Robots and Criminal Culpability in the United Kingdom

Rekana Owan Isong
LLM Law and Technology
(2018/2019 Academic Session)
SNR: 2011033
ANR: 399468

Thesis Supervisor: Silvia de Conca
Second Reader: Maurice Schellekens
(January 2019)

Acknowledgment

To Enoh, Nikki, Michael, ‘Jeno, T Alobi, Otabi, Nenka, Gloria and Uwem; my villagers. Thank you.

To Silvia de Conca, for all the great advise. Thank you.

Table of Contents

I have always hated machinery,
and the only machine I ever understood
was a wheelbarrow, and that but imperfectly. - E. T. Bell

CHAPTER 1

INTRODUCTION

1.1 **Introduction**

There is no denying the rapid growth and impact that Artificial Intelligence (AI), Robotics and machine learning is having in our daily lives. From our homes, hospitals, schools and other public spaces, their ubiquitous uses bring to the fore new interactions and raises social and legal questions that may challenge our existing legal regimes. According to Michael Froomkin, 'robots raise issues spanning a very wide disciplinary focus and likely to impact not just all walks of daily and commercial life but also war.'[1] Most of the literature on robotics have typically treated robots as manufactured products and thus subject to the usual products liability or consumer protection law and regulations.[2] We already have a number of robot toys and robot nannies[3] programmed to provide love and take care of children and the elderly. Robotics traditionally draws on such disciplines as engineering and cybernetics, Artificial Intelligence and computer science, physics and electronics, biology and neuroscience, down to the field of humanities: politics, ethics, economics, law etc. The more robotics advances and becomes more sophisticated, the more likely it is that such machines will need regulation.[4]

In the light of determining and apportioning culpability within the United Kingdom (UK) criminal law, the aim of this research is to ascertain how smart autonomous robots may impact upon this framework. Will lawmakers be required to make new laws or are the present ones sufficient? Will the courts be required to formulate or adopt new rules of adjudication? Will this be a desirable approach or an existential necessity? The right regulatory approach to foster rather than stifle innovation ought to be deployed. The UK criminal law regime relies on traditional concepts of liability which include *actus reus* and *mens rea* (intentional or reckless). By *actus reus* is meant all the elements of a crime other than the state of mind of the defendant.[5] This is usually the conduct, result, state of affairs etc. Invariably, *mens rea* is determining the state of the mind of the defendant in relation to the crime. Section 8 of the UK Criminal Justice Act 1967 provides that in determining whether a person has committed an offence, a court or jury should not only look at the probable consequence of his actions, but should also consider all the evidence and draw such inferences as appear proper in the circumstances. For most crimes, a combination of both *actus reus* and *mens rea* must be present to found culpability. Determining the *actus reus* of a robot should ordinarily not pose much of a problem; the difficulty may very well be in determining the corresponding *mens rea*.

In light of the obvious fact that only persons, whether natural or legal, are subject to criminal laws, a crucial point that will be explored in this thesis is whether or not robots are persons and if not

[1]Michael Froomkin, 'Introduction' in Ryan Calo, A. Michael Froomkin and Ian kerr (eds), *Robot Law* (Edward Edgar Publishing, 2016)
[2] Peter M. Asaro, 'A body to Kick but Still No Soul to Damn: Legal Perspectives on Robotics' in Patrick Lin et al (eds) *Robot Ethics: The Ethical and Social Implications of Robotics* (MIT Press, 2011).
[3] Noel Sharkey and Amanda Sharkey, 'The Crying shame of Robot Nannies: An Ethical appraisal' (2017) LUCS
[4] Ugo Pagallo, *The Laws of Robots: Crimes, Contract and Torts* (Springer, 2017)
[5] Jonathan Herring, *Criminal Law; Text, Cases and Materials*, (8th ed, Oxford University Press 2016)

whether a case can be made for their recognition as legal persons. The focus here is not a moral or ethical consideration, but legal convenience. This is not espousing the position that robots are just like humans as we are not herein equating personhood with humanity.

1.2 Terminology of some Technical Terms

A discussion on new and futuristic technologies such as Robotics, Artificial Intelligence and machine learning must necessarily begin from an attempt at defining what the terms refer to.

Artificial Intelligence

Although Artificial Intelligence (AI) and Robotics are sometimes used interchangeably, they are technically not the same and actually refer to different kinds of technology. AI is a branch of computer science. It involves developing computer programs to complete tasks which would otherwise require human intelligence.[6] AI is used in many ways within the modern world. For example, AI algorithms are used in Google searches, Amazon's recommendation engine and Satellite Navigation route finders. AI algorithms can tackle learning, perception, problem-solving, language-understanding and/or logical reasoning. Often — but not always — AI involves some level of machine learning, where an algorithm is "trained" to respond to a particular input in a certain way by using known inputs and outputs.

The key aspect that differentiates AI from more conventional programming is the word "intelligence." Non-AI programs simply execute predetermined sequence of instructions while AI programs mimic some level of human intelligence.[7] Although AI is used in robots particularly smart autonomous ones, most AI programs are not used to control robots[8].

Machine Learning

Machine learning is a field of artificial intelligence. There is however not a single definition of the term 'machine learning' amongst experts. Alpaydin defines machine learning as 'programming computers to optimize a performance criterion using example data or past experience.'[9] Another definition describes machine learning as the technology that enables computers emulate human intelligence through 'coaching computers to intelligently perform tasks beyond traditional number crunching by learning the surrounding environment through repeated examples.'[10] It has also been defined as 'teaching an autonomous agent that acts and senses in its environment to choose optimal

[6] L. Steels, *Artificial Life Roots of Artificial Intelligence* (MIT Press, 1993)
[7] Alex Owen-Hill, 'What's the Difference Between Robotics and Artificial Intelligence?' (*Robotiq*, 19 July, 2017) <www.robotiq.com/whats-the-difference-between-robotics-and-aritificial-intelligence> accessed 25 May 2018
[8] Will Knight, 'The Dark Secret at the Heart of AI' [2017] MIT Technology Review.
[9] Ethem Alpaydin, *Introduction to Machine Learning* (2nd edn, The MIT Press, 2010)
[10] Issam El Naqa and Martin J. Murphy, 'What is Machine Learning?' in Issam El naqa, Ruijiang Li, Martin J. Murphy, (eds) *Machine Learning in Radiation Oncology: Theory and Applications* (Springer Switzerland, 2015)

options for achieving its goals'.[11] It involves providing data to computer systems or algorithms, then the computer systems processing the data to build up knowledge and forming patterns from experience derived from the evaluation and observations of outcomes, without the need for human operators to write a program for each specific new task.[12] It basically teaches a machine to learn the way humans do - from experience.[13]

The main types of machine learning are supervised learning, unsupervised learning and reinforcement learning.[14] Supervised learning is simply pattern recognition-feeding a robot data and it then supposed to learn whatever pattern is intended by the instructor. Unsupervised learning on the other hand doesn't involve any specific task; it simply involves feeding a robot massive amounts of data, hoping it will start to understand the world around it. Reinforcement learning involves giving a robot a goal and allowing it to learn how to reach that goal.[15] The benefits of this technology are enormous as it enables machines to very quickly process large amounts of data and find patterns, thus helping humans in decision making.

Robots

In spite of the fact that the word 'robot' (with its various linguistic iterations), has been part of our common speech since the last century, the meaning is not decidedly settled. Among experts and lay persons, there is not a common definition of a robot[16], and it depends very much on the perspective of the person defining it. The Czech playwright Karel Capek in his plays titled Rossum's Universal Robots adopted the word to refer to artificial humans slaving away in factories.[17]

The International Organization for Standardization (ISO) defines a robot as an 'actuated mechanism programmable in two or more axes with a degree of autonomy moving within its environment, to perform intended tasks.' [18] ISO also defines an intelligent robot to be a robot 'capable of performing tasks by sensing its environment and/or interacting with external sources and adapting its behaviour.'[19] In the book Robot Law,[20] the contributing writers Neil M. Richards and William D. Smart proposed the following working definition: 'A robot is a constructed system

[11] Igor Kononenko and Matjaz Kukar, *Machine Learning and data Mining: Introduction to Principles and Algorithms* (Horwood Publishing Uk, 2007)
[12] Ian Goodfellow, Ypshua Bengio and aaron Cornville, *Deep Learning* (The MIT Press, 2016)
[13] Du Zhang, Jeffery J.P. Tsai, *Advances in machine Learning Applications in Software Engineering* (Idea Group Publishing, 2007)
[14] Du Zhang, Jeffery J.P. Tsai, *Advances in machine Learning Applications in Software Engineering* (Idea Group Publishing, 2007)
[15] <https://www.techopedia.com> accessed 10th April 2018
[16] Leenes et al. 'Regulatory challenges of robotics: some guidelines for addressing legal and ethical issues' (2017) Law Innovation and technology
[17] Karel Capek, *R.U.R Rossum's Universal Robots* (1920) Translated by Paul Selver and Nigel Playfair <preprints.readingroo.ms/RUR/rur.pdf>
[18] <https://www.iso.org/obp/ui/#iso:std:iso:8373:ed-2:v1:en> accessed 29 Dec 2018
[19] <https://www.iso.org/obp/ui/#iso:std:iso:8373:ed-2:v1:en> accessed 29 Dec 2018
[20] Calo, Froomkin and Ker, *Robot Law* (eds) (Edward Edgar Publishing, 2016)

that displays both physical and mental agency but is not alive in the biological sense.' In an article titled 'The sheer difficulty of defining what a robot is' published on April 2015 on the science and technology blog Motherboard, the technology writer Jordan Pearson defines a robot as programmable machines which are usually able to carry out a series of actions autonomously, or semi-autonomously.[21]

Generally, there are three important factors which constitute a robot:

1. Robots interact with the physical world via sensors and actuators.
2. Robots are programmable.
3. Robots are usually autonomous or semi-autonomous.[22]

However for the purpose of this paper robots they are deemed to be physical machines that move within an environment with a degree of autonomy. By autonomous or semi-autonomous machines is meant that they can act independently of external commands. In some cases, smart autonomous robots make use of artificial intelligence and machine learning technology to improve their autonomous functions by learning. Although it is common for robots to be designed with no capability to self-improve[23] those will not be the focus of this work.

When Artificial Intelligence is integrated with robots, smart autonomous robots are born. The thesis research focus is Robots - semi-autonomous or smart autonomous entities[24]. Hence I will employ the use of the acronym 'AI' when specifically referring to Artificial Intelligence technology and not as a synonym for 'Robot'.

1.3 **Central Research Question**

The central question of this research is: Can the substantive criminal justice framework within the United Kingdom bear upon the culpability of robots?

In order to help answer the central question a set of sub-questions will be answered as follows:

Sub-questions

1. What is a Robot?[25]

[21]Jordan Pearson, 'the sheer difficulty of defining what a robot is' (*Motherboard*, 17 April 2015) <https://motherboard.vice.com/en_us/article/5394v5/the-sheer-difficulty-of-defining-what-a-robot-is> accessed 24 June 2018

[22] Gerkey, Vaughan & Howard, 'The Player/Stage Project: Tools for Multi-Robot and Distributed Sensor Systems' (2003) ICAR <https://semanticscholar.org/paper> accessed 11 June 2018

[23] Brady M., 'Artificial Intelligence and Robotics' in: Brady M., Gerhardt L.A., Davidson H.F. (eds) *Robotics and Artificial Intelligence*. NATO ASI Series (Series F: Computer and Systems Sciences), (vol 11. Springer, Berlin, Heidelberg 1984)

[24] For examples of autonomous or semi-autonomous robots see John Spacey, '20+ Robotic Terms' (*Simplicabe*, 8 Dec, 2016) <https://simplicable.com/new/robotics> accessed 24 Dec 2018

[25] See para 1.2 above

2. What are the general components of criminal culpability under the law in the UK?
3. Could smart autonomous robots be clothed with legal personality?
4. What possible options may be deployed to meet the challenge?

Fueled by the increased industrial, commercial and personal applications of robots in society, they may potentially present an existential risk to humans due to their physical nature and ability to change and rapidly improve without human direction or control.[26] Robots are great and help us perform some difficult and dangerous tasks especially in the workplace, but as they are becoming more 'domesticated' in our homes, some concerns have been expressed by public figures in technology like Bill Gates[27], Elon Musk[28] and the late great physicist Stephen Hawking[29].

The increasing autonomy and evolution of robots suggest that traditional tenets of criminal law reasoning, such as notions of causation, apportioned liability and fault can be strained.[30] As intelligent technology that by-passes direct human control becomes more advanced and more widespread, these questions of risk, fault and punishment will become more pertinent. When a robot's actions are automatically orchestrated by artificial intelligence it may be difficult to discharge the evidentiary burden of proof against developers or manufacturers giving rise to practical difficulties of determining which party will bear which liability in the event of damage.[31] Although film and television dwell on imagined extreme scenarios, the legal realities are best not left to entertainment.[32]

In light of the many challenges that affect attempts to devise law and regulation in a context of technological incipiency, this research analyzes the preparedness or otherwise of the current state of the law and propose possible new approaches. Robots are the technology of the future but the current legal system may be incapable of handling them. Discussing the adequacy of existing regulation in accommodating new technologies is necessary, with a functional approach identifying whether the extant laws can be applied to robots and if not, how best to regulate this going forward. In essence seeking to apply the law to new kinds of cases which tele-operated,

---

[26] James Barrat, *Our Final Invention: Artificial Intelligence and the End of the Human Era* (Thomas Dunne Books, 2013)

[27] Peter Holley, 'Bill Gates on dangers of artificial intelligence "I don't understand why some people are not concerned"' (*Washington Post*, 29 Jan 2015) <https://washingtongpost.com/news/the-switch> accessed 25 Sep 2018

[28] Catherine Clifford, 'Elon Musk: "Mark my words- A.I. is far more dangerous than nukes"' (*CNBC* 13 March 2018) <https://www.cnbc.com/2018/03/13/elon-musk-at-sxsw-a-i-is-more-dangerous-than-nuclear-weapons.html> accesses 11 June 2018

[29] Rory Cellan-Jones, 'Stephen Hawking warns artificial intelligence could end mankind' (*BBC*, 2 Dec 2014) <https://bbc.com/news/technology/30290540> accessed 25 may 2018

[30] Ugo Pagallo, *The Law of Robots: Crime, Contracts and Torts* (Springer, 2013)

[31] Fumio Shimpo, 'The Principal Japanese AI and Robot Law, Strategy and Research toward Establishing Basic Principles' in Woodrow Barfield & Ugo Pagallo (eds) *Research Handbook on the Law of Artificial Intelligence* (Edward Elgar Publishing, 2018) 114

[32] Jeffrey Wale and David Yuratich, 'Robot Law: what happens if intelligent machines commit crimes?' (*The Conversation*, July 2015) <http://Theconversation.com/2015/index/html> accessed 10 July 2018

semi-autonomous and fully automated robotics have already or may soon present. For example death caused by industrial robots and other robots such as self-driving cars.

1.4 **Choice of Jurisdiction**

The choice of the United Kingdom (UK) as a case study was informed primarily by two considerations. The first being that criminal law is largely not harmonized within the European Union and any potential review must be done on separate individual member states. The second rationale is based on the familiarity of the authour with the UK criminal law framework.

While my concern will be primarily with the law as it is typically understood and applied in the UK, the goal is that these reflections will also prove useful to scholars and lawyers of other legal traditions.

