether a member of the public has complained about them. This includes cases of death or serious injury where the person had contact with the police that might have contributed to the outcome in question (IPCC undated b). Forces are also able to refer any incidents that they deem appropriate to the IPCC for their consideration. In addition, between 2009 and 2015, police forces were mandated to refer to all complaints about Taser to the IPCC, for additional oversight (IPCC 2009, NPCC 2015a).

Once an incident reaches the IPCC, they can either refer the incident back to the police force to conduct a supervised or managed investigation, or the IPCC can conduct an 'independent' investigation. Investigators do not just have recourse to testimony from human actors—the officers involved, those subject to police force, and any eyewitnesses present—but often have access to non-human actants. This can include CCTV evidence, may increasingly include footage from body worn cameras, and may also include novel sources of evidence unique to the Taser weapon, discussed above. For example, when investigating an incident involving the use of the weapon in Liverpool, investigators were able to independently download the data from the Taser which showed that the officer had held the trigger down for 11 seconds, over twice the length of time that he had recalled (IPCC 2012a). Thus interaction between non-human actants and the humans who access, download and interpret them, are able to produce new forms of knowledge and accountability mechanisms. As discussed above, whilst some non-human actants are mute observers of events, a Taser weapon is much more able to bear testimony and give evidence in ways which can impact subsequent investigations and recommendations. For example, in this case the IPCC recommended that the officer in question undertake further training to prevent him in the future inadvertently applying the Taser for longer than its' five second set cut off period (IPCC 2012a) – an insight that would likely not have been available to them were they to rely solely on evidence from human actors.

Upon considering the relevant evidence, investigators decide whether the officer in question has a case to answer for misconduct or gross misconduct, whether there is no misconduct case to answer—but actions (such as additional training) that should nevertheless be undertaken—or whether the officer should be exonerated completely [38]. The IPCC also decide whether there is evidence that a criminal offence has been committed and, if so, refer the case to the Crown Prosecution Service (CPS). It is for the CPS to decide whether any criminal charges are appropriate and, if so, which ones are most appropriate in this particular circumstances. Importantly, then, the IPCC do not decide, in and of themselves, whether the officer is actually guilty of misconduct, gross misconduct or criminal charges – but merely decide whether innocence or guilt should be determined by other relevant authorities (the CPS in the case of criminal investigations and the police in misconduct issues).

The IPCC may also produce broader recommendations around Taser use for the force in question and for consideration at the national level. For example, following the death of Andrew Pimlott, who had doused himself in petrol and was Tasered, the IPCC recommended that the officer who had fired the Taser had a case to answer for gross misconduct. They also recommended that the National Police Chiefs' Council and the College of Policing revise their Taser training to 'provide a more comprehensive guide to officers when dealing with flammable liquids' (IPCC 2015b) - a recommendation broadly accepted by the NPCC (IPCC 2016b). The IPCC therefore has a crucial role to play, under often challenging circumstances.

Other Accountability Mechanisms

Whilst the IPCC is the only body in England and Wales with a mandate to deal directly with individual cases around the use of Taser, a number of other agencies have a mandate to oversee other various aspects of policing. Her Majesty's Inspectorate of the Constabulary (HMIC), founded in 1856, is

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[38] The definitions of misconduct and gross misconduct, and how these allegations should be heard, are set out—albeit in extremely loose terms—by The Police (Conduct) Regulations 2012. Thus gross misconduct involves a 'breach of standards of professional behavior so serious that, if admitted or proven, dismissal from the police service would be justified', and is handled by a misconduct hearing handled by a misconduct panel, who can decide upon a range of outcomes, up to and include dismissal without notice. Misconduct—a breach of standards of professional behavior that doesn't meet the threshold for dismissal—is dealt with via a misconduct meeting, the most serious outcome of which is a final written warning (Chapman 2014).

responsible for overseeing and reporting upon the efficiency and effectiveness of territorial police forces in England and Wales more broadly (HMIC undated), whilst the Scientific Advisory Committee on the Medical Implications of Less Lethal Weapons (SACMILL), and its predecessor DOMILL, provide recommendations as to whether new weaponry (such as the next generation of Taser weapons) should be introduced into the police, and also have a crucial role in 'monitor(ing) operational use, medical reports, and media reports for emerging problems' around the use of Taser, and certain other LLWs and 'recommend(ing) changes to operational use or training' (Payne-James et al 2010: 608).

These are important roles which can complement the IPCC both by offering broader oversight on trends in policing, including police use of force (in the case of HMIC) and by offering specific medical expertise to help ensure that any issues emerging from the use of Taser are captured, analysed and used to inform any necessary changes to policy, guidance, training or practice (in the case of SACMILL). Such interventions can go beyond seeking redress for individual complainants, to making far-reaching changes designed to prevent a similar incident occurring in the future.

There are also a number of other measures which may help ensure accountability in cases involving Taser. Individuals can bring cases via the civil courts, an option pursued by some affected individuals (PALG 2014) – and the availability of this mechanism has been praised for providing a back-up or fail-safe should the 'other mechanisms fail to prevent disaster' (Young 2015: 21). Whilst claims can be brought against the individual officer involved in the incident, the Police Act 1964 ruled that a Chief Constable is vicariously liable for the actions or omissions of the officers under their command, whilst he or she is performing police duties. Thus most civil cases are brought against the Chief Constable, with cases involving police use of force often centring around the torts of assault, battery and false imprisonment (Smith 2008: 34).

This system of oversight and accountability for individual officers is well-regarded by some. The NPCC lead for Less-Lethal Weapons, including the use of Taser, Commander Basu has noted that 'Taser is heavily scrutinised. Every time it is used - even simply drawn from its holster - this must be recorded and

examined by a supervisor. If the force used is disproportionate or breaches their training, officers can be investigated and face misconduct or even criminal charges' (NPCC 2015a). The NPCC (2015b) notes that 'every use of Taser is reported and scrutinised... (and) comprehensive training packages, governance and monitoring are in place... (Each use is) supervised within the force itself... (with) safeguards at a national level'.

The IPCC has stated that it is satisfied with how police forces are handling complaints around Taser, so much so that it no longer requires complaints about the weapon to be referred directly to it (NPCC 2015a), and notes that the rate of appeals upheld around Taser is less than the overall rate of appeals upheld more broadly (IPCC 2014a). Moreover, HMIC's (2016a: 55) recent assessment of Taser use in England and Wales found not only that 'Taser had been used fairly and appropriately in almost all the cases where we made an assessment' but that, in general, there were 'robust oversight systems in place'. They also noted that 'in the small number (of cases) where we had concerns, we were pleased to see that the force had already identified the same concerns, and were actively working to resolve them'.

Accountability Mechanisms – genuinely 'robust'?

There are thus are many positive features of the accountability system around Taser – and many view these accountability mechanisms in a highly positive light. However the evidence I present in this next section also suggests that there are limits to the extent to which this system can be described as 'robust'. I look first at the limitations of internal accountability mechanisms, before looking at the limitations of external mechanisms.

<u>Internal Oversight Mechanisms.</u>

Whilst some forces have relatively sophisticated internal mechanisms to oversee and provide accountability for the use of Taser, other forces have less sophisticated mechanisms in place. Returning to Schedler's (1999) notion of accountability as both answerability and enforcement, some forces are not only failing to implement the latter part of this equation, but are failing to even ensure the former part of the equation: i.e. that they fully explain and account for their use of the weapon in the first place, so that their account can be subject to further scrutiny. For example, in its inspection of Lancashire, HMIC (2016e: 39)

213

noted that 'the constabulary should make sure that officers provide more complete information explaining their actions on each occasion a device is drawn and more frequently challenge circumstances to develop learning where that justification is unclear'.

Even when officers have given an explanation of the incident in question, these explanations are not always subject to sufficient scrutiny. The IPCC investigation into the repeated use of Taser by Merseyside Police on an individual, Kyle Ardle, detained in a police van found a similar pattern with uses of Taser not being subjected to sufficient challenge. In this case, the IPCC noted that it was 'of concern that Merseyside's lead Taser instructor lacked objectivity and presented as fact the officers' version of events without challenge' (IPCC 2013b). Nor was this an isolated incident - indeed, the IPCC have further noted that:

> Many of the appeals… (we have) upheld have shown that police forces take a police officer's account at face value without any further probing. It is important that police officers record their rationale for using Taser with reference to the specific circumstances of the case. When that rationale is investigated by police forces it should be subject to robust challenge where required (IPCC 2014a: 4)

Nor are these issues restricted to individual SPOCs or Taser instructors. HMIC also found evidence that there were issues with the internal accountability mechanisms in place more broadly in certain forces:

- In Humberside, HMIC (2015f: 7, 41) noted that 'more needs to be done to ensure sufficient supervision and oversight... Taser forms are not regularly reviewed comprehensively to identify trends and there is no convincing explanation for the comparatively high use of Taser… The force should also put in place sufficient oversight arrangements to better understand why Humberside has such a high use of Taser (and) to reassure itself that Taser is being used fairly and appropriately'.

- In Leicestershire (2015g: 38), 'the force recognised that its evaluation procedure following the submission of a Taser form required improvement… Once this came to light during the inspection the force immediately corrected this oversight.

- Derbyshire has itself noted the need for 'increased scrutiny of decision-

making in relation to 'lower-level' Taser use such as 'red-dotting'. HMIC's inspection further noted that 'although the constabulary does carry out some reviews this is currently not systematic and… the constabulary (cannot) be completely confident that Taser use is consistently fair and appropriate' (HMIC 2015h).

Thus, whilst there are many examples of 'robust' mechanisms, there is also evidence to suggest that the degree of scrutiny varies from force to force.

Whilst the on-going monitoring that forces (should) conduct is crucial for picking up patterns and trends around the use of Taser, another issue is how forces handle cases where complaints have been made. HMIC (2016a: 22, 25) has noted wide variations across forces. They found evidence to suggest 'different (complaint) recording practices across forces' and no 'consistent approach… to complaint handling'. Overall, there was 'inconsistency in the way complaints are assessed for investigation and then investigated'. Clients and their representatives have had similar experiences. For example, Solicitor Iain Gould has noted that:

> 'I have come across certain police forces who are very good… (but in other cases) the complaint route is a complete white-wash… For example (one client) who was Tasered put a complaint in himself… and the police went along to see him and his complaint was locally resolved. So you can imagine the chat that they had with this man who clearly has mental health issues, 'just sign here to say local resolution is acceptable'… (even though there was) clear guidance that any complaint of Taser must be referred to the IPCC'.

Such practices have also been criticized by HMIC (2016a: 24), which noted its concern over cases 'where complaints had been locally resolved when, in our opinion, they should have been investigated as potential misconduct' and cited as an example a case involving 'allegations of unlawful arrest and unnecessary use of force' that was 'inappropriately dealt with as a local resolution'.

Thus the evidence presented in this section thus raises some concern that not all forces are able to monitor Taser use effectively, or to deal appropriately with complaints around the use of Taser when these do arise. It is out of a desire to

tackle such concerns that external oversight bodies, such as the IPCC and HMIC, were created. However, as shall be discussed in the next section, the degree of accountability that such bodies are able to provide is limited by various factors.

External oversight mechanisms.

Taken together, the HMIC and IPCC have different, yet complementary, roles to play in ensuring effective oversight of, and accountability for, Taser use. By its own admission, as recently as 2015, HMIC had 'not inspected how Taser is used either in, or between, forces' (HMIC 2016a: 57). Up until 2014, HMIC's approach to its work had been predominantly thematic, with the organization undertaking inspections and producing reports on particular subjects. However, none of these thematic reports focused on Taser. Whilst this is now changing – a point I pick up on in greater detail below - the fact remains that the organization was not well placed to provide oversight of Taser use throughout the time period covered by this PhD.

Turning to the IPCC, the last few years there has been a flurry of independent reports concerned with the role of the IPCC and the police disciplinary system. These include a report on the IPCC by the National Audit Office (NAO 2008), a report into the IPCC's handling of the investigation following the death of Sean Rigg following police use of less lethal force (Casalie 2012), a Home Affairs Select Committee report (Home Affairs Select Committee 2013), a Triennial Review into the IPCC (Jenkins 2014), and an enquiry into the functioning of the police disciplinary system (Chapman 2014). Concern has been expressed at the highest levels of government, with the then Home Secretary, Theresa May, stating that the current complaints system has 'significant shortcomings' and is seen as 'lacking sufficient independence from the police' (in The Herald 2016). Such analyses have been completed by the work of selected academics (including Savage 2013 and Porter and Prezler 2012) who have played a crucial role in analyzing the ongoing evolution of the complaints procedure in England and Wales. The IPCC itself has also produced a concise, convincing analysis of the challenges that it faces, as well as recommendations for reform   (IPCC 2013c).

The broad consensus from these sources is that the degree of independent oversight exerted by the IPCC is comprised by several factors, all of which can be expected to impact how, if at all, the organization is able to investigate cases of Taser use.   Thus the Home Affairs Select Committee and one of the IPCC Commissioners found, respectively, that:

> 'The IPCC is woefully underequipped and hamstrung in achieving its original objectives. It has neither the powers nor the resources that it needs to get to the truth… It is not yet capable of delivering powerful, objective scrutiny' (Home Affairs Select Committee 2013: 3).

> 'The IPCC is simply unable to do what it says on the tin: it is not an independent body investigating police complaints' – Deborah Glass, IPCC Commissioner (Glass 2014: 8).

First (and arguably foremost), as the quote from the Home Affairs Select Committee above indicates, inadequate resourcing has been both a problem in itself and lies at the heart of many of the issues subsequently discussed here (IPCC 2013c). The IPCC is smaller than, for example, the Metropolitan Police's Professional Standards Department, meaning that it faces an uphill task when dealing with such bodies (Home Affairs Select Committee 2013: 3). Efforts are being made to tackle under-resourcing with the Home Secretary announcing the transfer of additional resources for the IPCC to enable it to investigate all serious and sensitive cases but the IPCC is only expected to achieve this capacity by 2017-2018 (Home Office 2015b). Thus, for most of the time period covered by this thesis, the IPCC can be considered to have been inadequately resourced for the scale of the tasks expected of it.

Second, the IPCC's ability to investigate a case clearly relies on the organization being aware of it in the first place – and there are concerns that the IPCC is not sighted on all relevant cases. The IPCC (2014b: 6) has expressed concern about a case in an anonymised police force where an individual subject to Taser complained about the weapon's use whilst he was still in custody but this complaint was not referred to the IPCC, as required at the time. Moreover, the IPCC's broader review into incidents referred by police forces to the organization found that 'all of the forces we sampled lacked a formal process for assessing whether cases needed to be reported to their Professional Standards Department (PSD)' and, in turn, that PSD staff 'had only minimal training on the

referral grounds beyond reading the IPCC's statutory guidance' (IPCC 2015c: 2).

Further evidence of an inconsistent referral pattern comes from the IPCC's sample of 416 cases, from 6 forces, that had not been referred to the organization. Worryingly, 12 of these cases involved allegations of excessive force – and 11 of these cases had only been brought to the attention of the force because it had been subject to a complaint. Only 1 had been picked up via routine internal monitoring. Moreover, the requirement for all complaints about the use of Taser to be referred to the IPCC has recently been dropped (NPCC 2015a), further impeding their ability to offer independent oversight.

Third, even when incidents reach the IPCC, there are concerns about the number of cases the IPCC refers back to forces to investigate. The IPCC can manage or supervise investigations carried out by the police or, in the most serious cases, conduct its own investigation. Yet, due in part to the resource constraints noted above, the latter option is seldom used. A recent legal case, specifically relating to alleged misuse of Taser, found that referring cases back to the force for investigation wasn't inherently problematic (*Morrison v The Independent Police Complaints Commission and Others, 2009*). It found that, whilst investigations conducted by the force subject to the original complaint could not be considered independent, the ability to appeal to the IPCC, combined with the possibility of a criminal trial, meant that there was still the possibility of an independent investigation in such cases.

Nevertheless, the practice has continued to generate concern. The then Home Secretary, Theresa May, noted with dismay that '94 per cent of cases referred to the IPCC in 2012 were referred back to be dealt with by the police' (Home Office 2014d, see also Home Affairs Select Committee 2013: 10, which described such investigations as 'no better than a placebo'). The IPCC (2013c: 3) has noted that, of the large amount of cases referred back to the police, 'we would have preferred to investigate independently many more of the cases… (around) inhuman or degrading treatment - particularly those alleging use of excessive force'.   Of the 190 Taser cases referred to the IPPC between 2004 – 2013 (which either involved death or serious injury, or other concerns about the incident) the vast majority (82%) were deemed to be suitable for

investigation by the police force subject to the original complaint (IPCC 2014a: 19). Similarly, of the 434 complaints about Taser use referred to the organisation between 2004 and 2013, the IPCC ruled that 78% could be investigated by the police force that was the subject of the complaint in the first place (IPCC 2014a: 19).

Moreover, concern has been raised about the quality of the investigations the IPCC does conduct. The IPCC (2013b: 2) has noted that, with 'only 100 investigators and increasingly stretched support services – (it) is not adequately resourced to carry out its investigative work to the standard and timeliness which the public and bereaved families expect'. The Casalie review into the investigation into the death of Sean Rigg noted the need for 'training for investigators… (to) promote consistency, particularly in terms of interviewing', noting that interviewers need to be trained to conduct 'robust questioning' (Casalie 2012: 17). Similarly, the Home Affairs Select Committee (2013: 5) made several criticisms of IPCC investigations, including a 'failure to locate evidence and propensity to uncritically accept police explanations for missing evidence', a lack of 'thorough investigation and'slowness in conducting investigations'. The Committee also expressed concern that 'the IPCC continues to employ a significant number of former police officers… who may naturally favour their former colleagues' (2013: 5). Many of these concerns are exemplified by the investigation into the death of a young man, Jordan Begley, subsequent to Taser use.

IPCC Investigations: The Case of Jordan Begley.

Under Sections 37 and 38 of the Chief Coroner's Guidance No 5: Reports to Prevent Future Deaths (Chief Coroner 2016: 6), it is anticipated Coroners may wish 'exceptionally to draw attention to a matter of concern which has arisen during the investigation' and may 'choose to write a letter expressing that concern' to the relevant person or organisation. The Coroner in the Inquest into the death of Jordan Begley saw fit to give me copies of two such letters he sent in this case, and to allow me to quote them in this thesis. One was to Greater Manchester Police and the second, our focus here, was to the IPCC expressing his 'concern' about two aspects of their investigation. One was the 'delay in interviewing witnesses/subjects'. The Coroner noted that 'all the primary GMP

officers… (had) indicated a willingness to be interviewed as soon as reasonably possible. However, detailed accounts were not obtained for some 2 – 3 months after the incident'. The Coroner noted that 'the difficulty in recalling events some months before the… (interviews) was a regular theme at the inquest', and that explanations for the delay were 'unpersuasive and unconvincing'.

The second was 'the failure to follow a relevant line of enquiry and secure the examination and retention of a very important exhibit' – in this case, the trousers that Jordan Begley was wearing at the time of the incident, and of his death. This is a key piece of evidence as the officer who fired the Taser said that Begley had his hands in his pockets, which meant that he could not confirm or deny the presence of the knife – an account that was 'significant(ly)' different to that given by another officer. The Coroner expressed concern that the IPCC investigator 'did not think it relevant to obtain the jogging bottoms…(to) verify the presence and location of any pockets'. This might not have been so important were it not for the fact that, 'due to in part to human error and the GMP storage system, the jogging bottoms were destroyed before the conclusion of the IPCC investigation'. The Coroner found that 'had an enquiry been made by the IPCC to recover the jogging bottoms at an appropriate time, then the exhibit would not have been lost'. As such, the 'opportunity to verify and corroborate the position one way or another was lost' [39].

Moreover, even when IPCC investigations uncover that a particular officer's actions have given cause for concern, the IPCC can only determine whether there are questions of (gross) misconduct and / or criminal conduct to answer – they cannot determine the answer to these questions. In cases of gross misconduct, the IPCC can 'recommend' that the force hold a misconduct hearing – and, should they fail to do so, they can 'direct' them to hold such a hearing. However, such hearings rarely result in dismissal. The IPCC report into police use of force (2016a) does not give figures for Taser specifically but notes that, for all 62 cases where disciplinary hearings have been held for either misconduct or gross misconduct involving the use of force, 9 resulted in

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[39] At the time of writing, it has been announced that the IPCC have applied for a Judicial Review of their original investigation into the Jordan Begley case (Press Association 2016). If successful, this would allow them to quash their original investigation and conduct a new investigation into the incident. I will look to monitor the progress of this unprecedented case, and further developments arising from it, going forward.

dismissal. The dismissal rate is even lower in instances where the police force has not taken up the IPCC's recommendation to hold a hearing, but has held one subject to the IPCC using its powers to 'direct' it to do so. As recently as 2014 there had not been a single case of an officer being dismissed after the IPCC had directed that such a hearing should take place (Chapman 2014, IPCC 2013b).