1.5 **Research Methodology**

The research method best suited to the topic and questions is the doctrinal research method. This method involves a critical analysis of legislation and case law with relevant elements synthesized to establish an arguably correct and complete statement of the law on the matter at hand.[33] The choice of this method is premised upon the fact that the central question and sub-questions of the thesis topic necessarily call firstly, for an analysis of relevant laws, both legislative statutes and decided case law; and secondly, a review and analysis of interdisciplinary texts and articles to help articulate the central idea and answer the research question. The research is thus mainly exploratory and not empirical.

Materials utilized: These are broadly divided into two:

1. Primary sources
    i. Statutory codes and Legislation
    ii. Regulations
    iii. Case law
2. Secondary sources
    i. Text books
    ii. Articles
    iii. Scientific Journals
    iv. Legal periodicals
    v. Websites

The author adopted a basic system to review the literature by first arranging existing legislative law in respect to broad criminal culpability excluding specific crimes. Thereafter a review of the interpretation of the legislative provisions from decisions of the Supreme Court, Court of Appeal

[33] Dawn Watkins and Mandy Burton, *Research Methods in Law* (Routledge publishers, New York, 2013)

(Criminal Division) and the High court of the UK. The next step then involved collating findings from the first two steps to establish comprehensive existing positive law. This was followed by a systematic review of other secondary legal sources including law textbooks and journals. Due to the multidisciplinary character of robotics, a review and analysis of relevant non-legal material to ascertain interrelationship to get a holistic viewpoint. After all this is done, the final step is examine problems posed by the present state of affairs and its implication for the future.

The major problem anticipated was difficulty in finding a large resource of legislation and case law on this area of research which is still very much in its infancy and has not been previously litigated upon in the UK. This was overcome by not only searching for exact subject matter, but also including precedent for all non-human relevant cases.

1.6 **Outline of Thesis**

The work will be divided into chapters with each chapter dedicated to answering one sub-question in our ambition to answer the main research question. In addition to this introductory will be four other chapters. Chapter two will seek review the extant general components of criminal culpability in the UK legal framework as contained in legislation and interpreted by the courts. Components such as *actus reus* and *mens rea* which must coexist to found criminal culpability for most crimes in the UK. In chapter three we will examine the concept of who is capable of committing a crime, that is the concept of personhood and whether or not robots are or could be clothe with legal personality for the purpose of criminal liability and if yes what kind of personality? For chapter four we will seek to propose a possible legal regime that takes into consideration the complexities that robots pose to criminal culpability. The final chapter (Conclusion) hopefully sums up the thesis and answers the main research question highlighting the issues and limitations encountered in the research with recommendations for judges, lawmakers and policy framers.

It is a crime against the State to be powerful enough to commit one.-Pierre Corneille

CHAPTER 2

GENERAL ELEMENTS OF CRIMINAL CULPABILITY

2.1 **What is a Crime?**

We commence our discussion with an assay of general components of criminal culpability/liability in the common law system of the United Kingdom. But first is required an answer to the pertinent questions what is criminal culpability? This is not always an easy question to answer and an attempt will be made by a breakdown of the words 'crime' and 'culpability'. Black's Law Dictionary[34] defines Crime as "an act that the law makes punishable; the breach of a legal duty treated as the subject matter of a criminal proceeding." Crime has also been defined as "an act (or sometimes a failure to act) that is deemed by statute or by the common law to be a public wrong and is therefore punishable by the state in criminal proceedings."[35] Similarly, Howitt's Dictionary of English Law[36] defines crime as 'the violation of a right when considered in reference to the evil tendency of such violation as regards the community at large; an act or default which tends to the prejudice of the community and is forbidden by law on pain of punishment inflicted at the instance of the State.'

It quickly becomes clear from the above definitions that there is no one single exhaustive definition of what a crime is, however, the definitions have some commonality leading to the safe view that a crime is an act or omission which the law makes punishable. Simply put, a conduct is a crime because the law says so.

2.2 **Culpability/Liability**

Next in our definitions is the word "culpability". Culpability is defined by the Oxford Dictionary of Law as "blame, the doctrine that an illegal act requires guilt i.e. wrongful intention or negligence."[37] In Black's Law Dictionary[38], it is defined simply as "Blameworthiness; the quality of being culpable." Culpability is often used interchangeably with the word 'liability' and is similarly be used likewise herein. Hence, by criminal culpability in general is meant the blameworthiness or punishment that is ascribed to conducts frowned upon by law; to be held legally responsible for breaking the law.

Criminal liability is the strongest formal censure that society can inflict on an offender[39]. Generally, the chief concern[40] of criminal law is to prohibit and punish behavior that represents a serious wrong against an individual, group or against some fundamental social values or institution.[41] Thus criminal law centres on the harm one party has done to another which the law

[34] *Black's law Dictionary* (8th edn 2004) 399
[35] *Oxford Dictionary of Law* (5th edn 2002) 128
[36] (2nd edn 1977) 512
[37] (5th edn 2002) 528
[38] (8th edn 2004) 406
[39] Andrew Ashworth & Jeremy Horder, *Principles of Criminal Law* (7th edn Oxford, 2013)
[40] Not all crimes can objectively be considered 'serious' societal wrongs for example wrongful parking and street litter.
[41] Andrew Ashworth & Jeremy Horder, *Principles of Criminal Law* (7th edn Oxford, 2013) 1

considers a wrong to the entire society, or a violation of a duty owed to the society even if it is just the basic duty of obeying the law.

Perhaps another way of understanding crimes as public wrongs is to regard them not only as wrongs to the society per se, but as wrongs that the community is appropriately responsible for punishing through state sanction. Whereas civil law is concerned with rights between individuals and remedies when those rights are infringed upon or violated, criminal law is concerned with punishing those who willfully violate the rights of the public in general.[42] This is the main distinction between civil liability and criminal liability. This invariably lends support to the argument that the decision to make a conduct into a crime implies that there is a public interest in ensuring that such conduct does not happen and that when it does, there is the possibility of state punishment. There are presently over 9, 000 offences in the criminal law of England and Wales (Scotland and Northern Ireland have separate criminal law jurisdictions within the UK).[43] These are contained in statutes or legislation passed by parliament; the Common Law which are decisions of senior appellate courts that become part of the law; as well as various international treaties and conventions.[44]

2.3 **Conditions for Liability**

The conditions to be fulfilled before an individual is convicted of an offence vary from one crime to another. Some crimes require only minimal fault or no personal fault at all, usually termed 'strict liability' offences while others require varying degrees of fault. While we shall briefly discuss robots and strict liability offences later, our main focus shall be on general components of crimes to enable us determine whether or not an argument can be made for the emergence of 'criminal culpability' of smart autonomous robots.

If a particular law classifies certain conduct as an offence or criminal, then it is easily determinable that a person is charged for a crime under that provision. Sometimes however, it more nuanced and not so clearly classified that certain actions are crimes. Where this occurs, the European Court of Human Rights has set out certain criteria that help determine whether or not a person is being charged with committing a crime. They are as follows:

i. If the proceeding is brought by a public authority with powers of enforcement[45]; and
ii. There is a culpability requirement such that the imposition of a penalty is dependent upon the finding of guilt[46]; or

[42] Matthew Dyson ed. (2014) Unravelling Tort and Crime, Cambridge pg 62
[43] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016)
[44] John Child and David Ormerod QC, *Smith, Hogan and Ormerod's Essentials of Criminal Law* (Oxford University Press, 2017) 15
[45] *Benham v the United Kingdom* [1996] Reports of Judgments and Decisions 1996-III
[46] *Benham v the United Kingdom* (supra)

iii. There are potentially severe consequences such as imprisonment or significant financial penalty[47]; or

iv. How similar procedures are classified in other Council of Europe member States.[48]

2.4 **Elements of Criminal Liability**

Different crimes provide for different components and requirements for culpability. As they exist numerous crimes with new ones being created regularly it is impossible and impractical to make an analysis of each separate crime to determine their conditions for culpability in this thesis. This is the rationale for adopting a broad, generalist view of crimes as a whole. By adopting a general approach the aim is to analyze and discuss the rules and principles of culpability in criminal law without necessarily referring to a specific crime.

The Common law evolution of criminal justice traditionally recognizes two general requirements for criminal liability. The general components are '*actus reus*' and '*mens rea*'. This was an adoption of the traditional Latin maxim '*Actus non facit reum nisi mens sit rea*' meaning an act does not make a person guilty unless the mind is also guilty. Generally therefore, unless the contrary is provided, a person is not criminally liable unless he acts intentionally, knowingly or negligently in respect of the essential elements of a crime. It is not a crime merely to think guilty thoughts. Guilty thoughts must be linked to an act. As a general rule therefore, an act that is not the result of a guilty mind is not a crime.

2.4.1 ***Actus Reus, Mens Rea***

Actus reus is generally referred to as 'guilty act' and refers to the external elements' of an offence or anything that is not '*mens rea*'. That is, external and factual components capable of objective empirical perception. It describes what the defendant must be proved to have done (or failed to do), and with what consequences.[49] By way of a simple illustration, let's consider the offence of burglary. The Criminal Justice Act provides that the offence of burglary is entering a building or part of a building as a trespasser with intent to commit theft, criminal damage or inflicting grievous bodily harm.[50] Here, the *actus reus* is the entering into the building as a trespasser while the *mens rea* is the intent to enter into the building. Whereas the *actus reus* consists of the prohibited behavior or conduct, *mens rea* is the mental element, the intention, knowledge, or recklessness of the defendant in relation to the proscribed conduct.[51]

[47] *Ozturk v Germany* (1984) Series A no. 73
[48] *Ozturk v Germany*(supra)
[49] Jonathan Herring, *Criminal Law; Text, Cases and Materials* (8th edn, Oxford University Press 2016) 64
[50] Criminal Justice Act 1991, s 9(1)(a)
[51] Andrew Ashworth, *Principles of Criminal Law* (6th edn Oxford University Press,2009) 84

Actus reus is the only universal feature of all criminal offences, although offences have been created in the absence of *mens rea*, there is no liability in the absence of *actus reus*, there is no 'thought crime'.[52] *Actus reus* has three general elements:

i. Conduct: Defendant's physical acts or omissions required for liability
ii. Circumstances: facts surrounding defendant's conduct required for liability
iii. Results: the effects of defendant's conduct required for liability.[53]

The conduct element of *actus reus* is concerned with the physical movement of defendant's body, or lack thereof. All criminal offences require a conduct element of some description as it is this element that locates where and usually when the offence happened. This provides the nexus between defendant and other elements required for liability.[54] Some offences describe the conduct like penile penetration in rape, while others do not; like in murder where any conduct that causes the unlawful death of a person suffices, doesn't matter if the conduct is shooting, stabbing, hitting etc.

Every criminal offence will include some manner of circumstance element, used to focus in on the mischief targeted by the offence. For example, the *actus reus* of murder is not satisfied simply by defendant's conduct causing death unlawfully, defendant's conduct must cause the death of a person.[55] Just as defendant's conduct will take place in the context of certain circumstances, that conduct is also likely to cause a number of results.

Mens rea demands that a person should not be convicted unless there is proof that he intended to cause the harm or, knowingly risked the occurrence of the harm. The defendant's personal awareness of what was being done or omitted is therefore crucial in founding *mens rea*. In R. v Brown[56] the Supreme Court of England per Lord Kerr stated as follows:

> *The constitutional principle that mens rea is presumed to be required in order to establish criminal liability is a strong one. It is not to be displaced in the absence of clear statutory language or unmistakably necessary implication.*

These twin elements are comprised of some doctrinal principles which are woven into their understanding and application by the courts. Some examples of such doctrines (which are discussed briefly below) are (i) criminal 'conduct', (ii) 'causation', (iii) the 'unlawfulness of the conduct (impermissible conduct'), (iv) varieties of 'fault', (v) 'capacity' to commit a crime, and (vi) excuses for criminal wrongdoing.[57]

---

[52] Ibid; 38
[53] Ibid; 40
[54] John Child & David Ormerod, *Essentials of Criminal Law* (2nd edn Oxford press, 2017) 41
[55] Ibid; 43
[56] [2013] UKSC 43
[57] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016) 101

2.4.2 Underlying Doctrinal Considerations of *Mens Rea* and *Actus Reus*

Criminal Conduct: The conduct element focuses on the physical movement of defendant's body; it therefore focuses entirely on the external movement.[58] All criminal offences require a conduct element of some description as it is this element that establishes where and when the offence happened. It provides a nexus between the defendant and other elements of the crime necessary to establish liability. They vary from one offence to another and may be either positive like doing something (such as driving) or negative like not doing something (such as not picking up litter dropped). Negative conducts typically concern situations where the law imposes a duty to act, failure of which results in the conduct for said offence. However, it is not uncommon for the conduct to be unspecified especially with homicide cases where the focus is on any conduct that results in the death of another, regardless of whether it is shooting, stabbing etc.

Causation: The law presumes that people are autonomous actors who are the authors of their effects in the world.[59] The approach of criminal law is to affix causal responsibility to the individual whose voluntary behaviour impinged on the situation. It is one of the fundamental requirements of criminal liability[60] particularly with respect to result crimes that demand proof of consequences of a conduct. In a charge of murder for example, the question here is did the defendant 'cause' the death of the victim? To determine this, different considerations are made to determine whether or not the defendant caused something to occur. The first is the rational expectation of how things will or may turn out if something is done or not done. We establish causal links if an action inevitably results in an outcome. For example, if a stone is thrown on a window and the window breaks, the reasonable explanation is that the conduct caused the death of the baby. When a consequence is within the realm of what might be reasonably expected to occur in the ordinary course of events, there is causation. In R v Girdler[61] where a person driving dangerously accidentally pushed another car into the path of oncoming traffic resulting in a collision where the driver was killed, the Court of Appeal held that:

> *The defendant will have caused the death(s) only if you (the jury) are sure that it could sensibly have been anticipated that a fatal collision might occur in the circumstance in which the collision did occur.*

Causation must be logical in fact. That is, if the result would have come about in the same manner regardless of defendant's conduct, there is no factual causation.[62] There can of course be more than one cause of an event and causation being fundamentally a question of fact, it is determined by the

[58] John Child and David Ormerod Smith, *Hogan and Ormerod's Essentials of Criminal Law* (2nd edn Oxford University Press, 2017) 40
[59] Russell Heaton, Criminal Law Textbook (Oxford University Press, 2004) 25
[60] Andrew Ashworth, *Principles of Criminal Law* (6th edn Oxford University Press, 2009) 101
[61] [2009] 2 EWCA Crimm 2666
[62] Noel Cross, *Criminal Law and Criminal Justice: An Introduction* (Sage Publications, 2010) 19

evidence on an ad hoc basis. One principle that has been developed to aid this process is the 'but for' test.[63] That is, the result would not have occurred *but for* the defendant's conduct.

Unlawfulness/Impermissible Conduct: Some conducts may in themselves be inherently unlawful and the law merely underscores this, for example sexual acts against children, rape or murder. On the other hand, others may not be what society will consider abhorrent enough for criminalization and may indeed be deemed perfectly fine save that the law criminalizes it. An example of this will be refusal to register the birth of a child; not many people will consider this a conduct grave enough to be worthy of societal disapproval by way of criminal sanction, nevertheless it is a crime to do this.

Excuses: Many offences include a qualification such as 'without lawful authority or reasonable excuse' etc. There are some general doctrines which grant permissions to engage in conduct that would otherwise be criminal. The best known is self-defense. Other include prevention of a crime, the arrest of suspected offenders, the protection of property etc.[64]

Fault and Capacity: There cannot be a finding of fault without the establishing of requisite mental capacity of the defendant. It is for this reason that children under the age of ten years old are not made subject to the criminal law.[65] The assumption is that a person has the capacity to control his or her behaviour and choose between alternative courses of conduct. That is what the concept of *mens rea* is based upon. We only blame those who are responsible for their actions.[66] We blame those who have control over their actions and have chosen to commit a crime. That is the reason why in addition to children, animals and the mentally ill are not criminally liable. The ability to choose is fundamental.

Not all of these have the same status or nature, as aspects of the general considerations of the criminal law. For example, an important precondition to founding criminal liability in a defendant is establishing the quality of possessing adequate mental and physical 'capacity' to commit a crime (and subsequently endure the rigours of prosecution).[67] On the other hand, the conduct, causation, and fault doctrines are doctrines that are employed in the defining elements of crimes (although strict liability crimes do not have causation or fault elements).[68]

Essentially therefore we have the following formula in criminal law:
Actus reus + *mens rea* + no defence = liability

[63] Russell Heaton, Criminal Law Textbook (Oxford University Press, 2004) 25
[64] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016) 131
[65] The Parliamentary Office of Science and Technology, Westminster, *Age of Criminal Responsibility* (Post Note Number 577, June 2018)
[66] Clarkson and Keating, *Criminal Law: Text and Materials* (Sweet and Maxwell, 2003) 119
[67] Jonathan Herring, *Criminal Law: Text, Cases and Materials* (8th edn Oxford 2018) 702
[68] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016)

2.5 **Further considerations of *actus reus* and *mens rea***

Notwithstanding the fact that *actus reus* literally means, 'guilty act', it is to a certain degree a misleading nomenclature in that respect. To begin with, the criminal law sometimes makes it a criminal offence to 'omit' to do something such as failure by a business employee in the regulated sector to report a suspicion that another person is engaged in money laundering.[69]

Furthermore, a criminal 'act' can include a 'state of affairs' such as being in possession of something (like an offensive weapon), also referred to as situational crimes.[70] An 'act' may not also be a 'guilty' act, in relevant sense, unless it has certain consequences (the consequence element), or takes place in certain circumstances (the circumstance element).[71]

Regardless of whether the 'guilty act' is an act, omission or state of affairs, it must be unlawful, in the sense that the defendant lacks permission to do it. Causation which is permissible gives a defendant a legal right to engage in it in appropriate circumstances, even if the conduct in question involves the intentional infliction of serious harm or even killing. An illustration of this is the defence of self-defense and prevention of crime where under certain circumstances shooting or stabbing may be permissible, therefore not unlawful if it is done in self-defense or in prevention of crime.[72] In a significant number of cases, these permissions are taken for granted and are not usually mentioned in the definition of particular criminal offences.[73]

An important principle to state here is that the act must thus be voluntary. This position is supported by legal scholars like Glanville Williams who stated 'notwithstanding these difficulties of definition everyone understands the proposition that an act is something more than bodily movement-for bodily movement might occur in tripping and falling, which would not be described as an act'.[74]

Similarly, John Austin in his Lectures on Jurisprudence echoed the same argument when he stated as follows: 'the only objects which can be called acts are consequences of volitions. A voluntary movement of my body, or a movement which follows a volition is an act. The involuntary movements which (for example) are the consequences of certain diseases, are not acts.'[75] Again, legal theorist H.L.A. Hart posited that Criminal liability should depend on whether someone had the 'capacity' and a 'fair opportunity' (in terms of their powers of self-control and self-restraint) to do other than they did.[76]

---

[69] Proceeds of Crime Act 2002, s 330
[70] Prevention of Crime Act 1953, s 1
[71] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016) 102
[72] Criminal Law Act 1967, s 3 (which states that 'a person may use such force as is necessary in the circumstance in the prevention of crime'.)
[73] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016) 102
[74] Glanville Williams, *The Mental Element in Crime* (Magnes Press, 1965) 18
[75] John Austin, 'Lectures on Jurisprudence' referenced by Clarkson and Keating, *Criminal law: Text and Materials,* (5th edn Sweet and Maxwell, 2003) 88
[76] H. L. A. Hart, John Gardner, *Punishment and Responsibility* (2nd edn Oxford University Press, 2008)

As previously stated, such conduct must be found to be voluntary to attract criminal liability, however, conduct may be found to have been involuntary on a number of bases. A claim of 'automatism' is a denial of voluntariness, a claim that the ordinary link between mind and behaviour was absent, or that the link had become distorted in some fundamental way. Automatic here is used loosely to refer to instinctive reactions, and 'mental disconnections' where the defendant appears to have lost control over his or her behaviour, that is the act is mechanically carried out by the defendant's muscles without the mind's conscious control.[77] Automation is often regarded as a defence to a crime rather than a denial of an essential component of criminal conduct.[78]

As a matter of general thinking, the theory is that automatism prevents liability for all crimes. Since all crimes require a form of conduct, or a voluntary control over a state of affairs, even if some do not require fault, it follows that automatism may lead to acquittal on any and every charge. However since a plea of automatism may apply to all, or almost all crimes, the courts have attempted to circumscribe its use by defining it narrowly.[79]

2.6 *Mens rea* and Strict Liability

We have previously discussed above that *mens rea* is the important fault element, proof of which is required in many crimes including major ones such as murder, rape and robbery. The general rule in criminal law is that a person should not be liable for a conduct unless he or she is determined to have intended the undesirable outcome. As with all general rules there are exceptions and the exception is strict liability offences. We noted earlier that there are many offences for which the law has no fault element and imposes 'strict' liability. What then is strict liability? Not surprisingly, there are some difficulties in defining the term 'strict liability'. Sometimes the term is used to refer to those offences for which a person may be convicted without proof of intention, recklessness or knowledge (but for which the defendant may avoid liability by providing evidence that he or she exercised proper due diligence). Other times it refers to offences for which there is no avoidance of liability under any circumstances and all that is required is for the prosecution to establish the *actus reus* elements of the offence.[80] For our purposes, we shall not dwell into the complexities of the different iterations of strict liability and shall adopt the working definition that strict liability offences are offences for which neither intention, nor recklessness nor negligence needs to be proved. Thankfully, most of those generally carry relatively low penalties.[81]

Nonetheless it is foundational that criminal conviction should always be founded on the proof of fault. Indeed, there is a respectable argument for saying that there should never be criminal liability

[77] Russell Heaton, Criminal Law Textbook (Oxford University Press, 2004) 166
[78] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016) 104
[79] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016)
[80] L. H. Leigh, *Strict and Vicarious Liability* (Sweet & Maxwell, 1982)
[81] Ashworth and Blake, *The Presumption of Innocence in English Criminal Law*, (Crim LR 306, 1996)

without fault.[82] How then can we reconcile this basic understanding with the concept of strict liability offences? The main argument in support of strict liability is protectionism, which emphasizes that one of the main aims of criminal law is to protect societal interests.[83] It shouldn't matter therefore whether the violation of the interest was deliberate or resulted from an accident or mistake. On account of this, the motivation or lack thereof for the offence should accordingly be irrelevant. In R. v Howells[84] the defendant was charged with possession of a firearm without certificate contrary to the Firearms Act 1968. The offence carried a punishment of three years imprisonment. The defendant sought to rely on the provision in section 58 of the Act which provided an exception for antique firearms because he bought it believing it to be an antique rifle, having been sold to him as such. The Court of Appeal rejected his defence and upheld strict liability holding that to do otherwise would defeat the purpose of parliament in passing the law. The went further to justify imposing strict liability on the rationale that the prohibition was absolute due to the severity of damage that firearms can cause in the society.

The claim that criminal offences should include *mens rea*/guilty mind requirement reflects the view that criminal liability should be imposed only on persons who can be said objectively to have associated themselves through their interaction with the wrongful conduct in question.[85] As earlier discussed, this occurs when people engage in wrongful conduct intentionally, knowingly, recklessly, whilst possessing similar mental state such as indifference, awareness, or suspicion, or when they are complicit in the wrongdoing of others. The subjective *mens rea* approach encompasses the belief principle, which holds that criminal liability should be based on what the defendant believed they were doing or risking, not on facts that were unknown to them at the time.

On the other hand, sometimes liability is based on a broader set of fault elements that are said to go beyond a finding of 'guilty' mind. These are fault elements traditionally thought to involve judging people after the fact, as 'grossly negligent' or as having shown a 'lack of due care and attention'. Such objective evaluation judgments are the means by which a fault-focused association between the defendant's behaviour and the wrongful conduct is brought about later by the judgment of others (judge or jury) rather than by the defendant himself in view of what he or she intended, knew, or realized, etc.[86] The case of R. v. Parker[87] illustrates this point. The defendant tried unsuccessfully to make a phone call from a payphone, he became frustrated and slammed down the receiver and broke it. In his defence, he stated that he did not intend to cause damage to the telephone and it did not occur to him that slamming it would break it. The Court of Appeal affirmed his conviction by applying the objective test that dealing recklessly with a breakable

[82] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016) 173
[83] Andrew Ashworth, *Principles of Criminal Law* (6th edn Oxford University Press, 2009) 161
[84] [1977] QB 614
[85] Uri Maoz and Gideon Yaffe, 'What does recent neuroscience tell us about criminal responsibility?' (2015) Journal of Law and Biosciences
[86] Jonathan Herring, *Criminal Law: Text, Cases and Materials* (8th edn Oxford 2018)
[87] [1977] 1 WLR 600

material results in a high probability that it might break. His guilty mind was thus not based on his subjective standard.

In many cases, the more subjective *mens rea* approach is supported essentially by the principle of fairness and proportionality of offence construction. This approach may also be claimed to enhance the constitutional values of legality and the rule of law, by reassuring citizens that they will be liable to conviction, and to the exercise of state coercion against them, only if they intentionally, knowingly or recklessly, etc. cause or risk causing a prohibited harm.[88] If this were achieved, the criminal law would ensure that, each person is guaranteed a greatest liberty, capacity and opportunity of controlling and predicting the consequences of his or her actions compatible with corresponding liberty, capacity and opportunity of others in the society against him or her'.[89]

2.7 **Conclusion**

The ideas of the self-determining moral agent, equipped with distinctive cognitive and volitional capacities of understanding and self-control, and of a universal human personhood underpinned by these features have been of crucial importance to the gradual development of modern societies.[90] At the heart of this vision of criminal responsibility sits the notion of an agent endowed with powers of understanding and self-control. It was developed primarily in relation to human beings but is susceptible of extension to, corporate entities and animals[91]

As earlier noted with strict liability offences, the Common law criminal justice framework occasionally recognize offences that may be committed in the absence of a guilty mind, although such crimes are very much the exception and they are rarely particularly serious.[92] The rationale for the twin components is that individuals are rational, choosing beings who intend the consequences of their actions; and until this is established, punishment should not follow. This inevitably brings us to the question of whether a robot can be considered a rational choosing being for the purpose of criminal liability which will be explored in the succeeding chapters.

[88] Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016)
[89] Richards, 'Rights, Utility and Crime' in Tonry and Morris (eds), *Crime and Justice: An Annual Review* (1981)
[90] Nicola Lacey, *In Search of Criminal Responsibility: Ideas, Interests, and Institutions* (Oxford University Press, 2016)
[91] Nicola Lacey, *In Search of Criminal Responsibility: Ideas, Interests, and Institutions* (Oxford University Press, 2016) 27
[92] William Schabas, *Unimaginable Atrocities: Justice, Politics and Rights at the War Crimes Tribunal* (Oxford University Press, 2012)

The real problem is not whether machines think
but whether men do.
B. F. Skinner

CHAPTER 3

LEGAL PERSONALITY OF ROBOTS?

3.1 **Natural Person v Legal Person**

The law does not exist or operate in a vacuum, it applies to every individual, organization, institution in a society and to society as a collective; for this reason, one basic requirement of criminal law is a defendant. This is the person who is accused of running fowl of the law and who is to be held publicly accountable and punished for committing the crime. The question then is 'who is a person' for the purposes of criminal law? Defining who a person is has long been a topic of great philosophical and legal discussions with some controversy over the years particularly in conversations about rights, citizenship, protections, privileges and legal liability.

There exists no central legal definition of person and different laws define person differently depending on the purpose for which the law is made. A person may be a natural person or a juridical (used here interchangeably with 'legal') person. The law has long been recognizing that besides natural persons (the ones who physically are born and die), other entities socially engaged within the community, must also necessarily be subjects of rights and obligations. Although natural persons are genetically human, not all juridical persons are natural persons but all natural persons (human beings) are juridical persons. Fundamentally, natural persons are the baseline against which other rights are judged,[93] that is, it is for the welfare, safety and security of human beings that the law extends rights to non-human entities.

There appears to be no limit to the scope of entities that can be classified as juridical persons as the law is ever evolving to cope with new realities of society. Categorizing an entity as a juridical person may be for practical purposes since the law requires a person upon whom to act.[94] As earlier noted, sometimes society recognizes that there's a need to create a legal 'person' or special classification of entities in the interest of whom (or against whom) the law could act, such as rivers, forests, historical sites or other cultural or environmental entities; and this is done through legislation or other regulation designating them as such.

Whereas it is taken for granted that all human beings have equal rights, it is important to be cognisant of the fact that not all natural person have the same rights and responsibilities under the law; a typical illustration of this are children who do not enjoy the right to vote, which adults do. Conversely, children are sometimes accorded more rights than adults due to their vulnerable status, an example of this is their complete freedom from criminal prosecution regardless of how heinous their conduct may be. In the same vein, persons who are citizens, or lawful residents have different status and rights under the law than persons who are not.

[93] Andrea Boboc, 'Theorizing Legal Personhood in Late Medieval England' in Andrea Boboc (ed), *Theorizing Legal Personhood in Late Medieval England* (Brill, 2015)
[94] Andrea Boboc, 'Theorizing Legal Personhood in Late Medieval England' in Andrea Boboc (ed), *Theorizing Legal Personhood in Late Medieval England* (Brill, 2015)

3.2 **I think therefore I am**

Attempting to define and conceptualize who a person is has been an age old undertaking of philosophers and legal theorists since the beginning of man. For some of the most influential political philosophers of the modern era like John Locke, Rene Descartes and David Hume[95] the term 'person' described any (human) agent who has the capacity to forge narrations about the world, formulating plans and acting on them.[96] For them, the performance or functionality criterion was the paramount consideration on the discussion of what it means to be considered a person. The classic phrase 'I think therefore I am' by Descartes aptly sums this up. Going by this consideration therefore and adopting the performance criterion, other non-human beings (or entities) that display complex adaptive behaviour could be considered persons and conversely, humans with impaired mental functionalities could be considered not persons.

On the other side of the conversation is American philosopher Francis J. Beckwith who rejects the performance criteria and asserts that personhood is not linked to function at all, but rather that it is the underlying personal value of the individual. He states that 'a human does not come into existence when human function arises, but rather, a human person is an entity who has the natural inherent capacity to give rise to human functions, whether or not those functions are ever attained.'[97] For the same reason also, personhood is not lost from diminished functional mental capacity; the severely cognitively disabled or comatose still possess personhood. Few will argue that a patient suffering from advanced Alzheimer's with severely diminished (or even completely lost) performance and functionality is no longer a person. Humanity[98] can be easily divorced from legal personhood.