Similarly, in cases where IPCC investigations uncover issues that go beyond those of the individual officer, and make broader recommendations, it remains a 'basic failing' that there is no requirement for forces to respond to recommendations from the IPCC, still less to implement them' (Home Affairs Select Committee 2013: 23). The Triennial Review of the IPCC similarly recommended that the IPCC needed to 'consider… how best to fulfil the function…to make recommendations and to give advice' (Home Office 2015b: 24), and the National Audit Office also noted that the IPCC 'should develop suitable arrangements to satisfy itself that IPCC recommendations accepted by a police force have been properly implemented' (Porter and Prenzler 2012: 162 – 3). Moreover, the IPCC (2013b: 3) has argued that it needs the capacity to look at 'cases in areas of concern, and to undertake more thematic reviews of such cases' in the first place.

Whilst another option at the IPCC's disposal is to refer case files to the Crown Prosecution Service (CPS) to determine if criminal charges can be brought against officer(s) involved in the incident, this brings with it its own issues. IPCC statistics show that, of the 191 cases relating to police use of force that were independently investigated or managed by the IPCC, 24 were sent to the CPS for consideration (IPCC 2016a). Criminal proceedings were taken against 18 individuals, with 10 of those being found guilty – a 5% conviction rate. Statistics specifically pertaining to Taser are harder to assess, but may well be in the same region.

The recent IPCC (2014a) report into the Taser cases brought before it does not contain statistics on the number of such cases sent to the CPS, or the number of such cases that resulted in prosecution[40]. In order to fill this gap I reviewed

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[40] In a brief exception to this, the report notes, that of the 13 independent and three managed investigations conducted in relation to complaints about the use of Taser, in 14 of these cases the use of Taser was 'was not found to be inappropriate or excessive in relation to current guidance' (IPCC 2014a: 23). In the remaining two cases, in the first incident: 'the IPCC found that two police

all the investigations into the use of Taser detailed on the IPCC website – to the best of my knowledge, as finding these cases was more challenging than one might initially have thought [41]. The results of this review indicated that, of the Taser cases brought to the attention of the IPCC, at least 7 were referred to the CPS, with potential charges including gross negligence manslaughter, misconduct in public office and assault. Of these cases, it appears as if two cases (the case of Officer Lee Birch's alleged misconduct and assault on Daniel Dove, heard in April 2014 (BBC 2014), and the case of Officer Richard Jordan's alleged assault on a Shaun Bebbington, heard in April 2016), were brought to court, with the latter of these cases resulting in a guilty verdict (McLelland 2016).

These figures—two cases brought to court, and one guilty verdict, both of which happened outside of the time span covered by this PhD—need to be seen in the context of the 16 independent or managed investigations conducted into the weapon, and the 493 Taser complaints, and the 190 referrals without a complaint, received by the IPCC between 2004 and 2013 (IPCC 2014a) – as well as the additional cases received after this date. Thus the likelihood of an officer being prosecuted for Taser use in England and Wales would appear to be extremely low.

Some additional measures—such as the requirement for police forces to publicly respond to IPCC recommendations--have now been put in place. At

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officers had a case to answer for misconduct because they had not fully considered the risks in authorising the use of the Taser and not waiting for a negotiator to arrive at the scene. The police officers received management advice…There were no findings of misconduct in the use of force'. The second case 'in which a Taser was discharged at a partially-sighted man, resulted in a gross incompetence meeting. After this meeting, the police officer involved received a performance improvement notice and was required to apologise' (IPCC 2014a: 23).

[41] An initial search for all results on the IPCC website tagged under the theme 'Taser' resulted in 15 hits (a mixture of news items and investigations), relating to 8 discrete cases, which were then individually reviewed. However, my prior knowledge indicated that these cases did not represent the totality of cases the IPCC had handled involving Taser. An internet search of news articles— using the term 'IPCC Taser officer prosecution'—and scanning the first 5 pages (some 50 search results out of a total of 78, 000 hits) revealed 3 more cases, confirming this hypothesis. As an additional check, the IPCC website was also searched by using the free text search term Taser, with results then filtered by hits that had been tagged under 'investigation' (thus excluding press releases and more general reports about the weapon that did not deal with individual cases): a process that generated an additional 7 cases. These cases were then cross-referenced with the anonymised 9 cases listed in the IPCC's Learning the Lessons Bulletin that focused on Taser. From the details of the cases given, many of them overlapped with the cases that had already been listed above. However it was considered possible that 4 of the cases had not been previously captured. This brought the number of identified cases up to 22, although it is possible both that some cases may be double-counted and that not all relevant cases may have been found. Of these cases, 5 were ineligible, either because investigations were still ongoing, or because information about the conclusion of the investigation conducted was not available.

the time of writing, additional funding, increased remit and powers for the IPCC (and a possible successor body, the Office of Police Misconduct) are planned via the Policing and Crime Bill (see, for example, Home Office 2016), many of which were recommended by the IPCC (IPCC 2013b, Smith 2015). As an independent review of the IPCC's governance arrangements notes, 'major changes in the IPCC…(have been) under way since 2013' (Smith 2015: 3), many at the behest of the IPCC, and drawing on their proposals for reform (Smith 2015). It is clear things are changing, and such measures may well assist the IPCC to address these challenges going forward - but it is also important to note that such changes were not in force for most of the time-span covered by this PhD. For such reasons, then, the IPCC and HMIC have been unable to consistently ensure accountability for Taser use during the time period covered by the thesis.

<u>External Oversight in cases of death or serious injury: the role of SACMILL</u>**.**

Cases involving Taser and death or serious injury are not only referred to the IPCC, but are also meant to be referred to the Scientific Advisory Committee on the Medical Implications of Less Lethal Weapons, *SACMILL*. Whilst the IPCC's role revolves around investigating the actions of particular officers, SACMILL is concerned with assessing and providing guidance on the safety of the weapon, and where necessary suggesting changes to training and guidance around LLWs.

However, the Committee's role is limited by a number of factors. First, the Committee itself has noted that its ability to analyse the medical implications of Taser has been limited by the fact that 'medical audit information is mostly unavailable from incidents in which individuals exposed to Taser discharge have been transferred directly to hospital. Paradoxically, this means that DOMILL is unable to review outcomes in cases that are likely to be at the more serious end of the injury spectrum' (2012, point 89). The triennial review of SACMILL (Jenkins 2014: 2, 15) similarly called for 'some minor changes in authorities and 'permissions'… (to) allow better data capture from the use of systems', including access to NHS anonymous data and 'access to police tactical reports for example (which) may be restricted for legal and ethical

reasons' (for a further discussion of these points and the role of SACMILL, see Dymond 2014c).

Second, the Committee has limited capacity to conduct its own research into the use of Taser. Instead, it is predominantly reliant on reviewing the extant literature around the weapon. However, this can be problematic in the area of less-lethal weapons, where little research exists on certain topics, and where much of the research that does exist is associated with the weapons manufacturer and, according to at least one analysis (Azadani et al 2012), therefore more likely to find that the weapon is safe.

Third, as the Triennial Review noted, 'SACMILL advice is not binding' (Jenkins 2014: 3) and can be disregarded by individual police forces. The Review recommended that 'comply or explain doctrine should apply to the implementation of SACMILL advice' which, whilst perhaps a step forward, still positions the Committee's role closer to the 'explain and account' end of the accountability spectrum than it does to the 'control' and 'enforcement' end of the spectrum

The Legal Process.

Nevertheless, it might be objected, individuals who feel they have been subjected to inappropriate use of Taser have another another important mechanism for accountability – the legal process. In this section, and in light of the limited number of cases referred by the IPCC to the CPS, I thus examine i) some of the challenges associated with individuals getting their 'day' in court, be it criminal or civil and ii) some of the challenges faced once at court. Whilst these two processes are different, there are nevertheless some shared similarities that this structure will allow us to examine in some depth.<u>Getting your day in Criminal Court</u>

One key difficulty in bringing a successful criminal prosecution is that England and Wales has a test for the use of force that, as I shall shortly demonstrate, has been described as more subjective than other jurisdictions. This, when combined with the fact that the standard of proof is 'beyond reasonable doubt', means that prosecutions can be particularly difficult to achieve (see also Equality and Human Rights Commission 2015).

As discussed in the last chapter, Section 76 of the Criminal Justice and Immigration Act 2008, building on Section 3 of the Criminal Law Act 1967, notes

that 'the question whether the degree of force used by… (the officer) was reasonable in the circumstances is to be decided by reference to the circumstances as (the officer) believed them to be'. Whilst the Act notes that 'the reasonableness... of that belief' is 'relevant' to the question of whether or not the officer genuinely believed it, if it is determined that the belief was genuinely held, then it doesn't matter whether the belief was 'mistaken', or whether it was 'reasonable' for the officer to hold it –a term sometimes referred to as the 'honestly held belief' standard. Thus the reasonableness (or otherwise) of the belief is considered relevant as to whether it is honestly held— after all, it may be more difficult to claim that one honestly holds a deeply unreasonable, implausible belief than a less implausible one—but if, after taking such factors into account, it is determined that the belief was indeed *honestly* held, it does not then have to be *reasonably* held in order for the force to be considered justifiable (Equality and Human Rights Commission 2015). So under the English and Welsh standard, as the Court of Appeal found, the test is whether or not a particular belief was held. If it 'was in fact held, its unreasonableness… is neither here nor there' (*Regina v Williams (Gladstone) 1983*). Thus the first question one must ask is 'what were the circumstances the officer honestly believed he was faced with'.

The second question one must ask is whether the degree of force used was reasonable in those circumstances. In weighing up this second question, one must assess whether the force used was necessary and proportionate. The necessity test (absolute necessity for Article 2 cases) asks whether it would have been possible to use less violent means, instead of those that were deployed, in order to meet the permitted and lawful objectives (*McCann v. United Kingdom*, paragraph 148). The proportionality test asks whether the force used is proportionate to or consistent with the legitimate aim that is to be achieved, the danger to 'life and limb' posed by the situation, and the risk that the force used might result in loss of life (*Stewart v United Kingdom*, paragraph 19, and *McCann v. United Kingdom*, paragraph 149). Thus, for example, the level of force that is considered proportionate to stop a petty thief, or a shop-lifter, who is posing no risk to themselves or others will be less than that utilised to stop an individual posing an imminent risk of death or serious injury to those around them.

In applying the tests of necessity and proportionality, UK law states that one must 'take into account', amongst other considerations, the fact that it is not always possible to 'weigh to a nicety the exact measure of any necessary action' (Section 76.7 of the Criminal Justice and Immigration Act, 2008). ECHR case law also highlights a number of other relevant considerations.

Whilst Article 3 of the European Convention on Human Rights (freedom from torture and ill-treatment) has been applied in fewer cases involving mistaken beliefs (Leverick)—and, as a former UN Special Rapporteur on Torture and other forms of Cruel, Inhuman and Degrading Treatment and Punishment has noted more generally, the circumstances in which bodily integrity and personal security can be curtailed have been less clearly defined than in cases involving the right to life (Special Rapporteur on Torture, Manfred Novak, in Dymond and Corney 2014)—this latter right (Article 2 of the ECHR) is also relevant here. It applies not just in cases where death has occurred subsequent to police use of force, including Taser (for some cases where this has occured, see Kroll et al 2016), but also in cases where the force used threatens life—i.e. in cases where there are 'immediate risks of fatal harm' (Kennison and Loumanski 2007: 151) irrespective of whether this ultimately results in a fatality.

ECHR case law indicates other important considerations that should be taken into account, as well as the difficulties involved in 'weighing to a nicety' the impact of a particular necessary action. These include the need to; avoid imposing an 'disproportionate and unrealistic obligation' on the State (*Giuliani and Gaggio v Italty*, as quoted in Skinner 2014: 2); recognise the extreme pressure faced by the State; appreciate the 'exceptional' nature of the circumstances faced, which mean the State should be granted 'a margin of appreciation' around the decisions taken (*Finogenov v Russia*, as quoted in Skinner 2014: 2); and recognise the possibility of honest mistakes being made.

As such, the subjective, so-called 'honest mistake standard' serves a useful purpose: it means that officers, who often have to make split second decisions about whether or not to use force, often with incomplete information and in uncertain circumstances, are assessed on the circumstances as they believed them to be at the time, not on the circumstances that may come to be known with the benefit of hindsight. Indeed, as Skinner (2014: 2) has noted, the

ECtHR has shown an appreciation of the need to account for the 'stresses involved in incidents in which state agents have to intervene, including the possibility of reasonable mistakes'.

Yet it has also been argued that this standard is too easy to meet (see Norrie 2010, for an overview of the debate). Hessbruegge argues that such a standard places victims of (alleged) human rights violations at an 'unfair disadvantage', having to prove assertions about a police officer's internal state of mind at the time of the incident: an extremely high barrier (Hessbruegge 2016). Simon (quoted in Squires and Kennison 2010: 11-12) argues that the genuine belief standard contains 'a hole large enough for the proverbial truck… as awkward and excessive as the use of deadly force might have seemed out… (at the time), it reads as squeaky clean' in the official narrative. Punch (2010) notes the possibility that 'there rarely are any prosecutions or convictions for…incidents conducted on behalf of the state'.

Indeed, many other bodies and jurisdictions, including the USA, the Inter-American Human Rights Commission, the African Human Rights Commission and, arguably, the European Court of Human Rights, in their interpretation of Article 2 of the European Convention on Human Rights in the McCann judgement, 'employ a hybrid test that combines a subjective and an objective element' (Hessbruegge 2016). Under this test, the defendant still has to have an 'honest, if mistaken, belief', but that belief 'must have been *objectively reasonable* under the circumstances' (Hessbruegge 2016: emphasis added, see also Norrie 2010). For example, the test set out by the McCann ruling—and repeated in subsequent ECHR case law—is of 'an honest belief which is perceived, *for good reasons*, to be valid at the time but which subsequently turns out to be mistaken" *(McCann v United Kingdom*, para. 200, emphasis added). Under the widely-held interpretation of this provision—or at least, as we shall see later, under the widely held interpretation that has dominated up until recently--ECHR case law provides for both a subjective and an objective test (Hessbruegge 2016), and English and Welsh law is considered to be remiss in providing only for a subjective test (Norrie 2010, see also Leverick 2002)

The importance of these debates can be seen in the case of Colin Farmer, who was Tasered by a Lancashire police officer, Stuart Wright, in 2012. The officer

in question was responding to reports of a young male, a 'skin-head with jeans', in public with a two-foot long sword, whilst Colin Farmer was partially blind and described by a witness as 'quite elderly and walk(ing) very slowly' (IPCC 2012b: 15 – 16). The officer explained that he saw a 'shiny and reflective object' in Colin Farmer's hand—in fact his walking stick—and mistook this for 'a sword'. He described Colin Farmer as walking towards members of the public, who he considered to be in 'immediate danger' (IPCC 2012b: 15 – 16), and as not responding to his verbal warnings. The officer then fired the weapon in dart-firing mode at Mr Farmer and handcuffed him, eventually removing the handcuffs sometime after.

The IPCC investigation found that 'PC Wright could have and should have dealt with Mr Farmer in an altogether different way rather than discharging his TASER at him' (IPCC 2012b: 27). They found that 'there were no members of the public within close proximity of Mr Farmer… and therefore any perception that PC Wright may have had of an immediate threat to the public is flawed', though the 'radio transmissions made by PC… indicate that he did hold the belief that he was confronting a man with a sword' (IPCC 2012b: 28). They found that 'PC Wright does have a case to answer for gross misconduct in respect of the allegation that he used a level of force upon Mr Farmer that was unnecessary and disproportionate to the circumstances' and referred the case to the CPS (IPCC 2012b: 32). The CPS, however, declined to bring charges, with a representative reportedly saying:

> 'Anyone accused of an assault who may have acted under a mistaken belief as to the facts must be judged on the facts *as they believed them to be*. In addition, police officers are entitled to use reasonable force in order to effect an arrest and where the officer is under a mistaken belief as to the facts the question is whether, *in the circumstances as he believed them to be*, the force was reasonable. The officer has been informed by the police control room that they had received reports that a man was…carrying a sword. It appears the reflective nature of the stick used as a walking aid… led members of the public to mistake it for a weapon. The officer… made the same mistake' (The Telegraph 2013, emphasis added).

Following the CPS's decision, the force held a gross incompetence meeting which found that 'the officer failed to perform his duties to a satisfactory standard… though his actions did not amount to gross incompetence'

(Edmonds 2014). The officer 'received a performance improvement notice and was required to apologise' (IPCC 2012b: 23). It was reported that Mr Farmer has since taken civil action against the force for false imprisonment, assault and battery, and breach of the Human Rights Act (1998), and received an undisclosed amount (Peachy 2015). This case vividly illustrates some of the issues with relying solely on a subjective, honest belief test, as opposed to a test which considers the honestly held belief, and also explicitly asks whether such a belief was objectively reasonable. (It also highlights the difference between criminal law and civil law, a point to which I shall return shortly).

Yet, second, the Colin Farmer case potentially points to an additional issue in domestic criminal law. For it is tempting to conceive of tests of reasonableness in terms of the presence (or lack thereof) of external evidence that corroborates the officer's belief, and that would make such a (mistaken) belief understandable. However external evidence is rarely available in a convenient, easy to use, ready-made format: instead, attempts have to be made to actively gather the necessary information, intelligence and evidence, and to piece it together. There is thus a difference between a belief that is 'unreasonable' due to the fact that there is no evidence to support it, and a belief that is 'unreasonable' because there have been no attempts made to ascertain whether such evidence exists, or not, in the first place. If we are to consider including elements of a more objective test, based on the reasonableness of a given belief in its own right (as opposed to the reasonableness of the belief simply being a way to assess whether it was honestly held) I would therefore argue that it is necessary to consider not just how reasonable the belief is, but how reasonable is *the process* the individual officer has taken in order to arrive at this belief: whether the officer has taken sufficient action to try and corroborate this belief, and turn it from a supposition into a solid fact.

At present, such considerations can be taken into account in assessing whether any belief is 'honestly' held – but once it has been determined that this is the case, they are not then taken into account in assessing the reasonableness of the officer's response. However, according to soft law, officers have a responsibility to use force only when 'unavoidable' (UN Basic Principles on the Use of Force and Firearms (1990), Principle 5),so it could therefore be argued

that they have a responsibility to put their 'honest' and 'instinctive' beliefs to the test, where possible, before using force [42].

In this case it would seem clear that the officer did genuinely believe Mr Farmer to be armed with a sword —but equally clear that he only believed this because he had failed to take the necessary action to avail himself of information that would have likely changed his beliefs. Of course in many situations that police face, this is an issue of little or no importance because they do not have sufficient time to enable them to corroborate their (initially reasonably held) beliefs. Indeed, in making such determinations about *process*, the well-recognised difficulties documented above—including the difficulties inherent in weighing to a nicety the impact of one's actions, the need to avoid imposing unrealistic requirements on officers, the possibility of honest mistakes occurring, and the need to appreciate the extreme pressures and stresses faced at the time—should be taken into account.

In this situation, however—and potentially in many others—the police officer in question had a short amount of time in which to ascertain the reasonableness of his honestly held belief. As the IPCC report (2012: 30-31) noted, in this case the officer had sufficient time to 'reposition and gain a better view of the man who he was challenging' – an action which would have 'allowed… (him) to see that (Colin Farmer) was not carrying a sword'. Yet Officer Wright failed to take these actions and, as such, failed to do anything that might either confirm or deny his original (genuinely held and arguably initially reasonable) belief.

In cases involving the use of force, it is sometimes presumed that officers are thrust into a situation where their beliefs (reasonable or otherwise) lead them to use force. Yet this case shows that the reverse is also true – that officers can use force too quickly, in turn denying themselves the opportunity to ascertain the reasonableness of their beliefs. In other words, failing to explicitly include a test for the process through which officers arrive at, and check, their beliefs – cognisant of the difficulties and caveats noted above—may leave the window

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[42] Indeed, case law from the European Court of Human Rights has stressed the importance of looking at broader factors around use of force, including the substantive, planning and control, and investigative dimensions of the incident in question (Skinner 2014) - although this tends to apply more to State planning than it does to the individual mindset of the officer.

open for officers to use unnecessary force too quickly – without facing the threat of a criminal prosecution. Such questions are perhaps too broad to be dealt with in this thesis, and can only be noted for the time being. More pragmatically, however, what this case does vividly illustrate is just how difficult it is to hold the police legally accountability for the force that they use, including the use of Taser.