The Black's Law Dictionary[99] defines the word 'person' as 'an entity (such as a corporation' that is recognized by law as having the rights and duties of a human being. In this sense, the term includes partnerships and other associations, whether incorporated or unincorporated.'

The legal scholar John Salmond stated that 'So far as legal theory is concerned, a person is any being whom the law regards as capable of rights and duties. Any being that is so capable is a person, whether a human being or not, and no being that is not so capable is a person, even though he be a man. Persons are the substances of which rights and duties are the attributes. It is only in this respect that persons possess juridical significance, and this is the exclusive point of view from which personality receives legal recognition.'[100] Crucially therefore in law, personhood is not determined by a person's subjective view of himself, but in accordance with what society through the law recognizes. Similarly, in African traditional societies, personhood (not humanity) is

[95] <https://www.plato.stanford.edu/entries>
[96] Charles Taylor, 'The Concept of a Person' [1985] Philosophical Papers Vol 1, Cambridge University Press
[97] F. J. Beckwith, *Defending Life: A Moral and Legal Case Against Abortion Choice* (Cambridge University Press, 2007)
[98] Used here to synonymize personhood
[99] (8th edn) 1178
[100] Sir John Salmond and Patrick John Fitzgerald, *Salmond on Jurisprudence* (Sweet and maxwell, 1966)

defined by reference to the community. It is the community that defines the person as person, not some isolated static quality of rationality, will or memory.[101]

3.3 **Liability for Damage or Injury to Another**

One undeniable reality of living in a complex society is that multifaceted interactions take place amongst many people whether in public or private engagements. While these interactions are beneficial to the society, they do also inevitably result in some unpleasant outcomes such as harm or injury to others. When this occurs, as a general rule, the person responsible for the action or inaction that results in the injury to another person (or his or her property) shall be held liable either in tort by way of damages or criminally by way of fines or imprisonment (sometimes both regimes operate simultaneously). The complexities arise sometimes when the injury is not caused by the person per se, but by another. In such a case it becomes necessary to determine where the blame should lie. For example, if an animal, or a child causes injury to another who should be responsible for the damage? Is it the child, the animal? If so to what extent?

Beyond human-to-human injury, the law has hitherto recognized the obvious reality that damage may (and does) arise from the interactions between human and non-human entities. We shall first take a brief look at animals and children (corporations will also be analyzed later) to examine the law's approach in determining where the liability should reside in the event of injury or loss and determine whether or not some parallels can be made with smart autonomous robots.

3.4 **Liability of Animals**

The United Kingdom became the first country in the world to pass legislation for the protection of animals, by enacting the Act to Prevent Cruel and Improper Treatment of Cattle in 1822.[102] Almost a century later in 1911, the Protection of Animals Act was enacted extending protection from abuse to all other animals. Across the European Union also, the Treaty of Amsterdam[103] includes a protocol on the protection and full regard for the welfare of animals. Essentially therefore, the law recognizes that animals are not merely commodities, but are sentient beings deserving of rights by society under the law.

Even though the law recognizes the sentient nature of animals with some legal rights, it falls short of ascribing agency or personhood to animals, hence animals do not have legal responsibilities and liability for any damage caused by an animal is transferred to the owner or keeper. An individual who decides to keep any animals is under a legal duty of care to prevent them from causing harm to other. In the event that harm is caused the person who suffered any loss or injury can take action against the animal owner or keeper for redress. If the animal's owner is negligent in looking after

[101] Ifeanyi Menkiti, 'Person and Community in African Traditional Thought' (1984) <www.symposium/pdf/201_300/206.pdf> accessed 19 Dec 2018
[102] Victor J. Krawczyk and Monica A. Hamilton-Bruce, 'The origins of Compassion for Animals: Legal Privileging of Non-wild Animals in Late Georgian Britain'(2015) Journal of International Wildlife and Policy
[103] <https://www.europarl.europa.eu/topics/treaty/pdf-en.pdf> accessed 22 Dec 2018

or restraining the animal, and this directly results in harm, injury or loss to another person (or their property), then they will be liable in negligence.[104]

On the other hand, any damage caused by a dangerous animal renders the owner or keeper strictly liable regardless of whether or not the keeper was negligent or at fault. The Dangerous Wild Animals Act[105] notes that keepers of wild animals are required to take out insurance policies against liability for damage caused to third parties and to be licensed by the local authority. The Act defines 'dangerous animals' as animals which are not commonly domesticated in the British Isles; animals which; when fully grown, unless restrained, are either likely to cause severe damage or are such that any damage which it does cause is likely to be severe. For non-dangerous species the owner or keeper of the animal is liable for the damage caused by the animal if proper safety measures are not taken to prevent or largely minimize the likelihood of occurrence of injury.[106]

Thus we can see that ultimately, although animals have certain legal status, they do not have full legal personality. It may not be considered the result of an over-active imagination or beyond the realm of rational argument to posit that this may likely change especially as animal rights campaigners continue to make strides in their advocacy. In 2013 the animal rights non-governmental organization Nonhuman Rights Project made international headlines when it argued successfully that a chimpanzee has 'standing' to sue in a New York State court.[107] Standing to sue or *locus standi* is the exclusive preserve of legal persons whether human or non-human. An individual who did not have requisite legal personhood could only sue through his or her next friend or guardian whom the law recognized their legal personhood. The decision was eventually overturned by the appellate courts which ruled that it was up to the parliament to determine the legal status of chimpanzees.[108]

3.5 **Tortious Liability of Children**

Whether or not a child is liable for the consequences of their wrongful acts depends on the degree of reasonable care required of them. This in turn depends on the standard of care normally expected of a child of that age. A young child may be aware of what they are doing and may know that the action is wrong, but still be incapable of foreseeing the consequences and in such a case there would be no liability in negligence. This position was affirmed by the court in McHale v. Watson.[109]

---

[104] Animal Act 1971, s 2(1) makes provision for liability depending the category of animals; whether dangerous or domesticated.
[105] [1976] Dangerous animals are defined as animals which are not commonly domesticated in the British Isles; an animal which, when fully grown, unless restrained, is likely to cause serious injury.
[106] *Williams v. Hawkes* [2017] EWCA Civ 1846
[107] Brandon Keim, 'New York State Court Hears landmark Chimpanzee personhood case' (*Wired*, 10 Sep 2014) <https://www.wired.com/2014/10/chimpanzee-personhood-hearing/> accessed 21st Nov 2018
[108] Jonathan Stempel, 'New York's top court refuses to free chimps from cages' (reuters 8 May 20180 <https://www.reuters.com/article/us-new-york-chimpanzees/new-yorks-top-court-refuses-to-free-chimps-from-cages-idUSKBN1I925W> accessed 20 Dec 2018
[109] [1964] 111 CLR 384.

The capacity of a child is a question to be considered in each case. Obviously the closer a child is to the age of maturity, the more the standard of care resembles that required of an adult. Normally, parents are not liable for torts (civil wrongs) committed by their children. Liability will usually only arise if the child who commits the wrong was acting as the parent's agent or with their authority or when it is found that a parent has not exercised adequate and proper control or supervision over the child who has caused the damage. Naturally, the circumstance will differ in each case. Guardians or parents who know their children to have the propensity to be recalcitrant are reasonably expected to exercise greater supervision and control over them.

3.6 **Criminal Liability of Children**

In England and Wales the minimum age of criminal responsibility is ten years of age. Any child under ten years of age is therefore deemed to have legal immunity from the full rigours of the criminal justice system. This is derived from the establishment of the 'right' and 'wrong' responsibility test established by 14th century common law judges in order to determine the child's competency between positive acts and crimes.[110] For Blackstone the determination of criminal responsibility rested with a test which considered whether the child was able to discern between 'good and evil' based on the strength of the child's mental processing of judgment and the capacity of understanding between the two. Enforcing parental responsibility for juvenile offending has been a characteristic feature of the history of youth crime and control since the 19th century.[111] The Youthful Offenders Act 1854 permitted setting up of reformatory schools by voluntary societies to contain and morally educate 'deviant' children. Under the Reformatory Schools Act 1884 children between the ages of 5 and 16 years could be sent to reformatory schools for up to two years and their parents could be ordered to pay for their upkeep. The payment of maintenance was designed as a means to enforce parental responsibility[112]. The cost of maintenance created an incentive for parents to conform to acceptable child-rearing practices. The Children and Young Persons Act of 1933 was the first to empower the courts to require parents to pay the fines of a juvenile offender. The Criminal Justice Act ordered parents to pay a juvenile offender's fines or compensation. By the time of the Criminal Justice Act 1991, specific measures were available which allowed for imposition of financial penalties upon parents when crimes were committed by their children. Under section 58 of the 1991 Act, a parent must accompany to court any of their children, aged between ten and sixteen years and accused of a criminal offence, and to pay any ensuing fines and/or costs. The Crime and Disorder Act of 1998 built upon this principle of parental responsibility by introducing the parenting order enabling the court to require the parent of every convicted offender to attend parenting programmes if necessary to control the future behaviour of the juvenile in a specified manner. The theory of parental fault, particularly in the form of negligence was constituted by a failure to fulfil, or a negligent fulfilment of, the parental

[110] Hannah Wishart, 'Was the Abolition of the Doctrine of Doli Incapax Necessary?' [2013] UK Law Student Review, Vol 1 Issue 2
[111] Raymond Arthur, *Punishing Parents for the Crimes of their Children*; (Blackwell Publishing UK, 2005)
[112] The Industrial Schools Act of 1857 was similar.

duty of supervision. When a child attains majority, all liability is borne by him or her.

3.7 **Corporate Legal Personality and Criminal Liability**

The essence of an incorporated company is that it has a separate legal personality distinct from its shareholders, so it can enjoy rights and be subject to its own right like any other person. But unlike a natural person, a corporation is capable of existing in perpetuity.[113]

Even though the principle that a company is a legal person separate from its shareholders and directors has been established since the nineteenth century, most discussions of criminal liability are centred around individual human defendants as authors of acts or omissions, raising questions of respect for the autonomy of individuals.[114] Whereas criminal law has made some inroads in corporate criminal liability, it has been somewhat slow in fully embracing this concept. However, over the years there have been an increased interest for corporations to be prosecuted for criminal offences particularly after a major tragedy particularly when it is perceived that the tragedy was caused by the actions of not just an individual, but of a whole company.[115] While most people are quite familiar with the concept of separate corporate personality, the concept of corporate criminal liability is somewhat difficult for some to grasp. As we have earlier discussed, most crimes comprise of the twin elements of *actus reus* and *mens rea*, if so how then can a company be said to demonstrate *actus reus* or to have *mens rea*? The *actus reus* of a company is usually easier to ascertain as it is deemed to act through the actions of its officers or organs like employees, directors and shareholders. Establishing the *mens rea* presents a bit of a challenge. It has for the most part so far been inferred from the systematic failure to act or take due precaution and appropriate safety measures etc., or from the policies (or their absence thereof) which point to the overall ethos of a company.[116]

Some Acts of parliament contain provisions specifically making a body corporate liable for offences created by the Act in question. An example of this is the Corporate Manslaughter and Corporate Homicide Act of 2007 that created a new offence of Corporate Manslaughter.[117] In these kinds of situations, there is little difficulty in founding *actus reus* and *mens rea* and convicting a company because the law expressly calls for it. Similarly, the Interpretation Act 1978[118] provides that, subject to the appearance of a contrary intention, the word 'person' in a statute or subordinate legislation is to be construed as including 'a body of persons corporate or incorporate'. Where there is no such clearly specified provision, the courts have attempted to interpret the concepts of *mens rea* and *actus reus* to make it applicable to companies. Consequently, it has now been held repeatedly that companies may properly be indicted for common law offences as well as statutory offences, and for offences requiring proof of a criminal state of mind as well as those for strict

[113] *Salomon v. A. Salomon & Co. Ltd* [1897] A.C. 22
[114] Andrew Ashworth, *Principles of Criminal Law* (Oxford University Press, 2009) 146
[115] Jonathan Herring, *Criminal Law; Text, Cases and Materials* (7th edn Oxford University Press 2016) 737
[116] James Gobert and Maurice Punch, *Rethinking Corporate Crime* (Butterworths LexisNexis, 2003)
[117] s 1 (1)
[118] ss 5 & 11

liability.[119]

One rationale for this approach is that corporations are a ubiquitous feature of modern life and frequently engaged with their employees and the public in hazardous ways. The criminal law would be seriously deficient if harmful conduct carried out by those entities could not be prosecuted and punished.[120] In Great North of England Railway Co Case[121] the court per Lord Denman stated as follows:

> *There can be no effectual means for deterring from an oppressive exercise of power for the purpose of gain, except the remedy by an individual against those who truly commit it, that is the corporation acting by its majority, and there is no principle which places them beyond the reach of the law for such proceedings.*

Historically, corporations were recognized as some kind of artificial person since the seventeenth century.[122] Initially such recognition was limited to particular specific purposes, for example, in order to own property.[123] In Willmott v. London Road Car Co[124] the court held that a company may be a 'respectable and responsible person' within the meaning of a covenant against assignment in a lease.' Likewise, in R. v. Surrey Quarter Sessions ep Lilley[125] the court held that the expression 'person aggrieved' may or may not include a local authority.

Despite recognizing separate legal personality, it was not thought that a corporation was capable of committing a criminal offence. In 1701, Sir John Holt C.J. appeared to close the door to criminal liability when he stated:

> *A corporation is not indictable but the particular members of it are.*[126]

The obstacles to the criminal prosecution of a corporation were ultimately dismantled, albeit gradually, over time. The appellate courts eventually demonstrated a willingness to uphold decisions which had the effect of relaxing "a rule established in a state of society very different from the present time when corporations were comparatively few in number and upon which it was very early found necessary to engrant many exceptions."[127] Nowadays there is no longer any particular conceptual difficulty in attributing a criminal state of mind to a legal person.[128] It is now clear that a company may be convicted of manslaughter[129], in fact, the list of criminal offences which a company cannot commit as principal is very small indeed: certainly it includes murder[130]

---

[119] Pinto and Evans, *Corporate Criminal Responsibility* (Sweet & Maxwell, London 2003) 3
[120] Pinto and Evans, *Corporate Criminal Responsibility* (Sweet & Maxwell, London 2003) 4
[121] [1846] 9 QB 135
[122] Pinto and Evans, *Corporate Criminal Responsibility* (Sweet & Maxwell, London 2003) 6
[123] *Blackstone Commentary on the Laws of England* 1455
[124] [1910] 2 Ch 525
[125] [1951] 2 Q.B. 749
[126] Reported in Janet Dine, James Gobert & William Wilson, *Cases and Materials on Criminal Law* (6th ed Oxford University Press, 2010) 237
[127] *Beverly v The Lincoln Gas Light And Coke Co.* (6 A&E 829)
[128] Pinto and Evans, *Corporate Criminal Responsibility* (Sweet & Maxwell, London 2003) 5
[129] Attorney General's Ref (No. 2 of 1999) (2000) Q.B. 796
[130] *Hawke v Hulton & Co* [1909] 2 K.B 93

(due to the fact that the only lawful sentence, life imprisonment, can only be inflicted upon an individual in his personal capacity) and bigamy (since a corporation cannot marry one person let alone more than one at a time), some driving offences, other personal offences such incest, rape and other sexual offences.[131] In these exceptions, although a company cannot be the principal defendant, it may be a criminal conspirator.

3.8 **Personhood of Robots?**

Robots can be any size, ranging from nanobots to behemoths, but with the exception of the special issues raised by nanomachines, size is not what usually makes a robot interesting or potentially problematic. Because they exist in real space robots can cause direct physical effects in the world (software autonomous robots to a lesser degree), they can cause physical damage, hurt, even kill people either by accident, or in the case of military robots, by design. Robots have great potential to take on unpleasant, difficult or boring tasks, but they also present real risks that require careful planning by designers and policy makers. Currently our laws tend to treat machines that do what they are designed to do as legal extensions of the people who set them in motion. When machines malfunction we try to assign the blame to the appropriate manufacturer, designer, maintainer or modifier.

Neither of these approaches transfer easily to the complex world of robots, especially robots with any degree of autonomy. Traditional legal concepts of fault and product liability also wobble when confronted with robots capable of emergent behaviour. As machine learning becomes more common, some scholars worry that computer programs could learn, independently how to evade, or violate the law.[132] An artificial intelligence that can order a jumbled list of letters is doing cognitive work to produce a certain result, even if it is blindly following an algorithm in so doing. It may not possess the intrinsic understanding of a conscious human, but it is still engaging in a kind of 'mental' productivity, that is, producing the kinds of results that minds routinely produce.[133] Smart robots that utilize artificial intelligence and machine learning technologies are computational entities with a rich knowledge component, having sophisticated properties such as planning ability, reactivity, learning, cooperation, communication and the possibility of argumentation.[134] The characteristics of the newest software agents are becoming so sophisticated, that we must already face the possibility of software agents expressing emotions, or manifesting

[131] A corporation can be convicted of an offence punishable by a fine. Section 32 Magistrates Court Act 1980 and section 30 of the Powers of Criminal Courts Act 1973

[132] Gabriel Hallevy, *When robots Kill: Artificial Intelligence Under Criminal Law* (N UNiversity Press, 2013)

[133] Steven Torrance and Denis Roche, 'Does an artificial agent need to be conscious to have ethical status?' in Bibi van den Berg & Laura Klaming (eds) *Technologies on the Stand: Legal and ethical questions in neuroscience and robotics* (WLP 2011)

[134] Francisco Andrade, Paulo Novais, Jose Machado and Jose Neves, 'Contracting agents: Legal Personality and Representation' (2007) Artificial Intelligence Law Journal 15:357-373

certain features of true 'personality'.[135] Presently, although we are witnessing an explosion of robotics and artificial intelligence capabilities, the reality is that artificial agents have mental capacities that are more of the operational kind and limited cognitive capacity. This is expected to change very rapidly in the not so distant future. Experts predict that there may be an explosion of artificial agents which, while less than super intelligent, are still smart enough to change the complexion of society in certain fundamental ways.[136] There is a spectrum of possible future AI agents, future 'mind-like' beings these may take the form quite similar to humans or forms which are outlandishly different from humans and from each other. It is likely that artificial agents will themselves come to play more dominant roles in the production of other artificial agents. There may indeed be a take-off point where smart machines do the majority of the key work, with humans decreasingly able to understand the design, and where smarter-than-human machines build even smarter machines, in a recursive process.[137]

3.9 **Conclusion**

In a short span of time the computer has evolved from a mere instrument used to process and record information, to a means of automatically processing and transmitting information, and now not only capable of autonomously processing and transmitting data, but also thinking, deciding, acting.[138] The evolution of robots have followed a similar trajectory.

How then can the law deal with a new form of electronic behaviour capable of autonomous action?[139] This is what we hope to propose in the succeeding chapter.

---

[135] Novais, Andrade, Machado & Neves, 'Agents, Trust and Contracts' in Irene Maria Portela and Maria Manuela Cruz-Cunha (eds) *Information Communication Technology Law, protection and access Rights: Global Approaches and Issues* (Information Science Reference, 2010)

[136] Steven Torrance and Denis Roche, 'Does an artificial agent need to be conscious to have ethical status?' in Bibi van den Berg & Laura Klaming (eds) *Technologies on the Stand: Legal and ethical questions in neuroscience and robotics* (WLP 2011)

[137] Edd Gent, 'Google's AI-Building AI is a Step Toward Self-Improving AI' (*SingularityHub*, 31 May 2017) <https://singularityhub.com/2017/05/31/googles-ai-bilding-ai-is-a-step-toward-self-improving-ai/#sm> accessed 20 Dec 2018

[138] Francisco Andrade, Paulo Novais, Jose Machado and Jose Neves, 'Contracting agents: Legal Personality and Representation' (2007) Artificial Intelligence Law Journal 15:357-373

[139] Francisco Andrade, Paulo Novais, Jose Machado and Jose Neves, 'Contracting agents: Legal Personality and Representation' (2007) Artificial Intelligence Law Journal 15:357-373

Intelligence is the ability to adapt to change.
Stephen Hawking

CHAPTER 4

ROBOTS AND THE LAW

4.1 **Robot Defendant?**

Although intelligent agents and legal persons have quite different characteristics, there really are some similarities, especially if we look at them as entities capable of acting and performing acts with legal significance: assuming, of course, that intelligent agents are capable of autonomous action, which makes it reasonable to grant legal capacity to systems that have capacity for autonomous action.[140] This capability may well lead them to reasoning, to an autonomous decision making process, to agreements and contracts etc., all this based on knowledge and in autonomously determined strategy, whilst having 'in mind' each different and concrete situation and also the previous experiences. In this sense, we must agree that, as far as an autonomous action is concerned, intelligent autonomous robots deserve, even more than corporations, to be granted a 'legal personality'.[141]

One key point for criminal law revolves around how the behaviour of autonomous and even intelligent machines should be interpreted.[142] The legal standard for adjudicative competence appears simple: the test is whether a criminal defendant "has sufficient present ability to consult with his lawyer with a reasonable degree of rational understanding-and whether he has a rational as well as factual understanding of the proceedings against him."[143] The first step in such an articulation is recognition that the legal standard embraces a requirement of "decisional competence," that is, the ability to make, communicate, and implement minimally rational and self-protective choices within the unique context of the criminal case.[144] Thus if a person meets the competence test, the law will be fully applicable to him or her or it.

The fault principle has intuitive appeal; to many, fault is simply the natural standard of liability.[145] It seems to be morally right that a person who injures another through fault should have to pay. Nevertheless the moral basis of the fault principle may be disputed. As we have seen earlier with strict liability, the demands of justice may sometimes impose liability and require the payment of compensation without fault. The concern of the law is to determine whether an entity meets the legal standard of decisional competence to be deemed a person for the particular situation, if yes, considerations of fault are legally not much relevant. Having examined the law's approach to

---

[140] Jaap Hage, 'Theoritical Foundations for the Responsibility of Autonomous Agents' [31 Aug 2017] Springer, Artificial Intelligence and Law < https://springer.com/article/10.1007/s10506-017-9208-7 > accessed 2 Jan 2019

[141] Francisco Andrade, Paulo Novais, Jose Machado and Jose Neves, 'Contracting agents: Legal Personality and Representation' (2007) Artificial Intelligence Law Journal 15:357-373

[142] Ugo Pagallo, *The Law of Robots: Crime, Contracts and Torts* (Springer, 2013)

[143] Terry A. Maroney, 'Emotional Competence, Rational Understanding, and the Criminal Defendant' in John Parry (ed) *Criminal mental health and Disability law, evidence and Testimony: A Comprehensive Reference manual for Lawyers, Judges and Criminal Justice Professionals* (ABA Publishing, 2009)

[144] Terry A. Maroney, 'Emotional Competence, Rational Understanding, and the Criminal Defendant' in John Parry (ed) *Criminal mental health and Disability law, evidence and Testimony: A Comprehensive Reference manual for Lawyers, Judges and Criminal Justice Professionals* (ABA Publishing, 2009)

[145] Lunney, Nolan and Oliphant, *Tort Law: Text and Materials* (6th ed, Oxford University Press, 2017) 989

creating new categories of persons, might there be a justification for creating such legal personhood to robots?

4.2 **Robots Making Choices**

For the adversarial system of adjudication to have legitimacy, the defendant must be meaningfully present as an autonomous actor capable of taking, should he or she so choose, permissible steps to attempt to protect himself or herself from the assertion of state power.[146] It is fundamentally important that the law focus on the defendant's decision-making ability as the crucial capacity to which the rationality aspect of the competence construct is directed.[147]

Decision-making processes generally may be described as consisting of perception, understanding, reasoning, and choice.[148] One making a 'rational' decision should have at least minimally intact ability to: (1) perceive the world accurately; (2) think coherently about those perceptions and thereby form valid understandings; (3) run those understandings through a sound reasoning process guided by personally relevant goals; and (4) imagine a conclusion logically flowing from that process, express that conclusion to others, and formulate and execute a course of action flowing logically from the preceding steps[149]

One may reasonably make the argument today that smart autonomous robots are perfectly capable of meeting the above criteria. Artificial Intelligence or machine learning smart autonomous robots are progressively capable of learning from stimuli of their surrounding environment, gaining knowledge and skills from their own conduct, so that robots will increasingly become unpredictable not only for their users but for their designers as well.

4.3 **Man v Machine**

The objection that, contrary to humans, robots are 'just a programmed machine' seems flawed, since too many similarities can be drawn between the combination of our biological design and social conditioning, and the programming of robots for us to take comfort in the proclamation that being humans we are not programmed while artificial agents unequivocally are.[150] If a robot establishes all the elements of a specific offence, both factual and mental, there's no reason to

---

[146] Terry A. Maroney, 'Emotional Competence, Rational Understanding, and the Criminal Defendant' in John Parry (ed) *Criminal mental health and Disability law, evidence and Testimony: A Comprehensive Reference manual for Lawyers, Judges and Criminal Justice Professionals* (ABA Publishing, 2009)
[147] Terry A. Maroney, 'Emotional Competence, Rational Understanding, and the Criminal Defendant' in John Parry (ed) *Criminal mental health and Disability law, evidence and Testimony: A Comprehensive Reference manual for Lawyers, Judges and Criminal Justice Professionals* (ABA Publishing, 2009) 97
[148] <businessdictionary.com/definition/decision-making.html> accessed 18th December 2018
[149] Terry A. Maroney, 'Emotional Competence, Rational Understanding, and the Criminal Defendant' in John Parry (ed) *Criminal mental health and Disability law, evidence and Testimony: A Comprehensive Reference manual for Lawyers, Judges and Criminal Justice Professionals* (ABA Publishing, 2009)
[150] Chopra and White (2011) Pagallo pg 50

prevent imposition of criminal liability upon it for that offence.[151] It would be fundamentally unjust to apportion the blame somewhere else or hold an innocent person (owner or manufacturer) criminally liable.

Under the common law[152] duty of care, a manufacturer or owner of a machine is required to take reasonable care that his product does not cause harm to another;[153] the greater the risk, the greater the measures that must be taken to prevent or mitigate same.[154] The standard generally is that of a 'reasonable person' defined as an ordinary person possessing the degree of skill or competence in an undertaking that is usually associated with its efficient discharge.[155] Thus, a reasonable bus driver is expected to possess the competence of the average bus driver and not that of a pilot. The reasonable person is accordingly required to exercise reasonable care against foreseeable harm. This principle is largely based on common human experience.

This principle of the 'reasonable person' taking adequate care against harm, may no longer be suitable, since the duty of individuals to guard against foreseeable harm is challenged by the growing autonomy of robotic behaviour and cases where no human would be accountable for the unforeseen results of the machine intelligences pathology.[156] The practical difficulties of determining when in the development phase a programmer or manufacturer may be reasonably expected foresee the autonomous actions of a robot are obvious. In fact, no human will have done anything that specifically caused harm and thus no human should be liable for it.

4.4 **Injury from Robots**

If or when a robot causes damage or injury to a person or property who is responsible? How might the law respond to this particularly from a criminal law perspective where a person is generally not responsible for the crimes of another?

With respect to ordinary civil liability, it would appear that the owner, programmer, and/or maker of a robot is likely to wind up paying for any damages caused.[157] When a robot commits a crime however, criminal liability will appropriately depend on whether the robot was being controlled or programmed to take a specific action. If a robot utilized artificial intelligence to learn and act on its own, the question of criminal liability becomes more complicated. When it comes to programmed robots, or robots that are directly controlled by users, the question of criminal liability is easier to resolve; the person whoever was controlling the robot will be subject to criminal liability. If the robot is being controlled directly, then the criminal act will likely be treated the

[151] per Gabriel Hallevery, Unmanned Vehicle (2011) in Ugo Pagallo pg 49
[152] Also statutory in Consumer Protection Act 1987
[153] Donoghue v. Stevenson [1932] A. C. 562
[154] W. V. H. Rogers, *Winfield and Jolowicz on Tort*, (7th ed, Sweet & Maxwell, 2006) 440
[155] W. V. H. Rogers, *Winfield and Jolowicz on Tort*, (7th ed, Sweet & Maxwell, 2006) 77
[156] Pagallo (supra) 75
[157] Niel M. Richards, 'How should the law think about Robotics?' in Calo et al (eds) Robot Law (EE Publishing, 2016) 3; See also

same as if the individual in control was performing the act. For example there have been criminal prosecutions of drone operators that caused injuries due to crashing.[158]

Not surprisingly, when it comes to a programmed robot acting autonomously, criminal liability will be less cut and dry. For starters, whether the action was intentional, reckless, or accidental, can have a significant impact on the severity of the crime charged, and even whether criminal charges will be brought at all. While programming a robot to kill or steal is obviously criminal, there are many more nuanced situations. Consider, for example, a case where a drone is programmed to fly a specific route but is hit by a bird, crashes, and injures a person. Although this may seem accidental, it could be considered reckless if the owner failed to include crash avoidance software. If the victim dies, or is seriously injured, criminal negligence, or even manslaughter charges against the owner could result.[159]

Seeking to establish criminal liability unsurprisingly presents much more of a challenge as criminal intent is a common element of many crimes and a robot's intent may not be ascertainable, and may not necessarily be attributable to an operator, as there is none. With increasing complexity of robotic systems, designers and engineers of a device cannot always predict how they will act when confronted with new situations and new inputs. According to Wendell Wallach, when designers and engineers can no longer anticipate how intelligent systems will act when confronted with new situations and new inputs, it becomes necessary for the robots themselves to evaluate the appropriateness or legality of various courses of action.[160] This should not be viewed as an attempt to shift responsibility and blame from human actors, but rather to apportion blame firmly where it rests. Wallach posits that in the development of robots and complex technologies those who design, market, and deploy systems should not be excused from responsibility for the actions of those systems.[161] At all times, developers, manufactures etc. ought to be jointly liable as co-defendants in order to afford some satisfactory redress to the victim. Technologies that operate to rob individuals of their freedom ought to be rejected.