In such instances, then, it would appear that there is a need to consider clarifying the legal test that currently applies and to consider amending it so that it combines both a subjective and an objective element, such that mistaken beliefs must not only be honest but also be objectively reasonable (Hessbruegge 2016). In this light, Norrie's (2010: 377) recommendation—that there is a need for a 'proper debate' about the current legal test in England and Wales, and about the related issue of 'the limits of appropriate police action and citizen liberties in a democratic society'—seems to have much to commend it, and the IPCC have relatedly called for a 'wide and well-informed debate' around police use of firearms (in Squires and Kennison 2010: 14. This debate is all the more urgently needed given the ECHR's ruling in the Armani Da Silva case, which appeared to find that the ECHR standard was not a subjective test combined with an objective test but was, in fact, an entirely subjective standard after all, and hence English and Welsh law was not 'significantly different' from the ECHR test (*Armani Da Silva v United Kingdom* , paragraph 252). Hence the court ruled that the 'existence of 'good reasons'—as detailed in the McCann case—'should be determined subjectively'; that is, that 'good reasons' don't have to be objective, but can be 'subjectively' as such by the officer involved (, *Armani Da Silva v United Kingdom , paragraph* 245, 248). As such, discussions around the status of existing law— including whether it is necessary to further clarify its application, or even to amend the law itself—are urgently needed (Norrie 2010, Squires and Kennison 2010, see also Skinner 2014).Getting your day in Civil Court.

As Colin Farmer's case illustrates, however, those seeking to bring their case to court also have another route at their disposal: the civil courts. As the Police Action Lawyer's Group (PALG) notes, such litigation 'is often the only means by which those who have suffered malpractice on the part of officers of the state are able to secure access to justice and thereby to defend their civil liberties' (PALG 2014: no page number) – particularly because the standard of proof required is lower than the standard applied in criminal cases. Yet the Legal Aid, Sentencing and Punishment of Offenders Act of 2012 has introduced additional difficulties which have had the cumulative effect of making people 'think again before deciding to sue the police' (Donogue 2014).

These reforms are said to impact on claimants bringing (or thinking about bringing) civil claims by a Conditional Fee Agreement. Under the old

arrangement, if claimants were successful, they were entitled to claim the cost of their legal fees and the cost of any After the Event Insurance they may have taken out, from the Defendants *in addition* to any compensation they may have received. The success fee for which their lawyer was entitled to charge was also payable by the defendant.

Under the new arrangement, if claimants using Conditional Fee Agreements are successful, although they will recover their basic legal fees from the Defendant, they can no longer recover their success fee, or the cost of insurance (if taken out) separately from the defendants, but have to pay it out of their compensation. However, in cases against the police, the amount of compensation paid is relatively low, and insurance premiums are relatively high, or simply not available (PALG 2014).

On the other hand, if claimants lose their case, in certain cases they could face having to pay the defendant police force's legal costs. In theory this should rarely happen, as personal injury claims—which Taser cases are likely to involve, either on grounds of physical injury and/or psychological injury—benefit from Qualified One Way Cost Shifting (QOCS), which should shield unsuccessful claimants from the other side's legal costs. Nevertheless PALGS note that, in practice, uncertainties over the applicability of QOCS to claims against the police could create a potential barrier to litigation in some cases.

Solicitor Iain Gould, one of the lawyers interviewed for the thesis, explained the impact on clients as follows:

> 'The very poor qualify for legal aid, the problem is for the middle income group, which is a big group…. I have to say to them: 'I think you've got a viable case here. But I'm not going to guarantee success, because I can't. And guess what? If you lose… you are going to have a cost bill of £25, 000 – £30, 000'. You… are going to say 'I'm not doing that'. As a result there is a huge vacuum, and that is a major, major problem'.

Taken together, then, the effect of these new reforms has been to create a 'significant obstacle to litigation in meritorious cases', and to establish an 'unjustified barrier to access to justice', meaning that, unless they are in receipt of legal aid, claimants are 'unable to vindicate constitutional and other fundamental rights, unless they are wealthy' (PALGS 2014).

<u>When Cases Reach Court.</u>

Furthermore, when cases reach court – be it a civil or a criminal court – those subjected to Taser can face additional hurdles in presenting their case effectively. The factors discussed in Chapter 5—including the difficulties in conveying pain, and broader tendencies that trivialize the experience of being Tasered—may make it difficult for subjects to speak out, whilst the very factors that may make individuals prone to Taser use, such as aggressive mannerisms, or mental health issues, may mean that they may not always be able to describe the experiences as convincingly as they might like (Sussman 2012).

At the same time, police officers have additional ways to enhance their credibility. One such method is the National Decision Model, introduced in the last chapter. At the time of its introduction, ACPO (2012: 1) described the NDM 'as a values-based tool to provide a simple, logical and evidence-based approach to… decisions', and to 'help police officers and staff develop the professional judgement necessary to make effective policing decisions…. (and) learn from decisions that have a successful outcomes, as well as the small proportion that do not'. It was noted that 'decision makers can use it to structure a rationale of what they did during an incident and why. Managers and others can use it to review decisions and actions taken'. The document stressed the importance of officers being 'accountable for their decisions' and being prepared to 'provide a rationale for what they did and why' (ACPO 2012: 5). As such, the National Decision Model can bring a range of benefits around demystifying and providing a useful checklist around the decision making process.

However a 'tool', initially intended as an aide to help officers make decisions and to help others review them, has been interpreted by some in a slightly different way. For some, the NDM has come to have value as a way of helping officers to justify their actions after the event – in a way that risks minimizing, not enhancing, processes of review and scrutiny. Thus personal safety trainers and Taser trainers noted, both to their students, and during interviews that:

> 'If we ever end up in court justifying our actions, the barrister will be questioning us on the NDM. As soon as… they realise you know it, then the questions stop because they know they are not going to catch you out… *The barrister sits down, so the actual justification and use of it can*

never be questioned. Ok there's times when it goes wrong and whether it was the most appropriate tool, you could question that, but that goes back to the officer... and that's where the threat and risk assessment comes in' (Personal Safety Trainer, Force location omitted, emphasis added).

'The NDM is brilliant, really good, it's just how the mind would work. It's giving police officers permission to go and use force because, contrary to popular belief, a lot of officers aren't going in heavy handed, if anything they are worried about themselves getting into trouble. But this gives them the power. *If you think you are doing the right thing you probably are, (and) it gives them that confidence to deal with the situation and not getting themselves sued*' (Taser trainer, force location omitted, emphasis added).

'The threat and risk (box on the NDM is) completely your personalised view of the world. Every decision you make is influenced by what you put in that box – it influences everything that comes after it. 'I was scared' – *personalising that threat assessment is the key to your success. It's irrefutable in court'* (Taser trainer, Force omitted, emphasis added).

In the words of one Taser trainer, the NDM is the *'get out of jail free card'*. The NDM thus appears to enhance officer's 'account-ability'—that is, the 'capacity to provide a record of activities that explains them in a credible manner so that they appear to satisfy the(ir) rights and obligations'—at the expense of accountability understood in a broader sense (Ericson in Young 2015: 42).

Such consequences seem at odds with the stated rationale of the NDM. They demonstrate that texts, such as the NDM, can become far more than tools to assist officers in making decisions, but may—as the ANT notion of generalised symmetry asks us to consider—also interact with human agency in various ways to have a variety of unexpected consequences. Indeed, as Prior notes, 'documents do much more than serve as informants and can… be considered as actors in their own right' (2008: 822). As Anais expresses rather pithily in her study of less lethals, texts 'do things rather than simply say things' (2015: 123).

This is not to say that the use of the NDM always precludes accountability: indeed, as one might expect, it can interact with a variety of human actors to produce a variety of effects. Thus, in some circumstances, investigatory bodies have been able to use the NDM framework as a standard against which to assess officer's use of force and judge whether or not it was appropriate. Thus,

for example, the IPCC has examined officers' NDM rationales in incidents involving the use of force and, in 'some' incidents, has found 'concerns about the lack of information gathered before risk assessments were conducted and force was used' (IPCC 2016a: vii) – intimating that the NDM has not been used properly. However, holding officers to account under the NDM is necessarily complicated because, as one trainer noted, 'there is no standard: the NDM is the standard' – and the NDM, in turn, places a high emphasis on the officer's subjective assessment of the situation, their fears and reactions.

So whilst judging whether officers have complied with the NDM is, of course, an important question to ask, and the benefits of the NDM should not be ignored, equally care must be taken so that it doesn't mask an equally important question: whether the standard (or lack thereof) set out by the NDM, is itself appropriate. As Casalie noted in her review of the IPCC, the organisation's role has, in the past, tended to be too narrowly focused on 'assessing officers' actions against criteria and standards derived from the police guidance applicable at the time' – in this case, the NDM - instead of 'holding the system to account… (by) review(ing) (this).. guidance, to identify any shortcomings' (Casalie 2012: 14). Similarly, Squires and Kennison (2010: 56) note that, in practice 'police will generally be 'covered' if they can be shown to have followed their own rules and procedures and provided political complaint does not entirely overwhelm police management discourses'. As Casalie notes, 'ultimately, the test is whether or not policing policy and practice complies with human rights jurisprudence and standards for combating impunity' (2012: 14) – and, as I have shown, the NDM can be used in ways which arguably enhance officer impunity.

Nor is this restricted to the IPCC. As I have noted, HMIC has historically not looked at the issue of Taser use – and whilst this is changing, their new approach likewise assesses officers against the NDM, instead of critically interrogating the NDM itself. Under the HMIC's new Police Effectiveness, Efficient and Legitimacy (PEEL) inspections, started in 2014, HMIC investigators will now consider 'whether chief officers understand how fairly and appropriately Tasers are being used in their forces, and whether Taser-trained officers are acting in accordance with the College of Policing's Authorised

Professional Practice each time it is used' (HMIC 2016a: 52). Again, whilst valuable, this misses the broader question of how appropriate Authorised Professional Practice—based, in turn, around the NDM—actually is.

Thus, whilst it is important that officers are given assistance and support in explaining their rationale for their actions, it is crucial that this support doesn't allow officers to justify actions, up to and including the use of Taser, that are inappropriate under the circumstances. Frameworks such as the NDM can have many useful applications, but should not be used to ensure that decisions made around the use of Taser are 'never questioned'. Instead, they should genuinely assist officers in making the correct decisions at the time of the event in question. Whilst there is understandably much support for the NDM framework, this analysis suggests that it can bring with it certain risks, particularly given the pre-existing difficulties in holding officers to account in the English and Welsh legal system.

Conclusion

This chapter has used a notion of accountability as encompassing both 'answerability' and 'enforcement' to demonstrate that the accountability processes around Taser use in England and Wales have many positive features and, indeed, are commonly characterized as 'robust'. Yet these accountability systems have not always been as 'robust' as they could have been. Whilst HMIC has identified much good practice in some forces, in other forces, cultural norms encourage internal investigators to take officer accounts at 'face value' and the processes for reviewing and remedying issues around Taser leave room for improvement. At the same time, external accountability mechanisms have provided less than robust levels of oversight during the period covered here. Moreover, whilst recourse to the legal system is often seen as a final safeguard, a host of challenges face those who would seek to have their case heard in criminal and / or civil court. This includes not only an entirely 'subjective' test as to whether the officer's use of force was reasonable, but the use of a decision-making model—the NDM—in ways which have been described as a 'get out of jail free' card.

Despite all of these challenges, achieving effective accountability for Taser use remains particularly important – not just because of the broader imperative to

hold the police to account for their actions, nor just because, as I have argued in the last couple of chapters, several factors subtly incentivise officers to use the weapon. It is also important because the promise of effective accountability is a key pillar used to justify the relative lack of clear standards and guidelines around when Taser should be deployed. We are asked to accept officers making their own decisions on when to use the weapon—and the considerable variation that inevitably comes along with that—on the promise that, after all, if their use is found to be inappropriate, they can and will be held to account. This chapter has demonstrated that, for a variety of reasons, this may not always be the case.

Before turning to the concluding chapter—in which I discuss in more detail how one might practically address such issues—it is worth discussing the implications of this chapter has for constructivist STS approaches, of which I wish to highlight three.

First, this chapter has served to demonstrate the continuing relevance of constructivist STS studies, in particular ANT. Whilst it has highlighted the role of human actors, it has also shown that accountability is not solely a human phenomenon. Instead, in keeping with ANT inspired accounts, it has pointed to the role of various non-human actors—from the technical features of the Taser weapon, to the use of force reporting form, to the National Decision Model—and how they can interact with human actants to have varied effects. STS inspired approaches, and the ANT concept of generalised symmetry, are well suited to drawing our attention to this, as well as to the possibility of creating accountability mechanisms that incorporate the non-human. For example, Latour (1992) notes that humans have 'delegated' to non-human actants—such as speed bumps or door closers—the responsibility for ensuring humans act in moral ways (i.e. by driving responsibly, closing doors etc.). In a similar vein, responsibility could be delegated to non-human actants, in this case Taser, to ensure that, for example, subjects are given only the minimum amount of electric-shock necessary. Thus whilst STS and ANT have been criticised by some for detracting attention away from human actants, such approaches can also point to accountability remedies which go beyond the human, to include the technical and its interactions with humans.

Second, however, whilst an STS inspired sensibility may have succeeded in widening our gaze to include a focus on non-human elements and the complex interactions between the former and the latter, it is much more tricky to go a step beyond this and to relinquish notions of 'human' and non-human all together, as some versions of ANT would have us do. This critique has been levelled at ANT for the best part of a decade, with Whittle and Spicer (2008: 614) noting that ANT 'continues to rely on (binary) assumptions when partitioning of the world into, for instance,… guests (people)… and keys (material artefacts)… recreat(ing) the dualism it seeks to overcome'. Thus, whilst moderate versions of constructivist and ANT approaches can be useful, if taken to extremes—and used to deny the existence of a (temporarily) coherent actant such as a Taser—they may be less than helpful, and set up standards that are impossible to reach.

Moreover, one does not need to adopt an extreme ANT approach, or even to work within constructivist STS, to focus on the non-human, and to produce broad ranging recommendations for a range of actants. Indeed, many of those writing outside of ANT and STS—and, indeed, working outside of academia—have come to similar conclusions about the need for broad accountability mechanisms, and to look beyond human actants. For example, in the USA, the Police Executive Research Forum's recommendations went beyond a focus on the human, to incorporate a focus on the non-human when they recommended that the length of the electric-shock produced by the Taser have a five second automatic cut off (PERF 2010) – a recommendation taken up in later versions of Taser weapons. Similarly, Amnesty International's (2008) report on Taser diagnosed a broad range of issues around the weapon and made a series of far reaching recommendations designed to comprehensively target the furthest reaches of what one might call the 'network' around the weapon, including recommendations on the guidance and training around the weapon, dealing with at risk populations, modes of use, interaction with other force options and the role of police officers (see also Moreau De Bellaing 2015).

Whilst it might be objected that such recommendations focus either on human actants or on technologies, it is far from clear how one might go about producing recommendations focused on hybrid actors. It is readily acknowledged by many outside of academia—many of whom have never heard

of constructivist STS or ANT—that separating social from technical considerations is no straightforward task, and that producing recommendations around technology is equally complex (Rappert 2005). Yet in the final analysis, mechanisms to strengthen accountability tend to focus either on the human (e.g. the disciplinary measures and training regimes needed) or the non-human (e.g. the changes that could be made to technology). It is not that those putting forward such recommendations fail to grasp the nuances and complexities in the debate: it is more that, all too often, there is no way to enhance regulation without falling back on binary distinctions (Rappert 2005). In the end, then, it is not clear how one might regulate hybrid actants without resorting to traditional binary conceptions. For all these reasons, then, whilst constructivist STS and ANT approaches may be insightful and interesting, this chapter has shown that their novelty and utility can be questioned – as can their ability to generate new recommendations capable of enhancing the accountability deficits noted in this chapter.

Chapter 10: Conclusions and Reflections.

This thesis set out to study police use of the Taser X26 in England and Wales between 2004 and 2014. To assist me with this, I set out four <u>key aims</u> for the thesis. First, it was explicitly intended to be exploratory in scope. As one of the first pieces of work looking at Taser in England and Wales, it aimed to explore how the weapon is currently used, and the laws, policies, training and accountability mechanisms surrounding its use – crucial issues in their own right, and topics that had not been analysed in depth before. Second, I intended to move beyond mere exploration to provide a constructive critique of Taser in England and Wales, acting as a critical friend on this important issue. Third, I aimed to use the issue of Taser in England and Wales as a case study to contribute to broader discussions and debates in the policing literature and, indeed, in sociology more generally. Fourth, I hoped that the thesis, and the process of writing it, would make a positive contribution to the policy debate, generating practical recommendations for academics and practitioners alike.

Guided by these aims, I set out to answer five specific questions around the use of the weapon in England and Wales, namely:

1) How is Taser used?
2) How has it impacted officers and subjects?
3) What stories are told about the weapon and its regulation, and how complete are they?
4) How is Taser regulated and accounted for?
5) How helpful are the constructivist and ANT approaches within Science and Technology Studies in answering these questions?

In this final chapter I seek, in Part 1, to outline my conclusions to these questions and assess the extent to which I have been able to answer them. In Part 2 I then outline the implications of my research findings for the broader academic literature more generally. In Part 3 I turn my attention to policy and practice, highlighting the recommendations that come out of this thesis. Ideas for future research, and my plans to progress particular areas of interest, are discussed throughout.

Key findings from the research.

Question 1. How is Taser used (Chapter 3)?

I sought to examine how Taser is used in England and Wales by analysing an internal use of force data set from one particular force in the jurisdiction. Whilst it would perhaps have been preferable to conduct this analysis at the national level, a lack of detail in the publicly available statistics for Taser use in England and Wales mean that this approach was not possible at the time of writing. As such it should not be presumed that the conclusions drawn are representative of, and hold true for, England and Wales as a whole.

Nevertheless, an in-depth case study of Taser use in a specific force can lead us to some insights as to how the weapon is used in practice, and point to some issues that need further investigation. Indeed, statistical analysis of use of force data provided by Force A shows that Taser is rarely used, and Taser firings constitute a small amount (less than 1%) of total uses of force. Moreover, use of Taser is significantly associated with increased levels of subject resistance and the reported presence of a weapon. These findings contrast markedly with the existing academic literature on Taser—which, based almost exclusively on the USA, argues that the weapon is used frequently and often as a 'first resort' by police officers – and highlights that findings based on the USA may not always have a universal applicability. However, these findings do broadly accord with findings from the IPCC (2015) and HMIC (2016a) in England and Wales, which drew conclusions around the weapon that were generally 'positive', finding that the weapon had 'almost always' been used 'fairly and appropriately' in the cases that they had studied HMIC (2016a: 57).

Yet there are some indicators of concern over the proportionality and necessity of the weapon's use, given that the majority of times where Taser is fired, it is fired on subjects not recorded as using, or having, a weapon. Moreover, even after controlling for other relevant variables, Taser firings are associated with subject drug consumption and subjects who are experiencing mental health issues. I return to these important findings in due course, in Part 3 of this chapter.

The results of quantitative analysis conducted on the internal use of force dataset provided by one force in England and Wales show a mixed picture as to whether Taser increases or decreases the odds of subject injury, and demonstrate that much depends on whether Taser is used alone or with other force – an issue hitherto ignored in much of the literature on the weapon (Terrill and Paoline 2012). Thus incidents where Taser firing was the sole force used were associated with higher rates of reported subject injury than incidents where empty hand techniques were the sole force used, with lower rates of subject injury when compared to incidents where irritant spray was the sole force fired/used, and were insignificant when compared to baton. In keeping with Terrill and Paoline's work, incidents where Taser was fired with other force options were generally associated with significantly increased odds of subject injury than incidents where Taser was the sole form of force used – suggesting that not all incidents where Taser is fired have the same implications for subject injury rates. Incidents where Taser is drawn but not fired are associated with decreased odds of subject injury – as, to a lesser degree, are instances where baton and CS are drawn, but not fired.

However a key limitation of my work and of most other studies on the topic (except Taylor and Woods 2010) is the inability to directly associate particular injuries with particular weapons, and to differentiate between the severity of the injury that is inflicted. It might be that Taser is associated with increased risk of subject injury, but with a decreased risk of more serious injuries, as the bulk of reported injuries are lacerations from probe wounds. Yet it may also be that many injuries from the weapon are more serious (e.g. injuries from falling). Much more work is needed not just on the rate of injury, but on its severity – and, as I go onto discuss in the next section, more attention needs to be paid to how the data itself, and concepts of injury specifically, are constructed.

Yet it cannot be assumed—as much of the quantitative literature does—that the consequences of Taser use can be reduced to subject injury. Indeed, some of those subjected to Taser have concerns that go beyond physical injury to include less visible concerns, such as the pain, fear and loss of control and psychological issues experienced as a result of what is believed to be part of a

broader trend towards the gratuitous, unnecessary use of the weapon. Care needs to be taken when interpreting such findings, given the small number of interviews conducted, and the fact that I was not able to conduct interviews with those who had had more positive experiences of the weapon, or with individuals who had been subjected to force other than Taser. As such, whilst it is important to note the negative consequences of the weapon, this should not detract from cases where its application has been considered appropriate by subjects, or had a positive impact more broadly. Nor should it be assumed that the negative sequelae experienced are a result of Taser. These are all areas where further research needs to be done, but it is clear that the use of the weapon is far from consequence free, and is not necessarily the 'nicer' use of force option that some would like it to be.