4.5 **Robots and the New Normal**

The automobile industry has long deployed the use of robots in its manufacturing process. Accidents involving these robots have resulted in the deaths of people. In 1979 a factory worker

[158] https://www.caa.co.uk/News/Police-and-CAA-welcome-successful-drone-prosecution-after-police-helicopter-incident.html> accessed 11th Dec 2018

[159] George Khoury, Esq 'When Robots do the crime, who does the time?' (*Findlaw Blotter: the FindLaw Crime and Criminals Blog, 14 March 2017)* https://blogs.findlaw.com/blotter/2017/03/when-robots-do-the-crime-who-does-the-time.html accessed 27 December 2018 2018

[160] Wendell Wallach, 'From Robots to Techno-Sapiens: Ethics, Law and Public Policy in the Development of Robotics and Neurotechnologies' in B. van den Berg & L. Klaming (eds), *Technologies on the Stand: Legal and ethical questions in neuroscience and robotics* (Wolf Legal Publishers, 2011) 259

[161] Wendell Wallach, 'From Robots to Techno-Sapiens: Ethics, Law and Public Policy in the Development of Robotics and Neurotechnologies' in B. van den Berg & L. Klaming (eds), *Technologies on the Stand: Legal and ethical questions in neuroscience and robotics* (Wolf Legal Publishers, 2011)

was killed at an automobile assembly plant by his robot co-worker.[162] It was the first time a robot killed a man and unfortunately, it would not be the last. In Japan, in 1981, another man was killed by a robot in the factory where they worked together[163]. Over the years these kinds of deaths have been treated as workplace fatalities thus employing labour laws and torts to hold the employers responsible for the deaths or other injuries.

In March 2018 in Arizona, USA, a self-driving Uber sport utility vehicle struck and killed a 49 year old woman as she walked her bicycle across a street[164]. It is reported to be the first fatality involving a fully autonomous car.[165] Uber responded by removing self-driving cars from the roads and agreeing to a private settlement with the estate of the deceased. There is no report of criminal charges brought against the company or any other person for the accident.

In January 2015 in Switzerland, a software robot made international headline news in what may very well be a perfect demonstration of the new complex realities that criminal law could be faced with more frequently in the not so distant future.[166] The automated online shopping robot named Random Darknet Shopper surfed the darknet and purchased several items including illegal drugs, cigarettes, a counterfeit passport and a pair of fake designer shoes. It was able to pay for the items using its weekly bitcoin allowance and when they were delivered to the specified address, the police swooped in to arrest the suspect only to be faced with a computer. The robot was 'arrested' and the items seized. The creators of the robot were questioned and released, they were not arrested themselves and no charges were brought against them. The robot was part of an art exhibition and it appears that this weighed heavily on the police's decision to release the robot and refrain from prosecuting the owners who were the organizers of the exhibition.[167] One wonders whether a different outcome might have ensued if the whole event were not designed for artistic purposes. Would it be fair to charge the owner of a robot who unbeknownst him, commits a criminal offence like buying illegal drugs? What might the considerations be?

---

[162] David Kravets, 'Jan 25 1979: Robot Kills Human' (*Wired*, 25 Jan 2010) < https://wired.com.2010/01/025robot-kills-worker/ > accessed 27 December 2018

[163] Robert Whymant, 'From the archive, 9 Dec 1981: Robot kills factory worker' (The Guardian, 9 Dec 2014) <https://www.theguardian.com/theguardian/2014/dec/09/robot-kills-factory-worker> accessed 29 Dec 2018

[164] Sydney Maki & Alexandria Sage, 'Self-driving Uber car kills Arizona woman crossing street' (*Reuters*, 19 march 2018) < https://www.reuters.com/article/us-autos-selfdriving-uber-car-kills-arizona-woman-crossing-street-idUSKBN1GV296 >accessed 27 December 2018

[165] Matt McFarland, 'Uber self-driving car kills pedestrian in first fatal autonomous crash' (*CNN Business*, 19 March 2018) https://money.cnn.com/2018/03/19/technology/eber-autonomous-car-fatal-crash/index.html accessed 1 Jan 2019. Earlier robot fatalities in were by automatic, not autonomous robots.

[166] Rose Eveleth, 'My robot bought illegal drugs'(*BBC Future*, 21 July 2015) <bbc.com/future/story/20150721-my-robot-bought-illegal-drugs > accessed 18 December 2018

[167] Rose Eveleth, 'My robot bought illegal drugs'(*BBC Future*, 21 July 2015) <bbc.com/future/story/20150721-my-robot-bought-illegal-drugs > accessed 18 December 2018

4.6 **Regulating Robots**

As service and other kinds of robots become increasingly common in daily life, there will be a corresponding growth in the rate of accidents and injuries involving robots. Scenarios like those above are no longer confined to science fiction but are now part of modern living. There is little doubt that the existing legal framework did not anticipate the rise of the robots and so there seems to be a regulatory gap. Consequently, there is a growing recognition of the need to develop special laws and regulations to govern the many facets of human-robot interaction. Some have espoused the need for new consumer protection regulations that take into consideration the complexities that robots present as a special kind of product.[168] Others have called for legislation that strictly define the rights and obligations of robots.[169] We shall briefly state what the regulatory approach has been thus far in other jurisdiction and propose where we think will be the more practical approach.

4.6.1 **The United States of America**

The USA is relevant to our discussion for two reasons: firstly, due to the historical relationship with the UK, common law principles are still applicable.[170] Secondly, it is the leading country in the development of artificial intelligence.[171] In the US, the State Department of Transportation regulations of 2016 state that the self-driving system SDS) in a driverless car is the 'driver' for legal purposes. However, the new regulations do not go as far as to grant artificial intelligence robots legal personhood.[172] The designation is mainly for the purposes of obviating the need for manufactures to seek exemptions for regulatory rules targeted at human drivers[173], for example the rules requiring dashboards to be visible to a human driver.

4.6.2 **Asia**

South Korea: South Korea has the highest robot density in the world. According to some estimates, it is more than eight times the global average.[174] With such robotic penetration comes gained experiences from which others could benefit. South Korea was to first country to develop a framework prescribing the rights and duties of users and owners of robots as well as the rights and duties of robots themselves. They developed the Robots Ethics Charter[175] where robots are

---

[168] Holder et al, *Robotics and Law: Key Legal and Regulatory Implications of the Robotic Age* (Elsevier Publishing, 2016)
[169] Paulius Cerka, Jurgita Grigiene, Sirbikyte, *Is it possible to grant legal personality to artificial intelligence software systems?* (Elsevier Publishing, 2017)
[170] Herbert Pope, 'The English Common Law in the United States' [1910] Harvard Law Review 6
[171] Will Knight, 'The U.S. leads in Artificial Intelligence, but for how long?' (MIT Technology Review, 6 Dec 2017) < https://www.technologyreview.com/s/609610/the-us-leads-in-artificial-intelligence-but-for-how-long/ > accessed 26 Dec 2018
[172] < www.transportation.gov/AV/federal-automated-vehicles-policy-september-2016 > accessed 20 December 2018
[173] Brian A. Browne, 'Self-Driving cars: On the Road to a New Regulatory Era' [2017] Vol 8 Journal of Law, Technology and the Internet
[174]< https://ifr.org/ifr-press-releases > accessed 27 Dec 2018
[175] Kim Yoon-mi, 'Korea drafts "Robots Ethics Charter"' (The Korea Herald, 5 April 2010) <www.koreaherald.com/view.php?ud=200704000021>

afforded the rights to exist without fear of injury or death, and the right to live an existence free from systematic abuse.[176] Users and owners' rights are likewise provided for including the right to be able to take control of their robot and the duty to make sure that the robot is not used to commit an illegal act. The Charter also prescribes manufacturing standards whereby manufacturers and designers are under the legal duty to ensure that the autonomy of the robots are limited so that it must always be possible for a human being to assume control over a robot.

Japan: According to the International Federation of Robotics[177], Japan is the world's largest industrial robot manufacturer.[178] Japan has also adopted what it calls the 'Principles of Robot Law' and interestingly, one of the principles states that a robot must not assist in criminal activities nor aid or abet criminals to escape justice; robots must also not leave the country without a permit.[179] Why did the Japanese deem it necessary to stipulate that robots may not commit crimes, or aid and abet crime? This is interesting in light of the fact that logically, it is only persons capable of doing a thing that are prohibited from doing same as the law does not exist in vain.[180] It would be strange to pass a law that a knife may not commit crimes, because knives are tools, the law only provides that knives may not be used in the commission of a crime. This prohibition of robots from committing crimes suggests an acknowledgment of the fact that a robot is very much capable of engaging in criminal conduct.

4.6.3 **Europe**

Here in Europe, there's been a European Union proposal for the registration of smart autonomous robots especially for the most advances of them. The draft report by the European Union's Committee on Legal Affairs[181] calls on the European Commission to consider:

> *Creating a specific legal status for robots, so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons with specific rights and obligations, including that of making good any damage they may cause, and applying electronic personality to cases where robots make smart autonomous decisions or otherwise interact with third parties independently.*

Robots are playing an increasingly active role in Europe's economy and society, assembling machines, conducting surgeries, and driving vehicles. When smart robots take truly autonomous decisions, "the traditional rules will not suffice to activate a robot's liability, since they would not

---

[176] Eric Hilgendorf & Minkyu Kim, 'Legal Regulation of Autonomous Systems in South Kore on the Example of Robot Legislation' <https://www.jura.uni-wuerzburg.de/fileadmin/_migrated/content_uploads/Legal_Regulation_of_Autonomous_System_in_South_Korea_on_the_Example_of_Robot_Legislation_-_Hilgendorf_Kim_05.pdf> accessed 26 Dec 2018

[177] < https://ifr.org> accessed 20 Dec 2018

[178] < https://ifr.org/ifr-press-releases > accessed 27 Dec 2018

[179] <https://akikok012um1.wordpress.com/japans-ten-principles-of-robot-law/> accessed 28 Dec 2018

[180] James Holland and Julian Webb, *Learning Legal Rules: A Student's Guide to Legal Method and Reasoning* (Oxford University Press, 2013)

[181] <https://ec.europa.eu/digital-single-market/en/robotics> accessed 26 Dec 2018

make it possible to identify the party responsible for providing compensation and to require this part to make good the damage it has caused," the draft report notes.

The report further notes that there are no legal provisions that specifically apply to robotics but that existing legal regimes and doctrines can be readily applied to robotics while some aspects appear to need specific consideration. It goes further to recommend that future legislative instrument should provide for the application of strict liability as a rule, thus requiring only proof that damage has occurred and the establishment of a causal link between the harmful behaviour of the robot and the damage suffered by the injured party.

In addition, the draft report proposes that, in principle, once the ultimately responsible parties have been identified, their liability would be proportionate to the actual level of instructions given to the robot and of its autonomy, so that the greater a robot's learning capability or autonomy is, the lower other parties' responsibility should be, and the longer a robot's 'education' has lasted, the greater the responsibility of its 'teacher' should be; emphasizing in particular that skills resulting from 'education' given to a robot should not be confused with skills depending strictly on its self-learning abilities when seeking to identify the person to whom the robot's harmful behaviour is actually due.

4.7 **The Case for Personal Robot Liability**

The science fiction writer Isaac Asimov[182] developed the three laws of robots as follows:

1. First Law - A robot may not injure a human being, or through inaction, allow a human being to come to harm.
2. Second Law - A robot must obey the orders given it by human beings except such orders would conflict with the First Law.
3. Third Law - A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

Although the laws were designed for the fictional world, they have impacted on the conversations on the ethics of artificial intelligence.[183] Much of the writing on this has been from the consumer protection perspective, advocating for safe manufacturing and design standards, essentially treating robots as commodities. They may very well be, but it is naive to view them solely as such.

The law has often been criticized for being too slow to keep up with the pace of technological development in society as well as being too clumsy in its application making it unable to be nimble

[182] Wendell Wallach & Colin Allen, *Moral machines: Teaching Robots Right from Wrong* (Oxford University Press, 2009) 3-4

[183] See the EU Parliament 2018/2088 (INI) Comprehensive European industrial policy on artificial intelligence and robotics < https://oeil.secure.europarl.europa.eu/oeil/popus/ficheprocedure.do?land-&reference=2018/2088(INI) > accessed 28 Dec 2018

enough to address complex novel legal questions that arise.[184] This is hardly surprising as law making is a time consuming process so that when a new law is made, it quickly becomes outdated due to changes in technology. This is perhaps much more problematic in the field of artificial intelligence which is developing at an exponential pace. It is in recognition of this regulatory gap that judges (especially in the common law judicial system) try to be somewhat creative in their judgments and decisions by interpreting old laws to make them relevant and applicable to current realities. Despite the fact that the way we live and do business has changed greatly, we find that traditional concepts of contract law and law of torts are still relevant without the necessity for new codes to overhaul the entire system. Few would deny the fact that a lot of the subsequent laws in code or other legislation are the result of court judgments.

4.8 **Robots and Corporations**

It is understandable that reasonable minds might be hesitant to embrace the idea that non-human artificial entities like robots be considered 'persons'[185]; however, throughout the evolution of common law, non-human entities have been ascribed legal personality if not for all intents and purposes, then at least for limited purposes.

The law recognizes that natural persons are superior beings entitled to being treated as ends in themselves[186] and not merely as means to achieving an end in line with the Kantian deontological moral philosophy, the Categorical Imperative.[187] It can be said that it is for this reason that non-humans are accorded legal status, that is, for the ultimate benefit of natural persons.[188] How has the law been able to achieve this? Is it because the law has adopted some theory that a company suddenly becomes human at the moment of incorporation? Of course not. The real basis, is in the social consequences of the failure to apply the law to corporations[189] when a cardinal principle of any democratic society is that no one is above the law. Thus the 'person' may be a person for some purposes under the law and may not be a person for others. An entity such as a corporation, could be created by law and given certain legal rights and duties and for the purpose of legal reasoning is treated more or less as a human being.[190]

---

[184] Marchant, Allenby & Herkert, *The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight* (Springer My Copy Uk, 2011)

[185] Janosch Delcker, 'Europe divided over robot "personhood"' (*Politico*, 13 April 2018) <https://www.polotico.eu/article/europe-divided-over-robot-ai-artificial-intelligence-personhood/> accessed 28 Dec 2018

[186] See preamble of the Universal Declaration of Human Rights < www.un.org/en/universal-declaration-human-rights > accessed 2 Jan 2019

[187] Herbert James Paton, *The Categorical Imperative: A Study in Kant's Moral Philosophy* (FB&C Limited, 2017)

[188] Derek French, Stephen Mayson & Christopher Ryan, *Mayson, French & Ryan on Company Law* (28th ed, Oxford University Press 2012) 26

[189] Amanda Pinto & Martin Evans, Corporate Criminal Liability (Thomson Sweet & Maxwell, 2003) 4

[190] See R (Alconbury Developments Ltd) v Secretary of State for the Environment, Transport and the Regions [2003] 2 AC 295 where a company successfully invoked article 6 of the European Convention on Human Rights

Another illustration is with slaves who were for some legal purpose treated as property and for others treated as persons, particularly in the application of criminal law were slaves were legally punished for crimes such as assault, larceny, rape, homicide etc. From the time of the Roman Empire slaves were for hundreds of years regarded variously as property, objects, and currency rather than legal persons. They were clearly human beings but that did not present an obstacle to the law in designating a different legal status to them. Dark and repulsive as this example is, we here seem to have the mirror image of the phenomenon we saw with corporations. Despite the prima facie entitlement of slaves to personhood, the law under a regime of slavery was capable of treating them as persons for some purposes and property for others.[191]

We see no reason why the same legal fiction that operates to recognize personhood of corporations, states and other entities[192] cannot be applicable to robots particularly considering the fact that experts at the UK office of Science and Innovation Horizon Scanning Centre (HSC)[193] warn that robots could one day demand the same rights of citizenship as humans. It is obvious that robots are not corporations, however, at least one similarity between them exists. Both are artificial entities capable of autonomous logical action.

The enterprise of law is dedicated to goals and outcomes rather than the compilation of a simple dictionary. Where the words employed in a given context and the meanings they may have from outside the law conflict with some important goal of social ordering, it is likely to be the words that will be made to give way, hence a corporation which seems very unlikely what we would be normally call a 'person' outside the law becomes a person, at least for some purposes. And for certain purposes the law is just as capable of treating as non-persons classes of individuals we would intuitively regard as persons.[194] Fundamentally, a 'person' is any being the law deems to be a person.[195] 'A word is not a crystal, transparent and unchanged; it is the skin of a living thought and may vary greatly in colour and content according to the circumstances and the time in which it is used.' per Justice Holmes in Towne v. Eisner[196]

4.9 P**urpose of Criminal Law**

One argument against corporate criminal responsibility, that the corporation cannot itself be "guilty" and therefore should not be punished, rests mainly on the tacit assumption that the aim of criminal law is retributive or retaliative[197], which is to say vindictive or vengeful; and consists, in

[191] Amy Van Zee, *Dred Scott v. Sandford: Slavery and Freedom before the American Civil War* (ABDO Publishing, 2013)
[192] John Studley, *Indigenous Sacred Natural Sites and Spiritual Governance: The Legal Case for Juristic Personhood* (Routledge, 2019)
[193] <https://www.gov.uk/government/groups/horizon-scanning-programme-team> accessed 21 Dec 2018
[194] Charles H. Baron, 'The concept of Person in the Law' [1985] Boston College Law School Faculty Papers
[195] Ngaire Naffire, 'Women and the cast of legal persons' in Jones et al (eds) *Gender, Sexuality and Law* (Routledge, 2011)
[196] [1918] 245 US, 481, 425
[197] John Pratt, 'Retribution and Retaliation' in Shoham, Beck & Kett (eds) *International Handbook of Penology and Criminal Justice* (Taylor & Francis Group, 2008) 379

other words, in the satisfaction which society derives from the infliction of harm or pain upon the guilty whom it deems deserving. Corporate irresponsibility is a survival from a time when that was more broadly and clearly true than it is today.[198] It is said that crime involves guilt, that guilt is personal, and that there should therefore be no criminal responsibility; that a corporation cannot itself have a "guilty mind," and should not be criminally responsible for the conduct of others, whatever their relation to it. This argument involves a number of very doubtful premises, besides the premise that the purpose of criminal law is the vindictive one of punishing the "guilty." [199]

However, we are evolving to accept the idea that the infliction of harm is not in itself a good; that the only decent purpose of criminal law, as of any law, is to accomplish something useful to society.[200] It is a fact that a great number of statutory crimes involve no mental element more egregious than the intent to do the act which the statute prohibits; and ignorance of the prohibition is, of course, no defense.[201] Yet still are crimes for which no intent is required to found culpability. One of the paramount civilized purpose of criminal law is deterrence -the prevention of acts which are conceived to injure one social interest or another.[202] Consequently, the question is not solely who should 'punished', but whose responsibility will serve this deterrent purpose (without disproportionate sacrifice of other social interests).[203]

According to some experts in both technology and legal philosophy,[204] it would be meaningless to argue the criminal intentions of a robot to a court. These machines are not to be held responsible for their actions because there is no such thing as a robotic *mens rea*. Robots lack the classic prerequisites of criminal accountability, such as self-consciousness, free will and moral autonomy, so that it is difficult to imagine a court convicting a robot for its illegal conduct.

Considering the fact that the relevant decision-making capacity is utterly context-dependent, no single legal criterion or test applies across all legal competencies, and the law does not presume that competence in one criteria equals competence in another.[205] With artificial intelligence and machine learning unlocking entirely new capabilities for robots, there could be a possibility of situationally ascribing legal competency to robots.

---

[198] Henry W. Edgerton, Corporate Criminal Responsibility, [1927] 36 Yale L. J. 827

[199] Alf Ross, *On Guilt, Responsibility and Punishment* (University of California Press, 1975)

[200] All Answers ltd, 'Why Do We Need Law in The Society Philosophy Essay' (UKEssays.com, Dec 2018) <https://www.ukessays.com/essays/philosophy/why-do-we-need-laws-in-the-society-philosophy-essay.php?vref=1> accessed 28 Dec 2018

[201] Ronald A. Cass, 'Ignorance of the Law: a Maxim Re-examined' [1976] Wm. & Mary Law Review 17

[202] H.L.A. Hart, *Punishment and Responsibility: Essays in Philosophy of Law* (2nd ed, Oxford University Press, 2008)

[203] Zachary Hoskins, 'Deterrent Punishment and Respect for Persons' [2011] Ohio State Journal of Criminal Law 369

[204] Janosch Delcker, 'Europe divided over robot "personhood"' (*Politico*, 13 April 2018) <https://www.polotico.eu/article/europe-divided-over-robot-ai-artificial-intelligence-personhood/> accessed 28 Dec 2018

[205] Terry A. Maroney, 'Emotional Competence, Rational Understanding, and the Criminal Defendant' in John Parry (ed) *Criminal mental health and Disability law, evidence and Testimony: A Comprehensive Reference manual for Lawyers, Judges and Criminal Justice Professionals* (ABA Publishing, 2009)

It has been said that the invention of the legal person was law's great cultural contribution to the organizational revolution in which attribution of action was expanded beyond natural people.[206] If we focus more on legal rather than personal responsibility, there would be no difficulty in finding robots guilty of crimes.

Although retribution and just deserts can be conceived as a form or vengeance, or conversely, re-education, do these expressions make for practical application to corporations and (by extension) robots? Clarkson and Keaton posit that although a company may have 'no soul to be damned and no body to be kicked' it can be likened to 'an intelligent machine' which through its corporate policy can exhibit its own *mens rea*.[207] As we have hitherto established, it is reasonable to classify smart autonomous robots as 'intelligent machines'. In R. v Coley[208] the court held that if the defendant was capable of engaging in 'complex, organized behaviour' then he/she is not to be regarded as acting in an involuntary way, even if he/she is acting under the influence of a 'deluded or disordered mind'. Although this case was not about the mental capacity of a corporation, the fact that the court relied on capacity to engage in complex organized behaviour to found *mens rea* is quite instructive. Robots definitely engage in complex organized behaviour, and by this standard, ought to be capable of criminal liability.

Criminal law is not the primary means of protecting individual and societal interests, and other mechanisms such as social norms play an important role in this as well. The appeal of criminal law is that it provides a deterrent effect whereby public behaviour is turned away from certain conducts due to the fear of punishment.[209] Another justification is the idea that it is just for the state to censure and sanction a person who commits a serious wrong particularly one that demonstrate a disrespect for the values enshrined in the law. Whatever the debates on the justification of criminal law, there is support for the view that criminal law is a deserved response to culpable wrongdoing and a necessary institution to deter wrongdoing.

One of the undergirding fundamental concepts in the justification of criminal laws is the principle of individual autonomy that each individual should be treated as responsible for his or her own behaviour.[210] With this justification, it may be a logical argument to espouse that intelligent robots likewise be accorded same respect as corporations for their autonomy in their decision making particularly when such decisions are independent of human interference. Although experts have recognized that robots present a special class of liability but they do not go as far as calling for their full recognition as legal persons or having agency but rather as unique products requiring unique regulation.[211]

---

[206] Gunther Teubner, 'Rights of Non-humans? Electronic Agents and Animals as New Actors in Politics and Law' [Dec 2006] Journal of Law and Society Vol 33
[207] Clarkson and Keating, *Criminal Law: Text and Materials* (Sweet and Maxwell, 2003) 201
[208] [2013] EWCA Crimm 233
[209] Andrew Ashworth, *Principles of Criminal Law* (6th edn Oxford University Press, 2009) 16117
[210] Andrew Ashworth, *Principles of Criminal Law* (6th edn Oxford University Press, 2009) 16123
[211] Holder et al, *Robots and law: Key legal and Regulatory Implications of the Robotics Age* (Elsevier Publishing Ltd, 2016)

4.10 **Conclusion**

The law must strike a balance between the need to protect consumers of smart automated robot technology and the need for law to allow producers of the technology to continue to innovate. If the law is too restrictive or unreasonable, it can stifle innovation, and harder for society to benefit to the greatest extent possible from developments in robotics. There are considerations of small businesses who are key drivers of new technology and are usually not as well equipped to deal with regulation compliance as larger companies. They could have a harder time competing in an overly restricted environment.

If by some dexterous law making process regulation taking the above concerns into consideration is made, yet another obstacle remains that technology specific regulation could easily become outdated. There are already laws on the books to deal with what happens if a robot injures or kills a person even if the injury is accidental and the programmer or operator is not criminally responsible. Creating regulations beyond those that already exist could prohibit or slow the development of capabilities that could be overwhelmingly beneficial.

The approach that may be suitable would be to apply the same standard of corporations to smart robots. Where the robot acts autonomously, legal personality should be ascribed to it and where it does not, legal personality is not ascribed, all determined on a case by case basis. This can be done while simultaneously maintaining the liability of the manufactures and developers as an incentive to avoid defects or distortions in the manufacture and design of their robots.

We are fascinated with robots
because they are a reflection of ourselves.
Ken Goldberg

CHAPTER 5

CONCLUSION

5.1 **Answering the Research Questions**

We know that technology has grown more exponentially in the few years than in the previous two thousand. Robotics is a new science covering a wide range of specialties, therefore there's no single definition of a robot; and just like the Internet it, robotics is a socially and economically transformative technology with potential applications growing increasingly and rapidly. Robots are no longer confined to industrial uses, but are increasingly being integrated into our daily lives, helping us with simple daily tasks, complex surgeries and military use. Inevitably, increased robot-human interaction could lead to issues of liability in event of damage. It appears that smart autonomous robots which are able to learn and adapt to new environments, and take autonomous decisions pose a challenge to the traditional legal framework as they are neither merely products nor are they people; they occupy a space somewhere in the middle.

The classical criminal law concepts of *actus reus* and *mens rea* were initially developed in the UK for humans and then extended to non-human entities. The concern was whether or not the entity displayed the characteristics of the offence, and not whether or not the entity was human, leading to criminal culpability of corporations. If it served the larger purpose of criminal law in society, then it was immaterial that the defendant is not human provided the entity was capable of rational thought and actions. Legal personality for the most part is on an adhoc basis and is not anchored on humanity, you may be human but lack legal personality for some purposes and vice versa. The same standard could be applicable to robots, if they meet the standard for legal personality for certain purposes, there's no reason why they cannot be treated as such for those purposes.

Making the world ready for robots and robots ready for the world must be a team project. Regulators need help from engineers and ethicists to help craft rules that are well-targeted to grapple with the issues at hand but also likely to work for future developments of the technology. If we concede that robots are good for humans, then the law must strike the proper balance between regulating robots and encouraging their development. What that balance may be is open for further discussion and research, however the one of the advantages of the common law tradition of judicial precedent is that it enables the law to respond to new realities that may not have been anticipated by legislators. It helps to bridge the regulatory gap.

We recommend that policy framers and legislators resist the urge to over-regulate robotics so as not to potentially slow down its development. It is debatable if a comprehensive piece of legislation that covers all relevant technological capabilities of autonomous robots can be achieved. Regulatory connection may best be achieved by taking advantage of the common law making process.

5.2 **Criticisms and Limitations**

One shortcoming of this approach is that it raises questions of legitimacy and accountability in the lawmaking process. Another issue is the uncertainty that can arise without a holistic regulation. An in-depth examination of the merits and demerits of the common law tradition or the legal theories underlying same is not the focus of this thesis, but rather highlighting its functionality in

coping with the challenge that robots present to the law.

This research has not fully explored the technological state of the art of robots due mainly to the desire to make it relevant broadly particularly as any specific technology that may be analyzed will probably become obsolete at the completion of the thesis. Again, we decided to speak in general terms concerning applicability of substantive criminal law to robots and acknowledge that more detailed research is needed with regards to specific types of crimes.

In closing it is worth emphasizing the scope of the robotic personhood I have offered. Specifically, I have not aimed to propose that smart robots possess sufficient human abilities to ground a complete justification of legal personhood. Rather my focus has been on the recognition that they do sometimes perform certain functionalities that demonstrate rational decision making to meet the legal standard required to found liability.

Bibliography

Statutes

Criminal Justice Act 1991
Proceeds of Crime Act 2002
Prevention of Crime Act 1953
Criminal Law Act 1967
Corporate Manslaughter and Corporate Homicide Act of 2007
Interpretation Act 1978
Firearms Act 1968
Animal Act 1971
Reformatory Schools Act 1884
Children and Young Persons Act of 1933
Magistrates Court Act 1980
Powers of Criminal Courts Act 1973
Crime and Disorder Act
Youthful Offenders Act 1854
The Industrial Schools Act 1857
Consumer Protection Act 1987

Case law

R. v Howells [1977] QB 614
Salomon v. A. Salomon & Co. Ltd [1897] A.C. 22
R. v. Parker [1977] 1 WLR 600
Williams v. Hawkes [2017] EWCA Civ 1846
McHale v. Watson [1964) 111 CLR 384
Great North of England Railway Co Case [1846] 9 QB 135
Willmott v. London Road Car Co [1910] 2 Ch 525
R. v. Surrey Quarter Sessions ep Lilley [1951] 2 Q.B. 749
Beverly v The Lincoln Gas Light And Coke Co, 6 A&E 829
Attorney General's Ref (No. 2 of 1999) [2000] Q.B. 796
Hawke v Hulton & Co [1909] 2 K.B 93
Dred Scott v. Sanford [1857]
Towne v. Eisner [1918] 245 US, 481, 425
R. v Coley [2013] EWCA Crimm 233
Benham v the United Kingdom [1996] Reports of Judgments and Decisions 1996-III
Ozturk v Germany (21 Feb 1984, Series A no. 73)
Donoghue v. Stevenson [1932] A. C. 562
R (Alconbury Developments Ltd) v Secretary of State for the Environment, Transport and the Regions [2003] 2 AC 295

Books

Michael Froomkin, 'Introduction' in Ryan Calo, A. Michael Froomkin and Ian kerr (eds), *Robot Law* (Edward Edgar Publishing, 2016)

Ugo Pagallo, *The Laws of Robots: Crimes, Contract and Torts* (Springer, 2017)

Jonathan Herring, *Criminal Law; Text, Cases and Materials*, (8th ed, Oxford University Press 2016)

L. Steels, *Artificial Life Roots of Artificial Intelligence* (MIT Press, 1993)

Ethem Alpaydin, *Introduction to Machine Learning* (2nd edn, The MIT Press, 2010)

Igor Kononenko and Matjaz Kukar, *Machine Learning and data Mining: Introduction to Principles and Algorithms* (Horwood Publishing Uk, 2007)

Ian Goodfellow, Ypshua Bengio and Aaron Cornville, *Deep Learning* (The MIT Press, 2016)

Du Zhang, Jeffery J.P. Tsai, *Advances in machine Learning Applications in Software Engineering* (Idea Group Publishing, 2007)