Turning to the consequences for officers, the results of statistical analysis were largely inconclusive. However the analysis highlighted the need for enhanced data collection around police use of force, including datasets and models capable of controlling for the order in which injury, subject resistance and use of force occurred. It also highlighted the extent to which the impact of the weapon on officer safety can be mediated by other factors (for example, the number of officers present at an incident), a finding which underscores the importance of looking at Taser not in isolation, but as part and parcel of the broader socio-technical network in which it is embedded.

If quantitative analysis is somewhat inconclusive, qualitative analysis of officer safety issues also reveals a mixed picture. As Chapter 6 shows, most Taser trained officers are highly positive about the weapon, and some of the benefits that they identify—such as the ability to stop potential use of force incidents before they even begin—would not be picked up by quantitative analysis. Yet, whilst many officers view the weapon as enhancing their safety, other interpretations and accounts are also possible. Indeed carrying the weapon may, under certain circumstances, actually place certain types of non-firearms officers at more risk. Moreover, whilst officers tend to see Taser as being 'nicer' for subjects and 'less intrusive' than other forms of force, these views are often at odds with the perceptions of those who have been subjected to the weapon.

Such findings again point to the need to see officer safety rates and broader impacts of 'the weapon' not just as stemming from the inherent qualities of the technology itself, but as a result of the complex socio-technical network around the weapon. They also point to the need for further work to be done on this topic, with further advances to be made to data collection practices, to be able to provide further evidence as to the effects of Taser on officers and subjects.

Questions 3 and 4: What stories are commonly told around the weapon, and how complete are they? How is Taser regulated and accounted for? (Chapters 8 and 9).

Whilst the aforementioned debates around how Taser is used, and the consequences of use, are still ongoing, nevertheless a number of stories around the use of the weapon have repeatedly appeared in academic and practitioner discussions. These include the notion that the weapon is no more than a neutral tool, that appropriate use is a responsibility for, and at the discretion of, individual officers, and that the weapon's use is subject to robust accountability mechanisms. These stories are highly intertwined with discussions about Taser regulation and accountability, and are thus important to consider.

In this thesis I have argued that these stories are not necessarily inaccurate per se, but that they are incomplete. Whilst a focus on the decision making abilities of individual officers is important, decisions that are made elsewhere can also impact on whether, when and how Taser is used, and act to incentivise or dis-incentivise its use. For example, decisions that have been taken about the content and frequency of police use of force training may impact officer's decisions on whether or not to use the weapon, making its use more likely. Similarly, rather than Taser being an interchangeable, neutral tool, the interaction between the Taser weapon and the officer holding it may also influence the decisions that officers make in ways that facilitate its use. Using Dror's (2007) three-tiered framework of officer decision making, I demonstrated that the presence of the weapon may impact 'decision factors' (with the use of force being perceived as posing a low risk to officers and subjects), 'internal' factors (by encouraging the officer to be more confident and proactive, in how they deal with policing situations) and 'external' factors, including the time

pressure officers are under. Thus Taser may interact with human agency, and other factors, to have surprising, and unpredictable, effects.

In such a situation policy and accountability mechanisms can have a role to play in helping to ensure the weapon is only used in appropriate circumstances (Bishopp 2014). However under the system currently in use in England and Wales, officers are given very little guidance about when to use the weapon. This means that different officers faced with a similar situation may handle it in markedly different ways – and may, on some occasions, resort to inappropriate use of the weapon. Where this does happen, the accountability mechanisms that have been put in place are not always as robust as is claimed. There is room for improvement both in internal police oversight mechanisms and external mechanisms such as the IPCC, whilst considerable barriers to justice continue to exist in both civil and criminal courts. Whilst the National Decision Model seems helpful as an aide to decision making, and as an aide to accountability under some circumstances, under other circumstances, it can also be used in ways which make it more difficult for accountability to be achieved. Thus, whilst many officers use the weapon responsibly, there is no room for complacency - and a need for additional safeguards and measure to be put in place to help ensure responsible use of the weapon across the board (a point to which I shall return to in Section 3).

Question 5: How helpful are constructivist STS approaches in answering these questions? (discussed throughout, especially Chs 1, 7-9)?

Questions 1 – 4 are not only important topics to address in their own right, but also provide an interesting case study to assess the added value, if any, that constructivist STS approaches in general, and ANT in particular, can bring to the study of particular technologies, in this case Taser – the final question I set out to answer with this thesis.

Overall, this thesis has argued that whilst constructivist STS approaches do have some utility, their value and novelty can be overstated, and the differences between different approaches in the STS family aren't always clear. Whilst moderate versions of constructivist STS can be helpful, directing the analyst towards interesting insights, there is no need to adopt an explicitly STS or ANT framework, or on the technical language and jargon that often accompanies it,

to reach many of the conclusions that I have here. The differences between ANT and other approaches within constructivist STS – as well as the difference between constructivist STS more broadly, and other forms of analysis—can be over-emphasised. Moreover, using these approaches is not a cost-free endeavour, but comes with a distinct set of risks.

This can be seen through a closer examination of three areas where constructivist STS perspectives claim to differ from some of the more traditional approaches to technology, namely by: favouring a symmetrical approach to truth claims about Taser, instead of seeking to advance an 'empirical reality' around the weapon: using generalised symmetry to go beyond conventional notions of the weapon as 'tool': and conceiving of the weapon as part of an assemblage.

A symmetrical approach to truth claims

A symmetrical approach to truth claims has added value at various points in this thesis. Chapters 3 – 5 have demonstrated that bearing constructivist STS sensibilities in mind can aide interpretation of statistical models by encouraging us to probe relationships between 'variables', and to look at the way in which two variables may be mutually constructed. For example, instead of officers being more likely to use Taser on particular subjects, it may be that officers are more likely to record additional details of the subject and the encounter where Taser was fired, as they perceive its use to need additional justification. Similarly, Chapter 7 has shown that constructivist STS can encourage us to examine officer accounts of the weapon more closely, instead of taking them at face value.

STS studies also invite us to consider the social construction of injury. Grint and Woolgar (1992: 366) once invited us to consider 'what's social about being shot' —and answered that everything was.. This implies that the characterisation of something as an 'injury' is not a straightforward characterisation but the product of multiple interpretations. These interpretations may vary according to the weapon used, and the nature of the harm occasioned. Thus analyses of injury rates, for example, may say more about differing approaches to, and characterisations of, injury and harm, and

pre-existing beliefs about the safety of certain weapons, than they do about the 'real' harm occasioned.

More broadly, then, constructivist STS approaches serve to remind us that the results of statistical models, and the reflections of those who use, and are affected by the weapon, are not simply an independent, objective take on the 'realities' of Taser use. Instead such results cannot help but reflect the socio-technical context in which the data, and the models used to analyse it, were created – even whilst the data is used to provide insights into this very context. Indeed Innes et al (2003: 40), in their commentary on crime analyses in policing, note that products of analysis are 'better understood as an artefact of the data and methods used in their construction, rather than providing an accurate representation' o funderlying trends. To paraphrase Grint and Woolgar (1992), then, we would do well the keep the question 'what's social about being Tasered' in the forefront of our minds when conducting data analysis.

Yet these are not some set of privileged insights, unique to those working from within an STS framework. For example, as discussed in Chapter 4, the debate between Terrill and Paoline (2012) and Kaminski et al (2013)—both of whom are writing with no explicit reference to the STS and ANT literature—has served to highlight the extent to which injuries from Taser are not somehow inherent to the weapon but are a 'social construct' (Kaminski et al 2013: 619) and are as much a product of 'decision(s)… by social scientists' as they are a product of the weapon itself. Similarly, as discussed in Chapter 7, constructivist STS notions—such as symmetry and interpretive flexibility—might encourage us to go beyond the accounts provided by officers and individuals subjected to the weapon, and to examine them further, but they are by no means mandatory reference points for analysts seeking to do this. So whilst STS studies can be useful, the novelty and uniqueness of the insights they help to generate should not be overstated.

Generalised Symmetry

Actor Network Theory—and its approach of generalised symmetry—has been somewhat helpful in dispelling commonplace notions of technologies and non-human artefacts as simple instruments and, instead, encouraging us to consider

the ways in which they might have their own agency, and interact with humans to produce unique outcomes. As discussed in Chapter 8, this has indeed been a useful corrective to a wide range of accounts, proposed by a range of actors, including police officials, critics and academics, that see Taser as a neutral tool. It has also proved useful in our discussion of the National Decision Model (Chapter 9), helping us understand how a model ostentatiously introduced to enhance accountability and promote high quality decision making can, under certain circumstances, interact with human actants to have the opposite effect, acting as a 'get out of jail free card'.

Yet again, however, the novelty of this approach risks being overstated. Many attempts to demonstrate the validity of ANT-ish approaches often (ironically) do so by imposing artificial, binary divisions onto the pre-existing literature. Typically, constructivist STS and ANT theorists divide analysts into 'instrumentalist' or 'substantivist' camps, so as to better elucidate the added value of their chosen approach. This takes considerable work and effort - as well as a willingness to disregard the varied and complex positions academics take, not to mention the considerable work undertaken outside of the confines of the academy. Another approach is to conclude that commentators are lacking valuable insights associated with STS simply because they 'lack the vocabulary of assemblage' (Bourne 2012: 157), or to simply assert that they do not consider technologies, or do so in simplistic, deterministic ways, without sufficiently evidencing their claims (Cutcliffe and Mitcham 2001).

The problem is that, as I demonstrated in Chapters 2 and 8, whilst some accounts do retain traces of instrumentalism—in particular, the notion of Taser as a tool—accounts setting out technologically determinist views are much harder to find. Furthermore, many accounts already inherently recognise (explicitly or otherwise) the complex networks of human and non-human actants in which Taser is embedded, and the potential not just for the former to impact the latter, but for the latter to impact the former. In other words, whilst constructivist STS accounts are undeniably useful, they risk demonstrating their added value by reference to a series of fictitious straw men rather than by a close, attentive analysis of the existing literature and current debates. Seen in the light of such a reading of the Taser literature, they still appear helpful – but much less novel.

Moreover, in my experience it is not always as easy as Latour might suggest to use generalised symmetry, and to demonstrate whether particular assemblages and actor-networks, such as Taser, are mediators or intermediaries. As discussed in Chapter 8, Latour's examples (e.g.Latour 1994) often work because they are highly abstract and presume that the analyst has the ability to accurately discern the intent (or lack of intent) of another and then to measure how this changes over time. However this is much more difficult to do when conducting real life empirical research – particularly in traditionally closed policing contexts and on topics as sensitive as police use of force. Thus, whilst Actor-Network Theory can help alert us to the possibility that interactions between humans and non-humans can produce new goals, 'programmes of action' and outcomes, it cannot always help us answer whether or not this happens in practice. Moreover, as Chapter 9 demonstrated, generalised symmetry can be taken too far, and risks ending up being no more than 'symmetrical absurdity' (MacLean and Hassard 2004: 493).

Assemblages and networks.

Another (purported) difference between constructivist STS approaches and more conventional accounts is the emphasis on technologies as part of broader assemblages and networks. This PhD has demonstrated that such an approach can add value in several ways.

By seeing entities such as Taser as networks in their own right, as products of complex human and non-human interactions, we are encouraged not simply to note—and then to skip over—the technology in question, but to ask questions about the characteristics of the weapon, the purposes that certain functions might serve, and whether any functions might be amended in order to ameliorate certain outcomes.

Moreover, constructivist STS approaches can help encourage us to focus not just on the individual weapon, but on the context in which it sits. The importance of this insight can be seen in discussions around the weapon and its implications for officer safety, as discussed previously in this chapter. Looking at the weapon in isolation might lead one to draw one set of conclusions about its impact on officer safety – for example that, as a distance weapon, it helps keep officers safe by allowing them to maintain their distance from dangerous

subjects: a conclusion reached by, for example White (2014**)**. Yet looking at the weapon in the context of the varied webs and networks in which it is enmeshed allows one to reach a more nuanced conclusion – in this case, that the socio-technical network in England and Wales may be putting officers at more risk, as they are sent to more risker incidents, and expected to take charge of incidents when they get there. This also leads us to an understanding that the decisions that officers take should not be considered solely as their personal responsibility, but is informed by and cannot be understood without, the broader socio-technical network that exists around the weapon.

In turn, this points to an additional benefit of utilising the concept of assemblages and networks – that our notion of responsibility is not weakened, as some have argued, but actually strengthened. In the case of, for example, inappropriate use (or lack of use) of Taser, our gaze must quite rightly focus on the individual agency of the individual officer, but must also be broadened to include, for example, the effects of the law, guidance and training curriculum surrounding the weapon, decisions taken by senior officials, the culture of, and pressure exerted by the officer's peer group, particular characteristics of the weapon, and their combined effects. Such a conception takes nothing away from individual-level responsibility, but recognises that there are multiple other parts of the network that can have particular effects, and thus other points of entry to bring about change. Ultimately, as Bennett argues:

> Autonomy and strong responsibility seem to me to be empirically false, and thus their invocation seems tinged with injustice... A distributive notion of agency does… not thereby abandon the project of identifying… the sources of harmful effects. To the contrary, such a notion broadens the range of places to look for sources (Bennett 2005: 463).

Yet again, however, the notion of a broader network or assemblage within which particular technologies come to be located – and through which responsibility for positive and negative consequences are jointly shared - is not a notion somehow unique to constructivist STS approaches. As Chapter 1 and Chapter 9 showed, many commentators—particularly NGOs—already pay close attention to the networks around technologies, and appreciate that any recommendations around Taser use must be broad reaching in nature, and not focus on any one element of the network to the expense of others (see Amnesty International 2008, see also Moreau de Belliang 2015 and Rappert 2005). Nor

is an STS inspired analysis of Taser nessarily unique within the policing literature, given earlier attempts to analyse different technologies from STS informed perspectives (Innes et al (2005), Lynch and Cole (2005) and Johnson et al (2003).

Risks that come with the approach

Moreover, using constructivist STS approaches, in particular ANT, do come with costs, three of which I would like to mention here. First, as others have already noted, the advantages detailed above are only made possible when a weak, less exacting, less symmetrical version of ANT is used. For some ANT theorists, there are no pre-existing, individual actants whatsoever – no essences or inherent capabilities - and no discrete 'it' (whether the entity in question is a 'Taser', 'an officer' or something else altogether). Agency is not held by actants in a network but by, and as an effect of, the network or assemblage as a whole. Understood in this sense, the significance of the term 'assemblage', then, is not just to convey a sense of highly intermeshed relations and arrangements without which technologies cannot be understood, but to further convey that it is these arrangements themselves that have 'capacity to act and to give meaning to action' (Callon and Caliskan in Hardie and McKenzie 2006: 58). It might well be interesting to see every actant as a network which needs to be deconstructed, but this approach risks being extremely time consuming, never ending and becoming the main focus of analysis in its own right.

Similarly, stronger and more exacting versions of ANT also risk denying or ignoring the important possibility that technologies do have certain (more or less innate) properties and affordances and that, whilst they may both be seen as networks and hybrid actors, humans differ from technologies in important ways (Murdock 1997). Moreover, because constructivist approaches and ANT are compatible with a wide range of ontological and epistemological stances (Bijker 2010), and some in ANT tend towards anti-essentialist ontologies, talking not of reality but of multiple *realities*, there is a risk that one may tend towards such approaches, losing the ability to make claims about the 'truth'. Using such a strong, inflexible version of ANT—one that, it has been argued, sets high standards its own proponents are unable to meet—quickly leads one to

'symmetrical absurdity' (McLean and Hassard 2004: 516), and to 'unrealistic' accounts where 'we become lost in a world of mirrors' (Bloomfield and Vurdubakis in McLean and Hassard 2004: 516). Thus, whilst ANT is useful, it is useful only in moderation.

This discussion in turn points to a second risk: the danger of getting distracted by arcane, abstract debates that may well be interesting and important in their own right, but are not our key concern here. Indeed, Acuto has criticised much of the ANT inspired literature for engaging in 'methodological... and meta-theoretical self-indulgence' (Acuto 2010: 552). Similarly, Castree (2002: 142) argues in his highly convincing analysis of ANT that one needs to be mindful not to buy 'theoretical sophistication at the expense of empirical political relevance'.

For example, on paper, there may well be important differences between SCOT and ANT, within the broader STS family. There may be differences between those who see entities as comprised of closely related 'social' and the 'technical' elements, and those who see them as 'analytically composite' and indivisibly socio-technical. There may be important differences between those who see particular entities as constituted *solely* as a result of the relationships and interactions in which they are embedded, and those who appreciate the importance of these relationships and interactions, but nevertheless make some space for pre-existing affordances (or even essences) of the entities under discussion. There may also be important differences between those who see agency as residing in human and non-human actants, and between those who see agency as a network effect, produced solely in the interaction between the two. Yet, in practice, empirical data does not always give us sufficient grounds to make a case for one view or the other. Both views provide us with interesting ways of looking at the empirical data—our key criterion here—but the data does not always allow us to make a judgement on which kinds of constructivist and which kinds of ANT approaches are more relevant than others. Nor, indeed, does it always provide sufficient grounds for assessing whether particular outcomes can be attributed to social determinism, technological determinism or a dance of agency.

These risks point to a third danger - one which is quite separate from the traditional criticisms levelled at ANT but one that my research is well placed to

highlight. This is the risk of becoming 'enrolled' by the approach to the detriment of the original aims of the research project. This risk has traditionally been masked by the (ironic) tendency for many analysts using ANT to refer to the approach as a tool. For Law (2007: 2), ANT is a collection of 'semiotic tools': for Williams-Jones and Graham (2003: 271), it is a 'tool' to support 'ethical analysis' of technological innovation: for Lee and Brown it is an approach that, through its rhetoric of the 'missing masses' of non-human actants, takes the 'tools' of 'liberal democracy' and 'power' to their 'absolute limits' (1994: 778). Yet ANT, of all approaches, would urge us to show caution before writing off any kind of non-human assemblage as a mere tool – and, just in the same way that this thesis has demonstrated the risks of conceiving of Taser as a mere tool, it also points to the risks of dismissing ANT in such a fashion. For ANT, instead of being a passive analytical device, may also have distinct effects, shaping and reshaping the very analysis in which it is engaged – and 'enrolling' the analyst in the process.

Take, for example, a situation such as mine, where an analyst may start the process with a broad goal of an action-orientated, empirically focused and practically helpful thesis—concerned with advancing our understanding of Taser in England and Wales—but a less than fully coherent idea of what exactly what the precise research questions may be. Unless care is taken, the seductive language of ANT, and its 'entertaining and creative' approach (Scott 1991: 11 see also Lee and Brown 1994) may constitute a non-human actant in its own right, translating the human actant's initial research goals— 'to understand more about Taser'—into something more compatible with its approach: for example, to use Taser as a mere case study to advance our understanding of Actor-Network Theory and the debates around it. Such an interpretation lends additional credence to ANT's emphasis on the role of non-human actants, and the way in which they can interact with humans to create new, unforeseen goals.

Summarising the value of constructivist STS and ANT approaches

Overall, then, this thesis has argued that whilst constructivist STS approaches, amongst them ANT, do have some utility, these approaches are far from risk free, and their value and novelty can be overstated, not least given the existing

literature on policing and technology more broadly. In reaching these conclusions, however, it is necessary to bear in mind two important qualifications. First, the approach taken in this thesis has undervalued the advantages that these approaches can bring. My intention here has been to explore how constructivist STS and ANT can add value to questions asked by traditional criminology approaches and by those with traditional understandings of technology. Yet an equally valid test would be to look, not just at how these approaches help us ask set questions, but at how they enlarge the types of questions and lines of academic enquiry available to us. Seen in this light, constructivist STS and ANT have a much broader value, not only helping us to shed new insights into traditional questions, but encouraging us to create and pose entirely new questions of their own. These include questions about the origin of technologies, and how they have evolved (Rejali 2009): questions about how ambiguities of technologies are resolved (Rappert 2005), and questions around how LLWs are constituted (Anais 2015).

Second, the differences between constructivist STS accounts on the one hand, and instrumental and substantivist accounts on the other, should not be ignored - but neither should they be overstated. I have no wish to create some kind of binary division between these approaches and in fact, as Bourne (2012: 162) notes, they each have different, potentially complementary, areas of interest. Instrumentalist approaches focus on 'before things' (i.e. human intent before the weapon), substantivist approaches 'after things' (how technology, once introduced, shapes the environment around it), constructivist accounts focus on 'about things' (how human create interpretive flexibility around, and attach meaning to, technologies), whilst ANT looks 'with things'. This raises the possibility that these different approaches can usefully complement each other. As Peoples (2007: 277) notes in his discussion of instrumental and substantivist approaches to missile technologies, 'knowledge of both these literatures is both helpful and necessary' and one should not brand different approaches 'right or wrong, or… be entirely dismissive of the intentions upon which they are based'.

Moreover, in practice there is not always a clear dividing line between what Kaplan (2009) has called weak technological deterministic approaches—which argue merely that technologies can influence those with whom they interact— and ANT like approaches. In allowing for a dance of agency, constructivist STS

approaches, such as ANT, concede that technologies may influence others, and have distinct effects, even whilst countering the notion that such effects are pre-determined. Indeed, in order to demonstrate the novelty of their approach, ANT theorists have to show that the technologies in question have agency and influence. Callon and Latour note that, at one level, they give 'to nature and to artefacts the same ontological status that realists and technical determinists are used to granting to them' – even whilst they challenge 'the very distribution between what is natural and what is social' (in McLean and Hassard 2004: 506).

Thus many inspired by ANT note that a vast range of interactions between society, humans and technologies are possible and that, whilst in some cases, these interactions may take the form of an unpredictable dance of agency in which all the actors involved are mutually transformed, in other cases, these interactions may come closer to the more traditional stories of social or technological determinism. Ultimately, as Schulz-Schaafer convincingly argues:

> 'Empirical reality is less elegant than actor network theory. The view advocated by Latour that from the interrelation of human and technical programmes of action something new results… is a constricted view. What results from the interrelation of human actors and technological artefacts can be described more comprehensively as a continuum with the social deterministic outcomes and technical deterministic outcomes being its poles (2006: 136).

I suggest then, that this thesis—providing, as it has, an empirical 'test' of ANT and constructivist STS, and an exploration of the relevance of the theory to the hitherto unchartered waters of weapon technologies—demonstrates that there is thus room for a more moderate, nuanced version of ANT going forward. This version of ANT would still stress the role of non-human actants, the importance of interactions and relational nature of agency, but would also recognise that being able to study how these actants operate as 'black-boxed entities' themselves is an equally useful contribution in its own right. It would still stress the contingency and unpredictability of the outcomes of relations between human and non-human, but would also recognise that, sometimes, either part of this equation might dominate, in more or less predictable ways. It would still stress the notion of multiple realities, and multiple actor-networks, but would allow one to recognise that materiality and affordances matter, and that the notion of an 'empirical reality' cannot be dismissed so easily. Finally, it would continue to remind analysts to be sensitive to, and respectful of, differing points

of view – but would allow, even encourage, them to be politically active, as opposed to politically inert.

Such a weaker conception of ANT would no doubt be subject to criticism (Fine 2005) but would also have important allies. For example, Castree (2002: 135) has used a blend of ANT and critical approaches such as Marxism to 'remain critical of binarist thinking, of asymmetry, of limited conceptions of agency and of centred conceptions of power', but has called on ANT to concede that 'social relations… are often disproportionately directive, that agents, while social, natural and relational, vary greatly in their powers to influence others: and that power, while dispersed, can be directed by some (namely, specific social actors) more than others'. Many others, for example Frickel (1996) and Mutch (2013) have also worked with a watered down version of ANT, or have been loosely inspired by the approach, with Frickel noting many of ANT's criticisms are 'ultimately avoidable' if the approach is not seen as an 'all or nothing adventure' (1996: 49). Indeed, Mol (2010: 265) argues that 'the strength of, ANT then, is not that it is solid, but rather that it is adaptable. It has assembled a rich array of explorative and experimental ways of attuning to the world'. Seen as an adaptable, exploratory experiment, ANT may have much to offer criminology (Defresne et al 2015).

Broader Implications of the research findings.

As the previous section has shown, the answers to research questions 1 – 5 have implications for our understanding of Taser and also speak directly to theoretical questions around the value of constructivist STS approaches approaches. In this section I would like to draw out four additional implications that my findings may have for other areas of academic research, before looking at implications for practitioners in Section 3. I argue this thesis has substantive implications for the literatures on police discretion and on regulating police use of force, and methodological and ethical implications for how to conduct policing research more generally.

First, these findings have implications for academic debates around police discretion. As Chapter 8 demonstrated, much of literature provides a highly humanistic, human centric account of police decision making – and could benefit from a serious consideration of the role that nonhuman actants may play

in shaping discretionary decisions. Arenas and decisions that might, on the surface, appear to be free from any legal or policy restriction, and subject to the whims of officers, may well be structured not only by the human agency of others (for example, choices made in the training curriculum) but also by the presence of non-humans and the socio-technical networks within which they are embedded. It would be useful for future research to consider in more detail the relationship between non-humans, non-human agency and the exercise of discretion. In addition to exploring the theoretical basis of discretion in more depth than I have been able to here, studies could usefully explore empirical dimensions of the topic – specifically by examining the extent to which the 'weapons effect' literature holds true not only for lethal firearms but for less lethal projectile weapons such as Taser. Further empirical studies could usefully explore whether less lethal technologies other than Taser have similar—or different—effects on discretionary decision making. Moreover, whilst my focus here has been on how police use of force decisions may be impacted by particular technologies, a range of other actors—from private security contractors, to military officers and correctional officials—also have to make similar discretionary decisions, and it would be interesting to consider how technologies impact upon their use of force decisions. I hope to explore some of these issues via my ESRC Future Research Leaders Award—which aims to focus, in part, on the roles that non-human actors and physical infrastructure-can, and should, play in places of detention—but this remains an area ripe for further development.

Second, my thesis findings also have implications for the regulation of police use of force. In particular, whilst the traditional use of force continuum models have been subject to extensive criticism, alternatives to such models are not necessarily risk-free. This points to the need for further research to be conducted on the implications of adopting the National Decision Model, as well as on other alternatives to continuum models. As I argue further the next section, consideration should also be given to accompanying the NDM with some more specific guidance on how to use a range of different force options, amongst them Taser – a topic I intend to explore further through my ESRC Future Research Leader's Award (scheduled to run between 2017 – 2020).

Third, in contrast to notions of police subculture that see it as a singular, monolithic entity, this research has highlighted large variations in officer's views on police use of force. Many officers appreciate Taser because it seems to tap into, and sit well with, pre-existing conceptions and beliefs they have about the role of policing, the need to use of force, and their attitudes towards using it – but, interestingly, the weapon may appeal to different officers for different reasons. Further research into what pre-existing attitudes and beliefs the weapon is appealing to, and how such attitudes may, in turn, affect what kinds of force officers use, and the frequency with which they use it, is a matter for further research (see also Klahm et al 2011, and Terrill et al 2003).

Fourth, there are also a number of implications for the methods used to research use of force - and other topics in policing. This thesis has demonstrated that the statistical models used to assess the relationship between Taser use and officer and subject injuries (amongst other outcomes) could usefully differentiate between instances where Taser is fired by itself, and when it is used with other force options, and could also benefit from including an additional control to assess whether the subject poses a risk to themselves or others. There would also be a benefit from including carefully chosen interaction effects in future statistical models, in order to better capture the interplay between different variables.

The thesis has also demonstrated that the precise ordering of subject resistance, officer injury and the use of different force options matters - and being unsure about the order in which these inter-related events occur undermines the ability of analysts to reach conclusions about the association between Taser use and officer injury rates. My ESRC funded placement with the National Police Chief's Council, working directly on the Police Use of Force Reporting review, has allowed me to advocate for the inclusion of these variables into the nationwide dataset, though I have had greater success in incorporating some recommendations than others (see Dymond 2016a, where I discuss varying use of force recording practices amongst forces, and make suggestions for improvements in data collection, for further details).

This thesis has also pointed more generally to the value of complementing statistical models with qualitative data collection. In particular qualitative data can highlight some of the limits to conventional statistical accounts, which tend reduce the debate around the impact of Taser to physical injury. Fifth, I believe this thesis also has something useful to contribute to ongoing debates about the role of academics in conducting research on criminology and policing issues. Waddington has argued that many police researchers are embedded in an 'orthodoxy' of 'deep scepticism' towards the police (2000: 95) – but today the opposite seems true. There appears to be a view amongst some academics that researchers should not so much work on the police, as they should work with and for them (see Innes 2010 for further discussion of these terms). In our context, then, there is a tendency not question the definitions of use of force, or of injuries, preferred by law enforcement officials, but to adopt them wholesale. Thus, as discussed in Chapter 5, Kaminski et al (2013: 617 - 8) criticise researchers for looking at 'action that law enforcement and others do not consider to be uses of force': for researching (supposedly) 'minor' physical and psychological injury: and for being 'unhelpful to practitioners and police executives'. Also of relevance here is the relative lack of attention given by academia to police use of force issues in the first place – a issue particularly noticeable in the UK context (Buttle 2007), and all the more surprising given the crucial importance of the police's ability to use force. In this context, Reiner's (2012: 97) description of a shift from the 'sociology of the police to sociology for the police, from critical and theoretical concerns to providing practicable solutions to immediate policing problems' seems increasingly accurate.

This is not to argue that the latter kinds of research cannot fulfil a useful function, but simply that the notion of academic work acting as a 'motor' for police reform should not be forgotten (Innes 2010). This does not mean that all academics should use their research as a 'motor', nor overstate the practical recommendations that may stem from it - a risk perhaps particularly prevalent with quantitative work on the use of force, where some analysts have felt compelled to jump from data to policy without making clear the limitations of the latter (Terrill and Paoline 2012). Researchers should take care when formulating practical recommendations on the basis of their research – but, equally, should not shy away from the task where the evidence is compelling.

In that spirit, then, let me turn to the final section of this chapter, which deals with such practical recommendations.

Practical Recommendations

Both the IPCC and HMIC have noted that there is much good practice around use of Taser in England and Wales, and my experiences researching this thesis would certainly suggest the same. However, there is no room for complacency, and views and recommendations emanating from outside of the police can be particularly useful in highlighting areas for further improvement. In that spirit, I draw out recommendations from the research that has taken place so far. However, whilst reading these recommendations, readers should be cognisant of the fact that they are based on the period up until 2014, with the bulk of observations of Taser training conducted between 2013 and 2014. It is possible that further changes to policy, practice and the initial and refresher Taser training curriculum may have been implemented after this date, which may affect the relevancy of these recommendations.

1) Recognise good practice and share experiences.

First, it is important to recognise good practice around the weapon. For example, statistical analysis of the dataset detailed above shows that Taser is rarely used by the force in question, Taser firings constitute a small amount (less than 1%) of total uses of force, and use of Taser is significantly associated with violence or the threat of violence. Recent reports by the IPCC and HMIC, which drew conclusions around the weapon that were generally positive, should also be noted. There is also good practice in the regulatory framework that surrounds it, including the internal accountability mechanisms in place in certain forces, a highly regarded national training package, the introduction of the NDM, and oversight institutions—such as the IPCC, HMIC and SACMILL—with a clear focus on police use of Taser. Mechanisms to encourage the sharing of experiences between police forces, and the identification of particular areas of good practice, should be encouraged.

2) 'The flaw in the debate is the Taser debate' or: Don't focus solely on Taser.

Whilst Taser is often considered in isolation, the research shows that, at least in the force in question, Taser is often used with other forms of force. Indeed,

around half of incidents involving Taser firing also involve the use of other force options. Moreover, many of the points made around Taser use—for example, concerns about how and when the weapon is used, and its impact—may well be relevant for other uses of force. This doesn't mean that less attention should be given to Taser, but indicates that researchers should analyse Taser in context, and carefully scrutinise other forms of force. This is a recommendation that I personally intend to take forward in my next ESRC project (funded via the Future Research Leader's Scheme) which will move beyond Taser to look at the use of other forms of police force in England and Wales, and will also look at the implications of a range of LLWs for the right to life on a more global scale.

On a more practical level, Taser training and officer safety training should also incorporate the possibility—and risks—of Taser being used with other forms of force. Whilst SACMILL produce statements on Taser and Attenuating Energy Projectiles, assessments should also be made of the risks associated with other use of force options, and these assessments should be made publicly available. Moreover, as the Triennial Review noted, where possible SACMILL should be provided with further data around incidents where Taser (and other weapons within its remit) have been used, and death or serious injury has occurred, to ensure it has the best information at its finger tips, to help inform its statements. This should include access to NHS data (anonymised where necessary) as well as 'access to police tactical reports for example (which) may be restricted for legal and ethical reasons' (Jenkins 2014: 2, 15).

3) Explore ways to minimise risk for officers & subjects.

Whilst many officers view the weapon as enhancing their safety, paradoxically carrying the weapon may sometimes place them at more risk. They may be more likely to be single crewed, to be sent to riskier jobs and to be over-confident when they get there.   Moreover, whilst officers tend to see Taser as being 'nicer' and 'less intrusive' for subjects, this is at odds with the perceptions of some of those subjected to the weapon, and the evidence on subject injury rates presented in this thesis is somewhat inconclusive.   Further ways of minimising risk to Taser officers—such as limiting single crewing, providing additional training on weapons retention, and on certain incidents that officers in the force in question are most likely to face —should be considered. Taser

training should ensure officers are more fully aware of the DOMILL 2012 Taser statement, and should stress that the use of the weapon can be highly distressing to subjects, and stress the need for reassurance afterwards. Options for Taser weapons to be equipped with a feature that would cut the electrical shock off after 5 seconds should also be explored[43].

4) Ensure officers are adequately equipped, and have a range of ways to handle situations.

Officers need to be able to use options other than Taser to resolve violent incidents, including no force at all. Yet the extent to which officers feel able to do this varies considerably. As discussed in Chapter 8, the length of PST training varies from force to force, with at least 11 forces providing less than 2 days training per annum. Personal communication and policing styles differ considerably between Taser trained officers. Officers have widely differing views about when they would use the weapon and trainers can find it difficult to make subjective assessments about the approaches taken by officers. It is therefore important that officers chosen to undergo Taser training are carefully selected in order to ensure they have the appropriate level of knowledge, experience and personal competencies required for this role. Trainers should be carefully selected, able to provide critical feedback, and adequately supported in order to do so.

In terms of the training itself, consideration should be given to providing officers with enhanced training in PST and communication skills, particularly when dealing with vulnerable subjects or those with mental health issues. Not only should police officers (and any police staff and civilian employees who may have to use force in the course of their duties) receive Personal Safety Training of at least 2 days per annum, careful thought should also be given to whether these 2 days per annum are sufficient to equip officers not only with sufficient training on use of force techniques—but, equally as importantly, with

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[43] For example, the next generation of Taser weapons can be equipped with a modified battery pack—the APPM, or Automatic Shut-Down Performance Magazine Battery Pack—which shuts down the electrical current whether or not the trigger is being held down. It is possible that other Projectile Electric-Shock Weapons produced by alternative manufacturers may also be able to offer a similar capability. In any case, officers should also be frequently reminded throughout the training that the cycle can be interrupted, should that be appropriate.

communication and de-escalation skills that could minimise the chances of officers needing to use such techniques.

Furthermore, the package could also usefully incorporate additional material on considerations, risks and practicalities associated with using the weapon alongside other uses of force, given the large of number of incidents that involve the use of Taser alongside other force options. The untimely death of Jordan Begley, and the findings from the Inquest (and from any subsequent SACMILL investigation) may be highly relevant here.

Moreover, building on the good practice that already exists in the national Taser training curriculum, further scenario based assessments and other tools should be developed to assist trainers in identifying officers whose judgement and communication skills may require further development.

Finally, given the important role that high quality training can play, and the potential for some degree of variation amongst forces, consideration should be given to creating a post, independent from police forces, with responsibility for regularly assessing the training courses delivered in force. Careful consideration should be given to whether this role could be located in the College of Policing or the NPCC, or whether it could be located in an external agency, such as HMIC.

5) Consider content of guidance provided to officers.

Whilst officers receive a range of training courses (both initial and refresher) on the weapon, which is accompanied by a range of policies, including Authorised Professional Practice and the NDM, this package serves to give them little substantive guidance in law, policy or training, about when to use the weapon, or when its deployment might be more or less appropriate.

The statistical results set out in Part 2 indicated that, in a large proportion of incidents, Taser—and other uses of force—were used on unarmed (albeit potentially violent) individuals. This sits in stark contrast to the views of many outside of the police, who see the use of the weapon as a 'relatively high-level use of force' (IPCC 2014: 4). Relatedly, the qualitative work conducted in Chapters 7 and 8 revealed large differences in officers in their perception of the weapon, their willingness and readiness to use it, and the circumstances in

which use on unarmed individuals was seen as appropriate. Indeed, as Chapters 8 and 9 demonstrated, the relative lack of guidance and standards contained within the relevant laws and standards, authorised professional practice documents, and training curriculum, mean that there are few clear standards that might assist in preventing over use or misuse of the weapon. Thus different officers faced with a similar situation may handle it in markedly different ways.

Thus there would be value in a broader discussion over the possibility for more specific language about the threshold for use. Indeed, the UN Committee Against Torture has called for the UK to 'revise the regulations governing the use of (Taser) weapons, with a view to establishing a high threshold for their use, and expressly prohibiting their use on children and pregnant women' (2013: pt. 26). Following broad consultation, more concrete guidance should be developed around when Taser use may be appropriate—perhaps as part of the APP—so that there is national standardisation on this issue. Working with a range of civil society organisations, I have called on the Home Affairs Select Committee to launch an official inquiry into the use of Taser, to provide a useful fora for such a debate (Amnesty International UK 2016). A broader debate would be particularly valuable given what Squires and Kennison (2010: 2) characterise as the practice of developing police policy in England and Wales 'in secret' by 'ACPO which is perhaps the most influential group of unelected opinion' formers'. Punch (2010: 6), elaborating calls for a Royal Commission on the role and function of policing, similarly expresses concern, with respect to police use of firearms, that 'policy ownership of that crucial – when and how may the state kill its own citizens?—has been delegated…largely to the police themselves'. A transparent, consultative approach to policy making would have much to recommend it – particularly in cases as sensitive and controversial as police use of Taser.

The need for more specific guidance around particularly vulnerable groups—for example, those with mental health issues and who have consumed drugs—should also be considered, given the evidence in Chapter 3 which suggests that these factors are associated with the weapon's use. It is not clear whether this finding reflects a trend to use Taser, as opposed to other use of force options,

on these population groups, or whether it reflects an increased likelihood of reporting. This issue should be further studied—particularly given DOMILL's findings that 'some drugs used in the treatment of certain mental health conditions… may predispose [a person] to an adverse cardiac event' after Taser use (2012: 24) and that 'the threshold for development of cardiac adverse outcomes in drug-intoxicated individuals subjected to Taser discharge or other types of force may be lowered' (2012: 25: see also Zipes 2013 c.f. Kroll et al 2008)—and findings should be reflected in guidance as appropriate. The current College of Policing Taser guidance refers only to vulnerable groups and does not specifically mention these factors as enhancing the risk associated with the weapon, but previous ACPO Guidance (2008: 11) explicitly mentioned 'mental disorder and illness' and drug consumption as 'specific risk factors' – wording which it may be necessary to consider reviving.

Going forward, I intend to play a key role in stimulating such discussions via my ESRC Future Research Leader's Award, which provides for a series of meetings between police officials, senior civil servants, academics and NGOs, in order to discuss such issues. Whilst I hope that these will be useful endeavours consideration should also be given to a more formalised mechanism or process via which legal, academic and human rights expertise can routinely and formally be considered in the approvals process for, and ongoing evaluation of, police use of force options and in the design and development of training and guidance, and to maximising opportunities for transparency and consultation.

6) Develop Use of Force reporting and analysis.

The historic use of force reporting review, and the dataset now being implemented by Pathfinder forces, represents a significant step forward in use of force reporting and accountability. My ESRC funded involvement in this process—through which I sought to work alongside the National Police Chief's Council to improve current police use of force data collection practices and help address the data gaps and methodological issues addressed in Part 2—has been described by senior NPCC, Home Office and police officials as 'constructively challenging' and making an 'invaluable contribution' to the

proposed review and data capture measures, bringing 'a level of academic scrutiny and independence that would otherwise have been absent'. To that extent, I hope that this research has already had an impact in this area.

Should further development of the dataset be considered in the future, measures controlling for the order in which injury, subject resistance and use of force occurred, capturing precisely which uses of force resulted in subject injury (if any), and looking to incorporate professional medical judgement into the assessment of injuries would be useful avenues to explore.

There is also a need to ensure data is reviewed and effectively fed back into policy and practice. Whilst there is a role for academics and civil society in this process—and, indeed, I have secured funding to analyse this data from the ESRC Future Research Leader's Scheme between 2017 - 2020—such streams of funding are not necessarily sustainable over the long term and ultimately it is the responsibility of police and government institutions to monitor the force they are using, and to ensure that changes are made where necessary. It would therefore be useful for police forces to create a full time position with responsibility for analysing and providing oversight of police use of force statistics, including identifying how (and how often) officers are using force and against whom, and picking up patterns of potential concern at the earliest possible stage (see also IPCC 2016). There would also be value in analysis of the data at a national level being regularly conducted and fed into a multi-stakeholder Board with representatives able to further explore the issues raised, and take appropriate action (e.g. reviewing training or guidance) where necessary.

Finally, given the important sources of evidence that can be provided by video footage—both from body worn cameras, as well as from recordings by civilians (Young 2015)—consideration should be given to supplementing these records with video footage, where this is available.

7) Ensure robust accountability measures.

Whilst many officers may well use the weapon responsibly, there is no room for complacency. Ensuring officers are held to account in those cases where Taser, and other use of force, has been misused is crucial. Whilst

accountability measures have been described as 'robust', there may be a need for further development of such mechanisms, and the research also suggests that, whilst the NDM has many positive features, it can also be used in ways which make it more difficult for accountability to be achieved.

There is thus a need to ensure strong internal accountability mechanisms in all police forces, which should include safeguarding the role of the SPOC as data collection arrangements evolve, providing a full time post to analyse and act on use of force data, and standardising the good practice identified by the HMIC. This includes putting place mechanisms to ensure that the use of Taser is actively and regularly reviewed and scrutinised by those at the highest level in the force (see HMIC 2016d for an example of Taser oversight mechanisms involving the Assistant Chief Constable). It is also important that the managers of Taser trained officers—and indeed, managers of officers who are in a role to use force—are willing and able to provide close oversight of the force being used by their officers, as well as the frequency and stated rationale for it, so that they can closely scrutinise the rationale offered, spot any issues at an early stage in the process, and take any action that may be necessary. This may well necessitate that such officers are trained in Taser use.

Turning to the role of various external bodies, it is recommended that both the IPCC and HMIC maintain their recent focus on Taser and use of force issues. For HMIC this might comprise including via a dedicated question around Taser use, police use of force and use of force reporting every year as part of the HMIC PEEL inspections. For the IPCC, given the additional resources the IPCC will now have at its disposal, it is also recommended—as the IPCC itself has suggested—that it is able to use some of these resources to continue to focus on use of force issues including, where appropriate, investigating a greater proportion of complaints around torture and ill-treatment and excessive use of force itself (IPCC 2013b).

Systematically collating and publicising the final outcome of the independent investigations that the IPCC conducts, and making the text of all investigation reports (appropriately redacted to remove personal details where necessary) publicly available, would also be a useful step, helping to enhance transparency and improve understanding of the organisation and its results, whilst allowing

researchers access to crucial information and details around controversial use of force applications in England and Wales. More fundamentally, as the IPCC is going through a period of dramatic change—including a new structure and new powers—it will be important for academics and others to assess these changes and the eventual impact of them, so as to ensure the organisation is supported to overcome the series of interlinked challenges that it has faced.

It would also seem important that, whilst continuing to use the NDM as a way of helping them assess officers' use of force, these bodies may also wish to consider the appropriateness of the NDM framework and its benefit and limits as a guidance document more broadly. Moreover, in light of the crucial and unique role played by SACMILL, it is further recommended that the Committee and its Secretariat be given additional capacity to enable them to conduct primary research on the medical effects of less lethal weapons such as Taser, where necessary. Awareness should also be raised about the important role of the Committee and the recommendations they make[44], and additional attention given to their findings throughout the training.

Police and Crime Commissioners, although not in existence for much of the period covered by the PhD, also have a crucial role—alongside the IPCC, HMIC and SACMILL—in scrutinising and holding police forces to account for their use of Taser, and police use of force more broadly. The importance of their role here can be illustrated by the actions of the Police and Crime Commissioner for Dorset, Martyn Underhill, who—concerned about the use of Taser in Dorset custody suites and on people with mental health issues—took the issue up with the Chief Constable (Martin 2014) and commissioned an audit of police use of force, with a particular focus on the use of Taser in custody (Feavyour 2015). Moreover, PCCs can also have an important role in holding forces to account over their implementation of recommendations by the IPCC, HMIC, SACMILL and other bodies where appropriate. The extent to which PCCs are willing and able to do this would be an interesting angle to explore in future research.

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[44] Whilst not a central part of this thesis, the current situation whereby Chief Constables are able to use their discretion to deploy less lethal weapons that have not gone through the UK's selection and testing process, had a SACMILL medical statement, nor been formally approved by the Home Secretary, is also of concern and risks undermining the useful work the Committee do (for details of a case involving electric-shock technology, see Dymond and Rappert 2014) .

Finally, when all else fails, it is important that those who feel they have been negatively affected by police use of force have access to civil and criminal court, and a fair hearing once there. Yet individuals already face multiple challenges when it comes to getting, let alone winning, 'their day' in court. Particular difficulties are posed by the Jackson Reforms in the context of civil courts, and by the subjective, 'honestly held belief' test in the context of criminal court. The former is a recent change which, I would suggest, could relatively easily be undone in order to promote access to justice (as suggested by the Police Action Lawyer's Group), whilst the latter is a more complex, well-established and perennially challenging issue to which there seems to be no simple solution. Under these conditions, Norrie's (2010: 377) recommendation—that there is a need for a 'proper debate' about the current legal test in England and Wales, and about the related issue of 'the limits of appropriate police action and citizen liberties in a democratic society'—seems to have much to commend it. Again, the multi-stakeholder meetings I intend to hold throughout my ESRC award will provide a valuable forum to start to discuss such issues.

In Conclusion

The process of researching this PhD has been quite a journey, taking me from my workspaces in South West England to the Arizona desert and the futuristic offices of Taser International, from having tea with research participants in cafes in the North of England to attending Taser training exercises at the College of Policing, and from accompanying officers on patrol to attending high level meetings at the NPCC and Home Office. Metaphorically, too, I have travelled a vast distance, learning a lot about Taser use in England and Wales, about issues of police discretion and accountability, and about the sociology of science and technology studies– and hope to have been able to convey some of this learning, and the insights generated, throughout the thesis.

Ultimately, however, whilst the aims of this thesis certainly included conventional academic objectives—in this case, exploring Taser use in the England and Wales, examining the implications the research had for broader academic debates and investigating the applicability and utility of the Science and Technology Studies literature more generally—aims that I would argue have largely been met, this thesis also had a fourth and final aim: to go beyond

the confines of academia to have an impact on policy and practice. Whilst this thesis has laid firm foundations for this work, the extent to which I am able to achieve this final aim remains yet to be seen, and may not become apparent for months or, indeed, years to come. In the final analysis, then, this piece of research and its conclusions represent not so much the end of a journey as the start of one. Whilst this thesis must conclude here, I very much hope its impact does not.

Part 4:

Appendices and Bibliography.

Appendix 1: Statistical Tables Used in Part 1.

Chapter 3

Table 3.1: Variable Coding and descriptive statistics.

Variable	Coding description	S.D.	Mean
Dependent			
Taser Fired	0 = Taser not fired 1 = Taser fired	.01	.11
Taser Drawn but not Fired	0 = Other force used, or Taser fired 1 = Taser Drawn but not fired	.03	.16
Subject Injured by Police	0 = Subject not Injured by Police 1 = Subject Injured by Police	.14	.34
Officer Injured	0 = No Officer Injury 1 = Officer Injury Recorded	.10	.31
Use of Force Options			
Taser fired with or without other force	0 = Taser not fired in incident 1 = Taser firing is the only force used 2 = Taser fired with other forms of force	.02	.17
Empty Hand Techniques only Force used	0 = Empty Hand Techniques only force used 1 = Taser fired without other force 2 = Taser fired with other forms of force 3 = All Other Incidents	1.87	1.45
Baton Strikes only force used	0 = Baton strikes only force used 1 = Taser fired without other force 2 = Taser fired with other forms of force 3 = All Other Incidents	2.97	.30
Irritant Spray only force used	0 = Irritant Spray only force used 1 = Taser fired without other force 2 = Taser fired with other forms of force 3 = All Other Incidents	2.91	.47
Baton Drawn but not Used	0 = Other force used, or baton physically used. 1 = Baton drawn but not physically used.	.02	.15
Spray Drawn but not Used	0 = Other force used, or Irritant Spray discharged 1 = Irritant Spray drawn but not discharged.	.03	.17
Taser Drawn but not Fired	0 = Other force used, or Taser fired 1 = Taser Drawn but not fired	.03	.16
Subject Characteristics			
Subject Ethnicity	0 = White 1 = Asian or Oriental 2 = Afro-Caribbean 3 = Other Non-White.	.15	.59
Subject Gender	1 = Male 2 = Female 3 = Unknown Gender	1.16	.38
Subject Disability	0 = No Disability Recorded 1 = Physical, Sensory, Learning or Other Disability 2 = Mental Health Disability	.21	.59
Subject Drug Consumption	0 = No drug consumption recorded 1 = Drug Consumption recorded	.20	.40
Subject Mental Health Issues	0 = No Mental Health Issues recorded, 1 = Mental Health Issues recorded	.18	.39
Subject Consumed Alcohol	0 = No alcohol consumption recorded 1 = Alcohol consumption recorded	.67	.47
Officer(s) characteristics			
Response Officer Present	0 = No Response Officers Present 1 = At least one Response Officer Present	.76	.43
Traffic Officer present	0 = No Traffic Officers Present 1 = At least one Traffic Officer Present	.04	.20

Firearms (ARV) Officer present	0 = No Firearms (ARV) Officers Present 1 = At least one Firearms (ARV) Officer Present	.02	.14
Officer experience	1 = Most experienced Officer 5 or < years service 2 = Most experienced Officer has 6 – 10 years 3 = Most experienced Officer has over ten years	1.86	.80
Time Since PST training	1 = Six months or less 2 = Between six months and a year 3 = Over a year since last training	1.64	.68
Officer Rank	0 = Constable highest ranking officer using force 1 = Sergeant highest ranking officer using force 2 = Other	.25	.51
Incident characteristics			
Weapon present	0 = No Weapon Recorded 1 = Weapon Recorded	.07	.25
Subject resistance	0 = Passive Resistance or Spitting 1 = Making off or Threats 2 = General Struggle and Unarmed Aggression 3 = Subject using Weapon		
Reason for force	0 = Force used for other Reasons 1 = Force Used to Protect Self or Others	.47	.50
Type of incident	0 = Order Maintenance 1 = Suspicious Person or Activity / Alarm 2 = Violent Crime 3 = Traffic 4 = Detain Mental Health 5 = Custody 6 = Other or unspecified	2.26	2.49
Year of incident	7 = 2007 8 = 2008 9 = 2009 10 = 2010 11 = 2011 12 = 2012 13 = 2013 14 = 2014	10.92	2.16
Number of officers present	1 = One Officer Present 2 = Two Officers Present 3 = Three or more Officers Present	2.51	.65
Number of officers using force	1 = One Officer Using Force 2 = Two Officers Using Force 3 = Three or more Using Force	1.55	.50
Number of subjects present	1 = One Subject Present 2 = Two Subjects Present 3 = Three or more Subjects Present	1.35	.69
Lighting	0 = Night-time or low levels of lighting 1 = Day light		
Other			
APP not in place	0 = APP Not in Force 1 = APP in Force	0.79	.37

Table 3.2: Incidents where Taser is Fired with Other Force.

Taser fired alongside	Percent of incidents where Taser was fired with the force technique listed	No. of incidents where Taser was fired with the force technique listed
Non-compliant handcuffing only	15	20
Empty Hand techniques only	24	32
Baton only	2	3
Irritant Spray only	2	3
Dog only	5	6
ERB only	<1	1
Shield only	<1	1
Other only	6	8
Multiple force techniques	42	56

Table 3.3: Frequency of Taser use in instances where weapons have been recorded

Types of Taser use / Weapon recorded	No weapon recorded	Weapon recorded	Total
Taser fired	145	118	263
% within Types of Taser use	55	45	100
% within Possession of Weapon	1	7	1
Taser drawn, not fired	330	294	624
% within Types of Taser use	53	47	100
% within Possession of Weapon	2	16	3
Taser not used	21272	1397	22669
% within Types of Taser use	94	6	100
% within Possession of Weapon	98	77	96
Total	21747	1809	23556
% within Types of Taser use	92	8	100
% within Possession of Weapon	100	100	100

Table 3.4: Logistic regression results for Taser firings.

Variable	B	S.E.	Exp(B)
Constant	-7.605 **	.563	.000
Suspect Characteristics:			
Subject Ethnicity [a]			
Asian or Oriental Ethnicity	-.004	.533	.996
Afro-Caribbean Ethnicity	.343	.328	1.409
Other Non-White	-.720	.486	.487
Subject Gender [b]			
Female	-1.601 **	.372	.202
Unknown Gender	1.164	.689	3.204
Subject Disability [c]			
Physical, Sensory, Learning or Other Disability	.037	.350	1.037
Suspect Mental Health Disability	.538 **	.188	1.712
Other subject characteristics			
Subject consumed drugs [d]	.337 *	.151	1.401
Subject reported mental health issues [e]	.346 *	.174	1.414
Subject consumed alcohol [f]	.145	.155	1.156
Officer(s) characteristics:			
Officer role	1.428 **	.203	4.170
Firearms Officer [g]			
Traffic Officer [h]	1.341 **	.180	3.823
Response [i]	-.691 **	.173	.501
Officer experience [J]			
Most experienced Officer has 6 – 10 years	.422 *	.185	1.526
Most experienced Officer has over ten years	.307	.209	1.359
Officer training [k]:			
Between six months and a year since last training	.001	.151	1.001
Over a year since last training	.493 *	.195	1.638
Highest Ranking officer using force is [l]:			
Sergeant or higher	-.204	.206	.815
Other	-16.041	1190.059	.000
Incident characteristics:			
Subject resistance [m]:			
Making off (i.e. trying to escape) or Threats	1.013 **	.341	2.753
General Struggle and Unarmed Aggression	.771 *	.325	2.163
Subject using Weapon	1.238 **	.359	3.449
Weapon present (not necessarily used) [n]			
Yes	1.170 **	.188	3.221
Reason for force [o]			
Force Used to Protect Self or Others	1.261 **	.160	3.530
Lighting [p]			
Daylight Conditions	.206	.149	1.229
Type of incident [q]			
Suspicious Person or Activity / Alarm	-1.184	1.067	.306
Violent Crime	.011	.212	1.011
Traffic	1.237 **	.244	3.444
Detain Mental Health	-.169	.284	.845
Custody	-2.305 *	.727	.100
Other or Unspecified	.293	.180	1.340
Year of incident [r]			
2008	.531	.391	1.700
2009	.989 **	.363	2.690
2010	.740 *	.355	2.097
2011	.576	.366	1.779
2012	.380	.365	1.462
2013	.414	.369	1.513
2014	.474	.574	1.606
Number of officers present [s]			
Two Officers	.274	.295	1.316

More than Two Officers	.027	.286	1.027
Number of officers using force [t]			
Two Officers	.318	.171	1.374
More than Two Officers	.336	.193	1.400
Number of subjects present [u]			
Two Subjects Present	.327	.212	1.387
More Than Two Subjects Present	-.172	.234	.842
Other			
Policy Change [v]	-.325	.444	.722

Notes:

N = 23, 556.

Nagelkerke R2 = .284.

*p < .05. **p < .01.

a) Reference category: white ethnicity b) Reference category: male; c) Reference category: no disability; d) Reference category: no drug use reported; e) Reference category: no alcohol consumption reported; f) Reference category: no mental health issues reported; g) Reference category: no firearms officer present; h) Reference category: no traffic officer present; i) Reference category: no response officer present; j) Reference category: most experienced officer has less than five years' experience; k) Reference category: officer safety training in under six months; l) Reference category: highest ranking officer is a constable; m) Reference category: passive resistance; n) Reference category: no weapon present; o) Reference category: force used for reasons other than for protection of human beings; p) Reference category: night time or low light; q) Reference category: order maintenance; r) Reference category: 2007; s) Reference category: one officer present; t) Reference category: one officer using force; u) Reference category: one subject present; v) Reference category: policy change not implemented.

Variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.7). The tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224). In both models four of the condition indices exceeded ten, with the largest having a value of 36, suggestive of a moderate to strong degree of collinearity according to Callaghan and Chen (2008). However Belsey et al (cited in Fidell and Tabachnick 2003: 134) argue that collinearity is of concern when the condition index is greater than thirty, and is combined with at least two variance proportions for individual variables being greater than .5, conditions that were not found in this model.

Table 3.5: Logistic regression results Taser drawn but not fired.

Variable	B	S.E.	Exp(B)
Constant	-4.462 **	.328	.012
Suspect Characteristics:			
Subject Ethnicity [a]			
Asian or Oriental Ethnicity	.069	.310	1.072
Afro-Caribbean Ethnicity	.340	.231	1.405
Other Non-White	-.268	.303	.765
Subject Gender [b]			
Female	-1.158 **	.214	.314
Unknown Gender	-1.000	.782	.368
Subject Disability [c]			
Physical, Sensory, Learning or Other Disability	.128	.243	1.137
Suspect Mental Health Disability	.206	.139	1.229
Other subject characteristics			
Subject consumed drugs [d]	.104	.110	1.110
Subject reported mental health issues [e]	.524 **	.120	1.688
Subject consumed alcohol [f]	-.250 *	.104	.779
Officer(s) characteristics			
Officer role			
Firearms Officer [g]	1.125 **	.146	3.079
Traffic Officer [h]	1.694 **	.130	5.440
Response [i]	-.687 **	.116	.503
Officer experience [j]			
Most experienced Officer has 6 – 10 years	.427 **	.126	1.533
Most experienced Officer has over ten years	.058	.145	1.059
Officer training [k]:			
Between 6 months and a year since last training	-.044	.100	.957
Over a year since last training	-.037	.144	.964
Highest Ranking officer using force is [l]:			
Sergeant or higher	-.181	.143	.835
Other	-17.066	1204.596	.000
Incident characteristics:			
Subject resistance [m]:			
Making off (i.e. trying to escape) or Threats	.333 *	.143	1.395
General Struggle and Unarmed Aggression	-1.128 **	.148	.324
Subject using Weapon	.839 **	.173	2.314
Weapon present (not necessarily used) [n]			
Weapon Present	.962 **	.130	2.617
Reason for force [o]			
Force Used to Protect Self or Others	.501 **	.099	1.650
Lighting [p]			
Daylight Conditions	-.064	.103	.938
Type of incident [q]			
Suspicious Person or Activity / Alarm	-.240	.436	.787
Violent Crime	.705 **	.133	2.024
Traffic	.141	.222	1.151
Detain Mental Health	-.170	.220	.843
Custody	-1.745 **	.464	.175
Other or Unspecified	.520 **	.121	1.681
Year of incident [r]			
2008	.228	.293	1.256
2009	.919 **	.262	2.507
2010	.730 **	.254	2.074
2011	.429	.264	1.535
2012	.976 **	.249	2.655
2013	.761 **	.257	2.139

2014	.819 *	.364	2.268
Number of officers present [s]			
Two Officers	-.061	.166	.941
More than Two Officers	-.235	.156	.790
Number of officers using force [t]			
Two Officers	.021	.119	1.021
More than Two Officers	.019	.139	1.019
Number of subjects present [u]			
Two Subjects Present	.364 **	.140	1.438
More Than Two Subjects Present	.197	.143	1.218
Other			
Policy Change [v]	.138	.266	1.148

Notes:

N = 23, 556

Nagelkerke R2 = .342

*p < .05. **p < .01.

a) Reference category: white ethnicity b) Reference category: male; c) Reference category: no disability; d) Reference category: no drug use reported; e) Reference category: no alcohol consumption reported; f) Reference category: no mental health issues reported; g) Reference category: no firearms officer present; h) Reference category: no traffic officer present; i) Reference category: no response officer present; j) Reference category: most experienced officer has less than five years' experience; k) Reference category: officer safety training in under six months; l) Reference category: highest ranking officer is a constable; m) Reference category: passive resistance; n) Reference category: no weapon present; o) Reference category: force used for reasons other than for protection of human beings; p) Reference category: night time or low light; q) Reference category: order maintenance; r) Reference category: 2007; s) Reference category: one officer present; t) Reference category: one officer using force; u) Reference category: one subject present; v) Reference category: policy change not implemented.

Tests revealed that Variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.7). The tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224). In both models four of the condition indices exceeded ten, with the largest having a value of 36, suggestive of a moderate to strong degree of collinearity according to Callaghan and Chen (2008). However Belsey et al (cited in Fidell and Tabachnick 2003: 134) argue that collinearity is of concern when the condition index is greater than thirty, and is combined with at least two variance proportions for individual variables being greater than .5, conditions that were not found in this model.

Chapter 4.

Table 4.1: Frequency of injury type.

Type of Injury	% of types of Injuries occurring in All Cases where Injury Caused by Police	% of types of injury occurring in incidents where Taser is fired
Laceration	17	16
Bruising	24	6
Broken Bones	<1	0
Irritant Spray	25	2
Dog	4	4
Other	27	70
Multiple Injuries	3	3
Total of cases	3,189	120

Table 4.2: Injury frequency for incidents involving different force techniques.

Force Technique	Percent of cases involving force technique	No. of cases involving force technique
Baton	39	606
Irritant Spray	48	1690
Hand	14	16637
Fabric Restraint Belts	9	1659
Handcuff	15	7797
Dog	12	1287
Shield	14	124
Taser (all incidents where it was fired)	46	263
Taser only force used	37	131
Taser fired with other force	55	132
Baton Gun	50	6
Other Force	12	3104

Table 4.3: Incidents where Taser is Fired with Other Force.

Taser fired alongside:	Percent of incidents where Taser was used (fired) together with the force technique listed	No. of incidents where Taser was used (fired) together with the force technique listed
Non-compliant handcuffing only	15	20
Empty Hand techniques only	24	32
Baton only	2	3
Irritant Spray only	2	3
Dog only	5	6
ERB only	<1	1
Shield only	<1	1
Other only	6	8
Multiple force techniques	42	56

Table 4.4: Decrease in Subject Injuries over Time.

Year	Number of subject injuries by police	% of total subject injuries in year	Total no. of use of force incidents	% of incidents resulting in injury
2007	431	14	2016	21
2008	405	13	1983	20
2009	372	12	2252	17
2010	428	13	3789	11
2011	365	11	3237	11
2012	391	12	3375	12
2013	468	15	3612	13
2014	329	10	3292	10

Year	Number of subject injuries by police	% of total subject injuries in year	Total no. of use of force incidents	% of incidents resulting in injury

Table 4.5: Results for Model 1. Reference Category: Incidents where Taser is not fired.

Variable	B	S.E.	Exp(B)
Constant	-2.169 **	.133	.114
Force used [a]			
Taser fired, no other force used	1.199 **	.194	3.315
Taser fired with other force options	1.696 **	.186	5.450
Subject Characteristics:			
Subject Ethnicity [b]			
Asian or Oriental Ethnicity	-.072	.161	.931
Afro-Caribbean Ethnicity	-.099	.128	.906
Other Non-White	-.239	.130	.787
Subject Gender [c]			
Female	-.762 **	.071	.467
Unknown Gender	-.413	.345	.662
Subject Disability [d]			
Physical, Sensory, Learning or Other Disability	.072	.115	1.074
Suspect Mental Health Disability	-.082	.078	.921
Other subject characteristics			
Subject consumed drugs [e]	.086	.049	1.090
Subject reported mental health issues [f]	.035	.061	1.036
Subject consumed alcohol [g]	.156 **	.049	1.169
Officer(s) characteristics:			
Officer role			
Firearms Officer [h]	-.136	.140	.873
Traffic Officer [i]	.208 *	.102	1.231
Response [J]	.233 **	.059	1.263
Officer experience [k]			
Most experienced Officer has 6 – 10 years	.117 *	.048	1.124
Most experienced Officer has over ten years	.125 *	.057	1.133
Officer training [l]:			
Between 6 months and a year since last training	.008	.042	1.008
Over a year since last training	-.022	.068	.978
Highest Ranking officer using force is [m]:			
Sergeant or higher	.062	.058	1.064
Other	-.315 *	.124	.730
Incident characteristics:			
Subject resistance [n]:			
Making off (i.e. trying to escape) or Threats	.381 **	.093	1.464
General Struggle and Unarmed Aggression	.734 **	.081	2.082
Subject using Weapon	.522 **	.136	1.685
Weapon present (not necessarily used) [o]			
Weapon present	.331 **	.088	1.392
Reason for force [p]			
Force Used to Protect Self or Others	.253 **	.041	1.288
Lighting [q]			
Daylight Conditions	.107 *	.049	1.113
Type of incident [r]			
Suspicious Person or Activity / Alarm	-.059	.212	.943
Violent Crime	.066	.061	1.068
Traffic	.339 **	.099	1.403
Detain Mental Health	-.236 *	.116	.789
Custody	-1.208 **	.104	.299
Other or Unspecified	.034	.055	1.034
Year of incident [s]			
2008	-.064	.080	.938
2009	-.312 **	.081	.732
2010	-.702 **	.077	.495
2011	-.729 **	.081	.482
2012	-.700 **	.080	.497

2013	-.563 **	.081	.570
2014	-.771 **	.155	.463
Number of officers present [t]			
Two Officers	-.315 **	.077	.730
More than Two Officers	-.515 **	.075	.598
Number of officers using force [u]			
Two Officers	.243 **	.052	1.275
More than Two Officers	.410 **	.056	1.507
Number of subjects present [v]			
Two Subjects Present	.118 *	.064	1.126
More Than Two Subjects Present	.088	.062	1.092
Other			
Policy Change [w]	-.074	.131	.929

Notes:

N = 23, 556.

Nagelkerke R2 = .089,

*p < .05. **p < .01.

a) Reference category: Taser not fired in incident; b) Reference category: white ethnicity; c) Reference category: male; d) Reference category: no disability; e) Reference category: no drug use reported; f) Reference category: no alcohol consumption reported; g) Reference category: no mental health issues reported; h) Reference category: no firearms officer present; i) Reference category: no traffic officer present; j) Reference category: no response officer present; k) Reference category: most experienced officer has less than five years' experience; l) Reference category: officer safety training in under six months; m) Reference category: highest ranking officer is a constable; n) Reference category: passive resistance; o) Reference category: no weapon present; p) Reference category: force used for reasons other than for protection of human beings; q) Reference category: night time or low light; r) Reference category: order maintenance; s) Reference category: 2007; t) Reference category: one officer present; u) Reference category: one officer using force; v) Reference category: one subject present; w) Reference category: policy change not implemented.

Multicollinearity estimates are within accepted parameters. Variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.7). The tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224). four of the condition indices exceeded ten, with the largest having a value of 36, suggestive of a moderate to strong degree of collinearity according to Callaghan and Chen (2008). However Belsey et al (cited in Fidell and Tabachnick 2003: 134) argue that collinearity is of concern when the condition index is greater than thirty, and is combined with at least two variance proportions for individual variables being greater than .5, conditions that were not found in this model.

Table 4.6: Logistic regression models 2 - 4.

Variable	Model 2. Reference Category: Empty hand sole force used.			Model 3. Reference Category: Baton sole force used.			Model 4. Reference Category: Irritant Spray sole force used.		
	B	S.E.	Exp(B)	B	S.E.	Exp(B)	B	S.E.	Exp(B)
Constant	-2.410 **	.136	.090	-1.064 **	.207	.345	-.447 **	.161	.639
Force used [a]									
Taser fired, no other force used	1.489 **	.197	4.432	.098	.250	1.103	-.556 *	.214	.573
Taser fired with other force options	1.986 **	.189	7.288	.586 *	.245	1.797	-.095	.207	.910
All other force options	.374 **	.044	1.454	-1.126 **	.162	.324	-1.846 **	.095	.158
Suspect Characteristics:									
Subject Ethnicity [b]									
Asian or Oriental Ethnicity	-.067	.161	.935	-.074	.161	.929	-.048	.162	.953
Afro-Caribbean Ethnicity	-.116	.129	.891	-.095	.129	.909	-.099	.130	.906
Other Non-White	-.261	.130	.770	-.243	.131	.785	-.231	.132	.793
Subject Gender [c]									
Female	-.760 **	.071	.468	-.752 **	.071	.471	-.719 **	.071	.487
Unknown Gender	-.438	.346	.645	-.449	.348	.638	-.441	.350	.643
Subject Disability [d]									
Physical, Sensory, Learning or Other Disability	.073	.115	1.076	.076	.115	1.079	.086	.116	1.090
Suspect Mental Health Disability	-.087	.078	.917	-.085	.078	.918	-.098	.078	.907
Other subject characteristics									
Subject consumed drugs [e]	.077	.049	1.081	.085	.049	1.089	.105	.050	1.111
Subject mental health issues [f]	.030	.062	1.030	.037	.062	1.038	.049	.062	1.050
Subject consumed alcohol [g]	.149 **	.049	1.161	.165 **	.049	1.180	.165 **	.049	1.179
Officer(s) characteristics:									
Officer role									
Firearms Officer [h]	-.160	.139	.852	-.147	.140	.863	-.093	.140	.911
Traffic Officer [i]	.218 *	.102	1.244	.207 *	.102	1.230	.199	.102	1.220
Response [J]	.252 **	.059	1.287	.223 **	.059	1.250	.157 **	.059	1.170
Officer experience [k]									
Most experienced Officer 6–10 years	.112 *	.048	1.119	.115 *	.048	1.122	.118 *	.049	1.126
Most experienced Officer > ten years	.117 *	.057	1.125	.119 *	.057	1.126	.129 *	.058	1.137
Officer training [l]:									
Between 6 months and a year	.005	.042	1.005	.006	.042	1.006	.007	.043	1.007
Over a year since last training	-.027	.068	.973	-.019	.068	.981	-.024	.069	.976
Highest Ranking officer using force is [m]:									
Sergeant or higher	.080	.058	1.084	.064	.058	1.066	.064	.059	1.066
Other	-.254 *	.125	.775	-.314 *	.125	.731	-.298 *	.126	.742

Incident characteristics:

Subject resistance [n]:

Making off or Threats	.359 **	.094	1.432	.364 **	.094	1.438	.323 **	.095	1.381
General Struggle and Unarmed Aggression	.738 **	.081	2.091	.725 **	.081	2.065	.711 **	.081	2.036
Subject using Weapon	.475 **	.136	1.608	.507 **	.137	1.660	.413 **	.139	1.511
Weapon present [o]									
Weapon present	.307 **	.088	1.360	.327 **	.088	1.386	.315 **	.089	1.371
Reason for force [p]									
Force Used to Protect Self or Others	.247 **	.041	1.281	.242 **	.041	1.274	.214 **	.042	1.238
Lighting [q]									
Daylight Conditions	.112 *	.049	1.119	.109 *	.049	1.116	.129 **	.049	1.137
Type of incident [r]									
Suspicious Person or Activity / Alarm	-.083	.213	.920	-.079	.213	.924	-.036	.216	.964
Violent Crime	.055	.061	1.057	.066	.061	1.068	.084	.062	1.088
Traffic	.335 **	.100	1.398	.308 **	.100	1.361	.348 **	.101	1.417
Detain Mental Health	-.249 *	.116	.780	-.230 *	.116	.794	-.200 *	.117	.819
Custody	-1.161 **	.104	.313	-1.205 **	.104	.300	-1.162 **	.104	.313
Other or Unspecified	.030	.055	1.030	.036	.055	1.037	.058	.055	1.059
Year of incident [s]									
2008	-.067	.080	.935	-.054	.080	.947	-.057	.081	.945
2009	-.312 **	.081	.732	-.291 **	.082	.748	-.306 **	.083	.737
2010	-.712 **	.078	.490	-.682 **	.078	.506	-.660 **	.078	.517
2011	-.746 **	.081	.474	-.704 **	.081	.495	-.707 **	.082	.493
2012	-.717 **	.080	.488	-.678 **	.080	.507	-.680 **	.081	.507
2013	-.584 **	.081	.557	-.537 **	.082	.585	-.531 **	.082	.588
2014	-.800 **	.155	.449	-.746 **	.155	.474	-.746 **	.157	.474
Number of officers present [t]									
Two Officers	-.294 **	.078	.745	-.319 **	.078	.727	-.254 **	.079	.776
More than Two Officers	-.489 **	.075	.613	-.517 **	.075	.596	-.440 **	.077	.644

Number of officers using force [u]									
Two Officers	.233 **	.052	1.263	.260 **	.052	1.297	.321 **	.053	1.379
More than Two Officers	.372 **	.056	1.451	.430 **	.056	1.536	.500 **	.057	1.649
Number of subjects present [v]									
Two Subjects Present	.114	.065	1.121	.117	.064	1.124	.089	.065	1.093
More Than Two Subjects Present	.060	.062	1.061	.070	.062	1.072	.057	.063	1.058
Other - Policy Change [w]	-.068	.131	.934	-.072	.131	.931	-.081	.133	.922
Nagelkerke R^2	.094			.092			.114		

Notes:

N = 23, 556.

*p < .05. **p < .01.

a) Reference category: Taser not fired in incident; b) Reference category: white ethnicity; c) Reference category: male; d) Reference category: no disability; e) Reference category: no drug use reported; f) Reference category: no alcohol consumption reported; g) Reference category: no mental health issues reported; h) Reference category: no firearms officer present; i) Reference category: no traffic officer present; j) Reference category: no response officer present; k) Reference category: most experienced officer has less than five years' experience; l) Reference category: officer safety training in under six months; m) Reference category: highest ranking officer is a constable; n) Reference category: passive resistance; o) Reference category: no weapon present; p) Reference category: force used for reasons other than for protection of human beings; q) Reference category: night time or low light; r) Reference category: order maintenance; s) Reference category: 2007; t) Reference category: one officer present; u) Reference category: one officer using force; v) Reference category: one subject present; w) Reference category: policy change not implemented.

Multicollinearity estimates for the empty hand model are within accepted parameters. Variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.7). The tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224). Five of the condition indices exceeded ten, with the largest having a value of 37, but no two variance proportions were greater than .5. Multicollinearity test values for the baton model were relatively high, but within accepted parameters. Whilst variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.6), and tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224), six condition indexes exceeded ten, and one had a value of 55, but no two variance proportions were greater than .5. Multicollinearity test values for the irritant spray model were within accepted parameters. Whilst variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.6), and tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224), six condition indexes exceeded ten, and one had a value of 43, in excess of 30, but no two variance proportions were greater than .5.

Table 4.7: Frequency with which weapons are drawn, but not physically used.

Type of incident	Total number of incidents	% of all incidents
Baton was drawn but not used.	563	2
Irritant spray was drawn but not used.	679	3
Taser was drawn but not used.	624	3

Table 4.8: Logistic regression results for drawing of Taser, irritant spray and baton.

Variable	B	S.E.	Exp(B)
Constant	-2.199 **	.133	.111
Force used			
Baton drawn, but not used [a].	-.557 **	.140	.573
Irritant Spray drawn, but not used [b].	-.649 **	.135	.523
Taser drawn, but not used [c].	-1.324 **	.179	.266
Suspect Characteristics:			
Subject Ethnicity [d]			
Asian or Oriental Ethnicity	-.056	.161	.946
Afro-Caribbean Ethnicity	-.065	.128	.937
Other Non-White	-.250	.130	.779
Subject Gender [e]			
Female	-.818 **	.071	.441
Unknown Gender	-.403	.346	.668
Subject Disability [f]			
Physical, Sensory, Learning or Other Disability	.071	.115	1.074
Suspect Mental Health Disability	-.053	.077	.948
Other subject characteristics			
Subject consumed drugs [g]	.090	.049	1.095
Subject reported mental health issues [h]	.054	.061	1.055
Subject consumed alcohol [i]	.161 **	.049	1.175
Officer(s) characteristics:			
Officer role			
Firearms Officer [j]	.153	.136	1.165
Traffic Officer [k]	.472 **	.100	1.604
Response [l]	.242 **	.059	1.274
Officer experience [m]			
Most experienced Officer has 6 – 10 years	.127 **	.048	1.135
Most experienced Officer has over ten years	.123 *	.057	1.131
Officer training [n]:			
Between 6 months and a year since last training	.003	.042	1.003
Over a year since last training	-.009	.068	.991
Highest Ranking officer using force is [o]:			
Sergeant or higher	.053	.058	1.054
Other	-.349 **	.125	.706
Incident characteristics:			
Subject resistance [p]:			
Making off (i.e. trying to escape) or Threats	.454 **	.094	1.575
General Struggle and Unarmed Aggression	.727 **	.081	2.069
Subject using Weapon	.751 **	.137	2.120
Weapon present (not necessarily used) [q]			
Weapon present	.459 **	.087	1.583
Reason for force [r]			
Force Used to Protect Self or Others	.297 **	.041	1.346
Lighting [s]			
Daylight Conditions	.113 *	.048	1.120
Type of incident [t]			
Suspicious Person or Activity / Alarm	-.059	.212	.942
Violent Crime	.079	.061	1.082
Traffic	.372 **	.099	1.451
Detain Mental Health	-.247 *	.116	.781
Custody	-1.251 **	.104	.286
Other or Unspecified	.047	.055	1.048
Year of incident [u]			
2008	-.042	.080	.959
2009	-.261 **	.081	.770
2010	-.668 **	.077	.513
2011	-.704 **	.081	.494
2012	-.665 **	.080	.514

2013	-.543 **	.081	.581
2014	-.747 **	.155	.474
Number of officers present [v]			
Two Officers	-.322 **	.078	.724
More than Two Officers	-.540 **	.075	.583
Number of officers using force [w]			
Two Officers	.261 **	.052	1.298
More than Two Officers	.428 **	.056	1.534
Number of subjects present [x]			
Two Subjects Present	.142 *	.064	1.153
More Than Two Subjects Present	.128 *	.062	1.137
Other			
Policy Change [y]	-.071	.131	.931

Notes:

N = 23, 556.

*p < .05. **p < .01.

Nagelkerke $R^{2} =$ 0.89

a) Reference category: all other uses of force (i.e. instances where baton was not used at all, or where it was physically used on a subject). b) all other uses of force (i.e. instances where irritant spray was not used at all, or where it was physically used on a subject). c) All other uses of force (i.e. instances where Taser was not used at all, or where it was physically fired at a subject). d) Reference category: white ethnicity; e) Reference category: male; f) Reference category: no disability; g) Reference category: no drug use reported; h) Reference category: no alcohol consumption reported; i) Reference category: no mental health issues reported; j) Reference category: no firearms officer present; k) Reference category: no traffic officer present; l) Reference category: no response officer present; m) Reference category: most experienced officer has less than five years' experience; n) Reference category: officer safety training in under six months; o) Reference category: highest ranking officer is a constable; p) Reference category: passive resistance; q) Reference category: no weapon present; r) Reference category: force used for reasons other than for protection of human beings; s) Reference category: night time or low light; t) Reference category: order maintenance; u) Reference category: 2007; v) Reference category: one officer present; w) Reference category: one officer using force; x) Reference category: one subject present; y) Reference category: policy change not implemented.

Tests revealed that Variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.7). The tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224). Four of the condition indices exceeded ten, with the largest having a value of 36, suggestive of a moderate to strong degree of collinearity according to Callaghan and Chen (2008). However Belsey et al (cited in Fidell and Tabachnick 2003: 134) argue that collinearity is of concern when the condition index is greater than thirty, and is combined with at least two variance proportions for individual variables being greater than .5, conditions that were not found in this model.

Chapter 6

Table 6.1: Injury frequency for incidents involving different force techniques.

Force Technique	Percent of cases involving the force technique that also have officer injury	Total No. of cases involving force technique
Baton	22	606
Incap	19	1690
Hand	12	16637
Fabric Restraint Belt	12	1659
Handcuff	14	7797
Dog	3	1287
Shield	11	124
Taser (all incidents where fired)	13	263
Taser only force used	7	131
Taser fired with other force	20	132
Baton Gun	17	6
Other Force	14	3104

Table 6.2: Taser Fired with Other Force.

Taser fired alongside:	% of incidents where Taser was fired with other force	No. of cases involving Taser & force technique
Non-compliant handcuffing only	15	20
Empty Hand techniques only	24	32
Baton only	2	3
Irritant Spray only	2	3
Dog only	5	6
Fabric Restraint Belt only	<1	1
Shield only	<1	1
Other only	6	8
Multiple force techniques	42	56

Table 6.3: Injury frequency for incidents involving the drawing of force options.

Force Technique	% in which injury occurred	No. of cases involving force technique
Taser drawn but not fired	5	624
Irritant Spray drawn but not fired	13	679
Baton drawn but not fired	9	563

Table 6.4: Logistic regression results for Model 1. Reference Group: Incidents where Taser is not fired.

Variable	B	S.E.	Exp(B)
Constant	-3.308 **	.159	.037
Force used [a]			
Taser fired, no other force used	-.084	.356	.919
Taser fired with other force options	.760 **	.233	2.138
Subject Characteristics:			
Subject Ethnicity [b]			
Asian or Oriental Ethnicity	-.271	.198	.763
Afro-Caribbean Ethnicity	.098	.130	1.103
Other Non-White	-.053	.143	.948
Subject Gender [c]			
Female	.060	.062	1.062
Unknown Gender	.520	.307	1.681
Subject Disability [d]			
Physical, Sensory, Learning or Other Disability	-.136	.138	.873
Subject Mental Health Disability	.026	.083	1.027
Other subject characteristics			
Subject consumed drugs [e]	.235 **	.053	1.265
Subject reported mental health issues [f]	.011	.066	1.011
Subject consumed alcohol [g]	.005	.054	1.005
Officer(s) characteristics:			
Officer role			
Firearms Officer [h]	-.404 *	.194	.667
Traffic Officer [i]	.156	.129	1.169
Response [j]	.423 **	.070	1.527
Officer experience [k]			
Most experienced Officer has 6 – 10 years	.158 **	.053	1.171
Most experienced Officer has over ten years	.054	.065	1.055
Officer training [l]*:*			
Between six months and a year since last training	.077	.047	1.080
Over a year since last training	.128	.074	1.137
Highest Ranking officer using force is [m]*:*			
Sergeant or higher	.155 **	.063	1.167
Other	-.280 **	.138	.756
Incident characteristics:			
Subject resistance [n]*:*			
Making off (i.e. trying to escape) or Threats	.307 **	.116	1.359
General Struggle and Unarmed Aggression	.942 **	.097	2.564
Subject using Weapon	-.131	.193	.877
Weapon present (not necessarily used) [o]			
Weapon present	.220 *	.107	1.246
Reason for force [p]			
Force Used to Protect Self or Others	.084	.046	1.087
Lighting [q]			
Daylight Conditions	.066	.055	1.069
Type of incident [r]			
Suspicious Person or Activity / Alarm	.390	.217	1.477
Violent Crime	.587 **	.061	1.799
Traffic	.063	.129	1.065
Detain Mental Health	-.351 **	.133	.704
Custody	-.499 **	.092	.607
Other or Unspecified	-.053	.064	.949
Year of incident [s]			
2008	-.060	.097	.941
2009	-.068	.095	.934
2010	-.294 **	.088	.745
2011	-.312 **	.092	.732
2012	-.277 **	.090	.758
2013	-.367 **	.096	.692

2014	-.372 *	.178	.689
Number of officers present [t]			
Two Officers	-.195 *	.094	.822
More than Two Officers	-.449 **	.091	.639
Number of officers using force [u]			
Two Officers	.369 **	.059	1.447
More than Two Officers	.665 **	.062	1.944
Number of subjects present [v]			
Two Subjects Present	.082	.074	1.086
More Than Two Subjects Present	.191 **	.070	1.210
Other			
Policy Change [w]	-.055	.151	.946

Notes:

N = 23, 556.

*p < .05. **p < .01.

Nagelkerke R^2 = .068

a) Reference category: all uses of force where Taser was not fired; b) Reference category: white ethnicity; c) Reference category: male; d) Reference category: no disability; e) Reference category: no drug use reported; f) Reference category: no alcohol consumption reported; g) Reference category: no mental health issues reported; h) Reference category: no firearms officer present; i) Reference category: no traffic officer present; j) Reference category: no response officer present; k) Reference category: most experienced officer has less than five years' experience; l) Reference category: officer safety training in under six months; m) Reference category: highest ranking officer is a constable; n) Reference category: passive resistance; o) Reference category: no weapon present;   p) Reference category: force used for reasons other than for protection of human beings; q) Reference category: night time or low light; r) Reference category: order maintenance; s) Reference category: 2007; t) Reference category: one officer present; u) Reference category: one officer using force; v) Reference category: one subject present; w) Reference category: policy change not implemented.

Variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.7). The tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224). Three condition indices exceeded ten, with the largest having a value of 36, suggestive of a moderate to strong degree of collinearity according to Callaghan and Chen (2008). However collinearity is of concern when the condition index is greater than thirty, and is combined with at least two variance proportions for individual variables being greater than .5, conditions not found here.

Table 6.5: Logistic regression models 2 - 4.

Variable	Model 2. Ref Category: Empty hand sole force used.			Model 3. Ref Category: Baton sole force used.			Model 4. Ref Category: Irritant Spray sole force used		
	B	S.E.	Exp(B)	B	S.E.	Exp(B)	B	S.E.	Exp(B)
Constant	-3.429 **	.162	.032	-3.457 **	.308	.032	-3.423	.219	.033
Force used									
Taser fired, no other force used	.070	.358	1.072	.065	.443	1.067	.032	.387	1.033
Taser fired with other force options	.916 **	.236	2.500	.910 *	.353	2.484	.878 **	.279	2.407
All other force options	.207 **	.047	1.230	.151	.268	1.163	.121	.157	1.128
Subject Characteristics:									
Subject Ethnicity [a]									
Asian or Oriental Ethnicity	-.267	.198	.766	-.271	.198	.763	-.272	.198	.762
Afro-Caribbean Ethnicity	.091	.130	1.095	.098	.130	1.103	.098	.130	1.103
Other Non-White	-.063	.143	.939	-.053	.142	.948	-.054	.143	.948
Subject Gender [b]									
Female	.061	.062	1.063	.059	.062	1.061	.058	.062	1.059
Unknown Gender	.503	.307	1.653	.523	.307	1.687	.521	.307	1.683
Subject Disability [c]									
Physical, Sensory, Learning or Other Disability	-.135	.138	.873	-.137	.138	.872	-.136	.138	.873
Subject Mental Health Disability	.022	.083	1.023	.026	.083	1.027	.026	.083	1.027
Other subject characteristics									
Subject consumed drugs [d]	.230 **	.053	1.258	.235 **	.053	1.265	.234 **	.053	1.264
Subject reported mental health issues [e]	.007	.066	1.007	.011	.066	1.011	.010	.066	1.010
Subject consumed alcohol [f]	.000	.054	1.000	.004	.054	1.004	.004	.054	1.004
Officer(s) characteristics:									
Officer role									
Firearms Officer [g]	-.421 *	.194	.656	-.404 *	.194	.668	-.406 *	.194	.666
Traffic Officer [h]	.159	.129	1.172	.156	.129	1.169	.156 **	.129	1.169
Response [i]	.428 **	.070	1.535	.424 **	.070	1.528	.426	.070	1.530
Officer experience [j]									
Most experienced Officer has 6 – 10 yrs	.155 **	.053	1.167	.158	.053	1.171	.158 *	.053	1.171
Most experienced Officer has > 10 years	.049	.065	1.050	.054	.065	1.056	.054	.065	1.055
Officer training [k]									
Between 6 months and a year	.075	.047	1.078	.077	.047	1.080	.077	.047	1.080
Over a year since last training	.126	.074	1.134	.128	.074	1.137	.128	.074	1.137
Highest Ranking officer using force is [l]									

	B	SE	Exp(B)	B	SE	Exp(B)	B	SE	Exp(B)
Sergeant or higher	.166 **	.064	1.180	.155 **	.063	1.167	.155 *	.063	1.167
Other	-.248	.138	.780	-.280	.138	.756	-.281 *	.138	.755
Incident characteristics:									
Subject resistance [m]									
Making off or Threats	.294 *	.116	1.342	.308 **	.116	1.361	.309 **	.116	1.362
General Struggle &Unarmed Aggression	.942 **	.097	2.566	.942 **	.097	2.566	.943 **	.097	2.567
Subject using Weapon	-.158	.193	.853	-.129	.193	.879	-.126	.193	.882
Weapon present (not necessarily used) [n]									
Weapon present	.206	.107	1.229	.220 *	.107	1.246	.220 *	.107	1.246
Reason for force [o]									
Force Used to Protect Self or Others	.080	.046	1.083	.085	.046	1.088	.085	.046	1.089
Lighting [p]									
Daylight Conditions	.068	.055	1.070	.066	.055	1.068	.065	.055	1.068
Type of incident [q]									
Suspicious Person or Activity / Alarm	.379	.217	1.460	.391	.217	1.479	.389	.217	1.476
Violent Crime	.583 **	.061	1.791	.587 **	.061	1.799	.587 **	.061	1.798
Traffic	.061	.129	1.062	.065	.129	1.067	.063	.129	1.065
Detain Mental Health	-.357 **	.133	.700	-.351 **	.133	.704	-.352 **	.133	.703
Custody	-.474 **	.092	.622	-.499 **	.092	.607	-.500 **	.092	.606
Other or Unspecified	-.055	.064	.946	-.053	.064	.949	-.053	.064	.948
Year of incident [r]									
2008	-.066	.097	.936	-.062	.097	.940	-.060	.097	.941
2009	-.069	.095	.934	-.070	.095	.932	-.068	.095	.934
2010	-.300 **	.088	.740	-.296 **	.088	.744	-.296 **	.088	.744
2011	-.323 **	.092	.724	-.315 **	.092	.730	-.314 **	.092	.731
2012	-.288 **	.090	.750	-.279 **	.090	.757	-.278 **	.090	.757
2013	-.382 **	.096	.683	-.370 **	.096	.691	-.369 **	.096	.691
2014	-.390 *	.178	.677	-.374 *	.178	.688	-.374 *	.178	.688
Number of officers present [s]									
Two Officers	-.184 **	.094	.832	-.195 **	.094	.822	-.198 *	.094	.820
More than Two Officers	-.434 **	.091	.648	-.449 **	.091	.638	-.452 **	.091	.636
Number of officers using force [t]									
Two Officers	.363 **	.059	1.438	.368 **	.059	1.445	.366 **	.059	1.443
More than Two Officers	.642 **	.063	1.900	.663 **	.062	1.941	.662 **	.062	1.938
Number of subjects present [u]									
Two Subjects Present	.080	.074	1.083	.083	.074	1.086	.084	.074	1.088
More Than Two Subjects Present	.176 *	.070	1.193	.192 *	.070	1.212	.193 **	.070	1.212
Other - Policy Change [v]	-.052	.151	.950	-.056	.151	.946	-.054	.151	.947
Nagelkerke R^2	.069			.068			.068		

Notes:

N = 23, 556.

*p < .05.   **p < .01.

Reference category for force used varies between models: please refer to column heading. Reference categories for other variables are consistent throughout all models, namely: a) Reference category: white ethnicity b) Reference category: male; c) Reference category: no disability; d) Reference category: no drug use reported; e) Reference category: no alcohol consumption reported; f) Reference category: no mental health issues reported; g) Reference category: no firearms officer present; h) Reference category: no traffic officer present; i) Reference category: no response officer present; j) Reference category: most experienced officer has less than five years' experience; k) Reference category: officer safety training in under six months; l) Reference category: highest ranking officer is a constable; m) Reference category: passive resistance; n) Reference category: no weapon present; o) Reference category: force used for reasons other than for protection of human beings; p) Reference category: night time or low light; q) Reference category: order maintenance; r) Reference category: 2007; s) Reference category: one officer present; t) Reference category: one officer using force; u) Ref category: one subject present; v) Ref category: policy change not implemented.

For the *empty hands* model, VIFs were within acceptable limits (between 1.0 and 1.6). The tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224). Four of the condition indices were between ten and thirty, with a fifth totalling 37, suggestive of a moderate to strong degree of collinearity according to Callaghan and Chen (2008), but no two variance proportions were greater than .5. For the *baton* model, VIFs were within acceptable limits (between 1.0 and 1.6). The tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2 (Field 2009: 224). Four of the condition indices were between ten and thirty, with a fifth totalling 55, suggestive of a moderate to strong degree of collinearity (Callaghan and Chen (2008), but no two variance proportions were greater than .5. For the *irritant spray model*, whilst VIFs were within acceptable limits (between 1.0 and 1.6), and tolerance values were in the range of .6 to .9, five condition indexes were between ten and thirty, and a sixth had a value of 43, but no two variance proportions were greater than .5.

Table 6.6: Logistic regression results for drawing of Taser, irritant spray and baton.

Variable	B	S.E.	Exp(B)
Constant	-3.313 **	.159	.036
Force used			
Baton drawn, but not used [a].	-.143	.155	.866
Irritant spray drawn, but not used [b].	.225	.118	1.252
Taser drawn, but not used [c].	-.352	.189	.704
Subject Characteristics:			
Subject Ethnicity [d]	-.264	.198	.768
Asian or Oriental Ethnicity	.100	.130	1.105
Afro-Caribbean Ethnicity	-.060	.143	.942
Other Non-White			
Subject Gender [e]			
Female	.054	.062	1.055
Unknown Gender	.519	.307	1.680
Subject Disability [f]			
Physical, Sensory, Learning or Other Disability	-.129	.138	.879
Subject Mental Health Disability	.030	.083	1.030
Other subject characteristics			
Subject consumed drugs [g]	.239 **	.053	1.270
Subject reported mental health issues [h]	.016	.066	1.017
Subject consumed alcohol [i]	.004	.054	1.004
Officer(s) characteristics:			
Officer role			
Firearms Officer [j]	-.306	.193	.736
Traffic Officer [k]	.223	.128	1.250
Response [l]	.412 **	.070	1.510
Officer experience [m]			
Most experienced Officer has 6 – 10 years	.163 **	.053	1.177
Most experienced Officer has over ten years	.058	.065	1.059
Officer training [n]			
Between 6 months and a year since last training	.078	.047	1.081
Over a year since last training	.135	.074	1.145
Highest Ranking officer using force is [o]			
Sergeant or higher	.151 *	.063	1.163
Other	-.288 *	.138	.750
Incident characteristics:			
Subject resistance [p]			
Making off (i.e. trying to escape) or Threats	.313 **	.116	1.367
General Struggle and Unarmed Aggression	.939 **	.097	2.559
Subject using Weapon	-.072	.193	.931
Weapon present (not necessarily used) [q]			
Weapon Present	.247 *	.107	1.281
Reason for force [r]			
Force Used to Protect Self or Others	.091 *	.046	1.095
Lighting [s]			
Daylight Conditions	.067	.055	1.070
Type of incident [t]			
Suspicious Person or Activity / Alarm	.378	.217	1.459
Violent Crime	.589 **	.061	1.802
Traffic	.072	.129	1.075
Detain Mental Health	-.354 **	.133	.702
Custody	-.504 **	.092	.604
Other or Unspecified	-.049	.064	.952
Year of incident [u]			
2008	-.052	.097	.949
2009	-.058	.095	.944
2010	-.286 **	.088	.751
2011	-.309 **	.092	.734
2012	-.267 **	.090	.766

2013	-.362 **	.096	.696
2014	-.370 *	.178	.691
Number of officers present [v]			
Two Officers	-.199 *	.094	.819
More than Two Officers	-.451 **	.091	.637
Number of officers using force [w]			
Two Officers	.374 **	.059	1.453
More than Two Officers	.670 **	.062	1.954
Number of subjects present [x]			
Two Subjects Present	.083	.074	1.087
More Than Two Subjects Present	.190 *	.070	1.209
Other			
Policy Change [y]	-.055	.151	.947

Notes:

N = 23, 556.

*p < .05. **p < .01.

Nagelkerke R^2 = .068

a) Reference category: all other uses of force (i.e. instances where baton was not used at all, or where it was physically used on a subject). b) all other uses of force (i.e. instances where irritant spray was not used at all, or where it was physically used on a subject). c) All other uses of force (i.e. instances where Taser was not used at all, or where it was physically fired at a subject). d) Reference category: white ethnicity; e) Reference category: male; f) Reference category: no disability; g) Reference category: no drug use reported; h) Reference category: no alcohol consumption reported; i) Reference category: no mental health issues reported; j) Reference category: no firearms officer present; k) Reference category: no traffic officer present; l) Reference category: no response officer present; m) Reference category: most experienced officer has less than five years' experience; n) Reference category: officer safety training in under six months; o) Reference category: highest ranking officer is a constable; p) Reference category: passive resistance; q) Reference category: no weapon present; r) Reference category: force used for reasons other than for protection of human beings; s) Reference category: night time or low light; t) Reference category: order maintenance; u) Reference category: 2007; v) Reference category: one officer present; w) Reference category: one officer using force; x) Reference category: one subject present; y) Reference category: policy change not implemented.

Multicollinearity tests for drawing model were within accepted parameters. Whilst variance Inflation Factors were within acceptable limits (ranging from between 1.0 and 1.6), and tolerance values, all in the range of .6 to .9, exceeded the commonly accepted threshold of .1 - .2, three condition indexes were between ten and thirty, and a fourth had a value of 36, but no two variance proportions were greater than .5.

Appendix 2: University of Exeter Ethical Approval.

UNIVERSITY OF
EXETER

**COLLEGE OF SOCIAL SCIENCES
AND INTERNATIONAL STUDIES**

Amory Building
Rennes Drive
Exeter UK EX4 4RJ

www.exeter.ac.uk/socialsciences

CERTIFICATE OF ETHICAL APPROVAL

Academic Unit: Sociology, Philosophy and Anthropology

Title of Project: Constructing the acceptability of electric-shock
                                  technologies: the UK, EU and South Africa

Research Team Member(s):   Abigail Dymond

Project Contact Point: ad426@exeter.ac.uk

This project has been approved for the period

    From: 01.08.2013
    To: 31.03.2016

Ethics Committee approval reference: 19.06.13-5

Signature... Date....24/8 - 13
(Lise Storm, Chair, SSIS College Ethics Committee)

Appendix 3: Information and Consent Form.

INFORMATION SHEET & CONSENT FORM FOR INTERVIEWS

Title of Research Project: Constructing the acceptability of electric-shock technologies.

Details of Project: This research, funded by the UK's Economic and Social Research Council (Grant reference 1059) forms part of doctoral research undertaken by Abigail Dymond, a candidate for a PhD in "Security, Conflict and Justice" at the University of Exeter. Part of this research involves looking at the different views on the electric-shock technology the 'Taser' held by civil servants, police officials, companies, NGOs and others in the UK to understand how they characterise these weapons as more or less acceptable for use. The author works in a part-time temporary capacity for the UK NGO the Omega Research Foundation (Omega). Data from this research will be used strictly in accordance with the ESRC Framework for Research Ethics, and the UK Data Protection Act and will not be passed to Omega. However, **unless agreed otherwise** via a written exemption, research material may be used in any of the following ways:
- In the thesis itself.
- In academic publications; books, book chapters and journal articles.
- In conferences; both academic and practitioner conferences.
- In material for broader public dissemination.

Contact Details: For further information about the research or your interview data, please contact: Abigail Dymond, Department of Sociology, Philosophy and Anthropology, Exeter University, Devon, EX4 4RJ, UK. Tel 0044 (0) 7800 518545, (ad426@ex.ac.uk). If you have concerns/questions about the research you would like to discuss with someone else at the University, please contact: Professor Brian Rappert, Department of Sociology, Philosophy, and Anthropology (b.rappert@exeter.ac.uk).

Research consequences: Participation in this research may entail some risks for interviewees, including; identification by others (despite interview remarks being anonymised), over-disclosure of information, reputational risks and other unintended consequences. The following sections detail mitigation measures taken and underscore that your consent can be withdrawn at any stage prior to publication of research.

Confidentiality: Interview tapes / dictaphone recordings, and transcripts and notes from these, will be held in confidence. They will not be used other than for the purposes described above and third parties will not be allowed access to them (except as may be required by the law). However, if you request it, you will be supplied with a copy of *your* interview transcript so you can comment on and edit it as you see fit (please give your email below). These materials will be stored for two years after the completion of the PhD.

Anonymity: Interview data will be held and used on an anonymous basis, with no mention of your name. When using this data I will refer to the general group of which you are a member. If there is a particular term you would prefer to be used when referring to material gathered from your interview, please advise me of the term accordingly:_____. Alternatively, at your request, anonymity can be waived and interviews conducted with you as a named individual, if this would suit you better. If you wish to waive anonymity, please indicate this by providing the title and name you would prefer:_____.

Consent: I voluntarily agree to participate and to the use of my data for the purposes specified above. I can withdraw consent by contacting the interviewers.

TICK HERE: ☐   **DATE**.................................
Note: Your contact details are kept separately from your interview data

Name of interviewee:...
Signature: ....
Email/phone:..
Signature of researcher...
2 copies to be signed by both interviewee and researcher, one kept by each.

Appendix Four: List of topics covered during interviews.

Please note that the exact questions varied from interview to interview, depending on context, time constraints, responses given and the stage at which the interview was conducted, with later interviews allowing me to explore points raised earlier .

Interview topics for Officers and Trainers in England and Wales:

1) What are your views on Taser?

2) What role do you think Taser plays in policing? Do you feel that it is controversial?

3) Why did you decide to carry the weapon / come on the training?

4) Have you used the weapon? (Prompt: when was the most recent time)?

5) Have you had any injuries to subjects when using Taser (if relevant)?

6) Have you had any experience of the Post Incident Procedure process?

7) When do you consider it appropriate to fire the weapon (probe-firing)? How do you decide whether it is proportionate?

- Prompt – an example? Where on UoF continuum / 1 – 10 / situations it shouldn't be used?
- If time – when do you consider it appropriate to red-dot / drive-stun?
- For trainers – how do you teach this?

8) How do you find the training? (For trainers: Views on current training package? Any improvements? How can people fail?)

9) How do you find the guidance given around the weapon? What are your views on the changed wording?

10) What are your views on the NDM?

11) Do you find you are doing anything differently now that you have Taser?

12) Has your role changed at all? Single crewing? (Added in later interviews).

13) How safe do you think the weapon is? / What is your understanding of the medical implications of the weapon?

14) Do you have any concerns about / risks with the weapon?

15) What are your views on the roll-out of the weapon / making it more widely available? Differences between firearms and non-firearms officers?

16) Do you have anything to add?

Additional questions for officers on Use of Force reporting form.

These questions were asked in interviews conducted after statistical analysis had been completed, to enhance my appreciation of officers' understanding of the form.

1) Most recent time filled out form? When do you file a form?

3) What would you include under 'other force' form?

4) How do you interpret non-compliant handcuffing field?

5) How do you interpret subject injury field? How do you decide whether to put something in as an injury or not?

6) How do you interpret officer injury field?

7) How do you record injuries from baton and CS?

8) How do you classify probe wounds?

9) Do you have anything to add?

Interview topics for those subjected to Taser.

1) What have your experiences been with Taser? (Anything comfortable to share).

- If appropriate/possible, try to clarify their conduct and role.
- If appropriate/possible, find out what happened after.

2) How would you describe how it felt?

3) Do you believe you had any injuries as a result of Taser?

4) What do you believe would have happened if Taser wasn't there?

5) Has it affected you? (if need a prompt, physically, psychologically…)

6) How, if at all, has it affected your attitude towards the police?

7) Any other effects?

8) Why did you decide to bring your case?

9) What issues, if any, did you find bringing your case? How found the process?

11) Did you try to complain internally? What happened?

12) What would your ideal outcome be?

13) What changes, if any, would you like to see? What needs to happen?

14) Do you have anything to add?

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