Karel Capek, *R.U.R Rossum's Universal Robots* (1920) Translated by Paul Selver and Nigel Playfair <preprints.readingroo.ms/RUR/rur.pdf>

Calo, Froomkin and Ker, *Robot Law* (eds) (Edward Edgar Publishing, 2016)

James Barrat, *Our Final Invention: Artificial Intelligence and the End of the Human Era* (Thomas Dunne Books, 2013)

Dawn Watkins and Mandy Burton, *Research Methods in Law* (Routledge publishers, New York, 2013)

Andrew Ashworth & Jeremy Horder, *Principles of Criminal Law* (7th edn Oxford, 2013)

Matthew Dyson ed. *Unravelling Tort and Crime* Cambridge, 2014)

Jeremy Horder, *Ashworth's Principles of Criminal Law* (8th edn Oxford, 2016)

John Child and David Ormerod Smith, *Hogan and Ormerod's Essentials of Criminal Law* (2nd edn Oxford University Press, 2017)

Russell Heaton, *Criminal Law Textbook* (Oxford University Press, 2004)

Andrew Ashworth, *Principles of Criminal Law* (6th edn Oxford University Press, 2009)

Noel Cross, *Criminal Law and Criminal Justice: An Introduction* (Sage Publications, 2010)

L. H. Leigh, *Strict and Vicarious Liability* (Sweet & Maxwell, 1982)

Ashworth and Blake, *The Presumption of Innocence in English Criminal Law*, (Crim LR 306, 1996)

Glanville Williams, *The Mental Element in Crime* (Magnes Press, 1965) 18

H. L. A. Hart, John Gardner, *Punishment and Responsibility* (2nd edn Oxford University Press, 2008)

Nicola Lacey, *In Search of Criminal Responsibility: Ideas, Interests, and Institutions* (Oxford University Press, 2016)

William Schabas, *Unimaginable Atrocities: Justice, Politics and Rights at the War Crimes Tribunal* (Oxford University Press, 2012)

F. J. Beckwith, *Defending Life: A Moral and Legal Case Against Abortion Choice* (Cambridge University Press, 2007)

Sir John Salmond and Patrick John Fitzgerald, *Salmond on Jurisprudence* (Sweet and Maxwell, 1966)

Raymond Arthur, *Punishing Parents for the Crimes of their Children*; (Blackwell Publishing UK, 2005)

James Gobert and Maurice Punch, *Rethinking Corporate Crime* (Butterworths LexisNexis, 2003)

Pinto and Evans, *Corporate Criminal Responsibility* (Sweet & Maxwell, London 2003)

Janet Dine, James Gobert & William Wilson, *Cases and Materials on Criminal Law* (6th ed Oxford University Press, 2010)
Gabriel Hallevy, *When robots Kill: Artificial Intelligence Under Criminal Law* (N UNiversity Press, 2013)
Lunney, Nolan and Oliphant, *Tort Law: Text and Materials* (6th ed, Oxford University Press, 2017)
W. V. H. Rogers, *Winfield and Jolowicz on Tort*, (7th ed, Sweet & Maxwell, 2006) 440
Paulius Cerka, Jurgita Grigiene, Sirbikyte, *Is it possible to grant legal personality to artificial intelligence software systems?* (Elsevier Publishing, 2017)
James Holland and Julian Webb, *Learning Legal Rules: A Student's Guide to Legal Method and Reasoning* (Oxford University Press, 2013)
Wendell Wallach & Colin Allen, *Moral Machines: Teaching Robots Right from Wrong* (Oxford University Press, 2009)
Marchant, Allenby & Herkert, *The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight* (Springer My Copy Uk, 2011)
Herbert James Paton, *The Categorical Imperative: A Study in Kant's Moral Philosophy* (FB&C Limited, 2017)
Derek French, Stephen Mayson & Christopher Ryan, *Mayson, French & Ryan on Company Law* (28th ed, Oxford University Press 2012) 26
Amy Van Zee, *Dred Scott v. Sandford: Slavery and Freedom before the American Civil War* (ABDO Publishing, 2013)
John Studley, *Indigenous Sacred Natural Sites and Spiritual Governance: The Legal Case for Juristic Personhood* (Routledge, 2019)
Alf Ross, *On Guilt, Responsibility and Punishment* (University of California Press, 1975)
H.L.A. Hart, *Punishment and Responsibility: Essays in Philosophy of Law* (2nd ed, Oxford University Press, 2008)
Holder et al, *Robots and law: Key legal and Regulatory Implications of the Robotics Age* (Elsevier Publishing Ltd, 2016

Contributions to edited books

Peter M. Asaro, 'A body to Kick but Still No Soul to Damn: Legal Perspectives on Robotics' in Patrick Lin et al (eds) *Robot Ethics: The Ethical and Social Implications of Robotics* (MIT Press, 2011).
Issam El Naqa and Martin J. Murphy, 'What is Machine Learning?**'** in Issam El naqa, Ruijiang Li, Martin J. Murphy, (eds) *Machine Learning in Radiation Oncology: Theory and Applications* (Springer Switzerland, 2015)
Brady M., 'Artificial Intelligence and Robotics' in: Brady M., Gerhardt L.A., Davidson H.F. (eds) *Robotics and Artificial Intelligence*. NATO ASI Series (Series F: Computer and Systems Sciences), (vol 11. Springer, Berlin, Heidelberg 1984)
Fumio Shimpo, 'The Principal Japanese AI and Robot Law, Strategy and Research toward Establishing Basic Principles' in Woodrow Barfield & Ugo Pagallo (eds) *Research Handbook on the Law of Artificial Intelligence* (Edward Elgar Publishing, 2018)
Richards, 'Rights, Utility and Crime' in Tonry and Morris (eds), *Crime and Justice: An Annual Review* (1981)
Andrea Boboc, 'Theorizing Legal Personhood in Late Medieval England' in Andrea Boboc (ed), *Theorizing Legal Personhood in Late Medieval England* (Brill, 2015)

Steven Torrance and Denis Roche, 'Does an artificial agent need to be conscious to have ethical status?' in Bibi van den Berg & Laura Klaming (eds) *Technologies on the Stand: Legal and ethical questions in neuroscience and robotics* (WLP 2011)
Novais, Andrade, Machado & Neves, 'Agents, Trust and Contracts' in Irene Maria Portela and Maria Manuela Cruz-Cunha (eds) *Information Communication Technology Law, protection and access Rights: Global Approaches and Issues* (Information Science Reference, 2010)
Terry A. Maroney, 'Emotional Competence, Rational Understanding, and the Criminal Defendant' in John Parry (ed) *Criminal mental health and Disability law, evidence and Testimony: A Comprehensive Reference manual for Lawyers, Judges and Criminal Justice Professionals* (ABA Publishing, 2009)
Niel M. Richards, 'How should the law think about Robotics?' in Calo et al (eds) *Robot Law* (EE Publishing, 2016)
Wendell Wallach, 'From Robots to Techno-Sapiens: Ethics, Law and Public Policy in the Development of Robotics and Neurotechnologies' in B. van den Berg & L. Klaming (eds), *Technologies on the Stand: Legal and ethical questions in neuroscience and robotics* (Wolf Legal Publishers, 2011)
Ngaire Naffire, 'Women and the cast of legal persons' in Jones et al (eds) *Gender, Sexuality and Law* (Routledge, 2011)
John Pratt, 'Retribution and Retaliation' in Shoham, Beck & Kett (eds) *International Handbook of Penology and Criminal Justice* (Taylor & Francis Group, 2008)

Encyclopedias

Black's law Dictionary (8th edn 2004)
Oxford Dictionary of Law (5th edn 2002)
Howitt's Dictionary of English Law (2nd edn 1977) 512
Blackstone Commentary on the Laws of England 1455

Journal articles

Noel Sharkey and Amanda Sharkey, 'The Crying shame of Robot Nannies: An Ethical appraisal' (2017) LUCS
Will Knight, 'The Dark Secret at the Heart of AI' [2017] MIT Technology Review.
Leenes et al. 'Regulatory challenges of robotics: some guidelines for addressing legal and ethical issues' (2017) Law Innovation and technology
Gerkey, Vaughan & Howard, 'The Player/Stage Project: Tools for Multi-Robot and Distributed Sensor Systems' (2003) ICAR <https://semanticscholar.org/paper> accessed 11 June 2018
Uri Maoz and Gideon Yaffe, 'What does recent neuroscience tell us about criminal responsibility?' (2015) Journal of Law and Biosciences
Charles Taylor, 'The Concept of a Person' [1985] Philosophical Papers Vol 1, Cambridge University Press
Ifeanyi Menkiti, 'Person and Community in African Traditional Thought' (1984) <www.symposium/pdf/201_300/206.pdf> accessed 19 Dec 2018
Victor J. Krawczyk and Monica A. Hamilton-Bruce, 'The origins of Compassion for Animals: Legal Privileging of Non-wild Animals in Late Georgian Britain' (2015) Journal of International Wildlife and Policy
Hannah Wishart, 'Was the Abolition of the Doctrine of Doli Incapax Necessary?' [2013] UK Law Student Review, Vol 1 Issue 2

Francisco Andrade, Paulo Novais, Jose Machado and Jose Neves, 'Contracting agents: Legal Personality and Representation' (2007) Artificial Intelligence Law Journal 15
Jaap Hage, 'Theoretical Foundations for the Responsibility of Autonomous Agents' [31 Aug 2017] Springer, Artificial Intelligence and Law < https://springer.com/article/10.1007/s10506-017-9208-7 > accessed 2 Jan 2019
Herbert Pope, 'The English Common Law in the United States' [1910] Harvard Law Review 6
Eric Hilgendorf & Minkyu Kim, 'Legal Regulation of Autonomous Systems in South Kore on the Example of Robot Legislation' <https://www.jura.uni-wuerzburg.de/fileadmin/_migrated/content_uploads/Legal_Regulation_of_Autonomous_System_in_South_Korea_on_the_Example_of_Robot_Legislation_-_Hilgendorf_Kim_05.pdf> accessed 26 Dec 2018
Charles H. Baron, 'The concept of Person in the Law' [1985] Boston College Law School Faculty Papers
Henry W. Edgerton, 'Corporate Criminal Responsibility' [1927] 36 Yale L. J. 827
Ronald A. Cass, 'Ignorance of the Law: a Maxim Re-examined' [1976] Wm. & Mary Law Review 17
Zachary Hoskins, 'Deterrent Punishment and Respect for Persons' [2011] Ohio State Journal of Criminal Law
Gunther Teubner, 'Rights of Non-humans? Electronic Agents and Animals as New Actors in Politics and Law' [Dec 2006] Journal of Law and Society Vol 33

Websites and blogs

Alex Owen-Hill, 'What's the Difference Between Robotics and Artificial Intelligence?' (*Robotiq*, 19 July, 2017) <www.robotiq.com/whats-the-difference-between-robotics-and-aritificial-intelligence> accessed 25 May 2018
<https://www.techopedia.com> accessed 10th April 2018
<https://www.iso.org/obp/ui/#iso:std:iso:8373:ed-2:v1:en> accessed 29 Dec 2018
Jordan Pearson, 'The sheer difficulty of defining what a robot is' (*Motherboard*, 17 April 2015) <https://motherboard.vice.com/en_us/article/5394v5/the-sheer-difficulty-of-defining-what-a-robot-is> accessed 24 June 2018
John Spacey, '20+ Robotic Terms' (*Simplicabe*, 8 Dec, 2016) <https://simplicable.com/new/robotics> accessed 24 Dec 2018
Peter Holley, 'Bill Gates on dangers of artificial intelligence "I don't understand why some people are not concerned"' (*Washington Post*, 29 Jan 2015) <https://washingtongpost.com/news/the-switch> accessed 25 Sep 2018
Catherine Clifford, 'Elon Musk: "Mark my words- A.I. is far more dangerous than nukes"' (*CNBC* 13 March 2018) <https://www.cnbc.com/2018/03/13/elon-musk-at-sxsw-a-i-is-more-dangerous-than-nuclear-weapons.html> accesses 11 June 2018
Rory Cellan-Jones, 'Stephen Hawking warns artificial intelligence could end mankind' (*BBC*, 2 Dec 2014) <https://bbc.com/news/technology/30290540> accessed 25 may 2018
Jeffrey Wale and David Yuratich, 'Robot Law: what happens if intelligent machines commit crimes?' (*The Conversation*, July 2015) <http://Theconversation.com/2015/index/html> accessed 10 July 2018
<https://www.plato.stanford.edu/entries>
<https://www.europarl.europa.eu/topics/treaty/pdf-en.pdf> accessed 22 Dec 2018

Brandon Keim, 'New York State Court Hears landmark Chimpanzee personhood case' (*Wired*, 10 Sep 2014) <https://www.wired.com/2014/10/chimpanzee-personhood-hearing/> accessed 21st Nov 2018
Jonathan Stempel, 'New York's top court refuses to free chimps from cages' (Reuters 8 May 20180 <https://www.reuters.com/article/us-new-york-chimpanzees/new-yorks-top-court-refuses-to-free-chimps-from-cages-idUSKBN1I925W> accessed 20 Dec 2018
Edd Gent, 'Google's AI-Building AI is a Step Toward Self-Improving AI' (*SingularityHub*, 31 May 2017) <https://singularityhub.com/2017/05/31/googles-ai-bilding-ai-is-a-step-toward-self-improving-ai/#sm> accessed 20 Dec 2018
<businessdictionary.com/definition/decision-making.html> accessed 18th December 2018
<https://www.caa.co.uk/News/Police-and-CAA-welcome-successful-drone-prosecution-after-police-helicopter-incident.html> accessed 11th Dec 2018
George Khoury, Esq 'When Robots do the crime, who does the time?' (*Findlaw Blotter: the FindLaw Crime and Criminals Blog, 14 March 2017)*
https://blogs.findlaw.com/blotter/2017/03/when-robots-do-the-crime-who-does-the-time.html accessed 27 December 2018 2018
David Kravets, 'Jan 25 1979: Robot Kills Human' (*Wired*, 25 Jan 2010) < https://wired.com.2010/01/025robot-kills-worker/ > accessed 27 December 2018
Robert Whymant, 'From the archive, 9 Dec 1981: Robot kills factory worker' (The Guardian, 9 Dec 2014) <https://www.theguardian.com/theguardian/2014/dec/09/robot-kills-factory-worker> accessed 29 Dec 2018
Sydney Maki & Alexandria Sage, 'Self-driving Uber car kills Arizona woman crossing street' (*Reuters,* 19 march 2018) < https://www.reuters.com/article/us-autos-selfdriving-uber-car-kills-arizona-woman-crossing-street-idUSKBN1GV296 >accessed 27 December 2018
Matt McFarland, 'Uber self-driving car kills pedestrian in first fatal autonomous crash' (*CNN Business*, 19 March 2018) https://money.cnn.com/2018/03/19/technology/eber-autonomous-car-fatal-crash/index.html accessed 1 Jan 2019
Rose Eveleth, 'My robot bought illegal drugs'(*BBC Future*, 21 July 2015) <bbc.com/future/story/20150721-my-robot-bought-illegal-drugs > accessed 18 December 2018
Will Knight, 'The U.S. leads in Artificial Intelligence, but for how long?' (MIT Technology Review, 6 Dec 2017) < https://www.technologyreview.com/s/609610/the-us-leads-in-artificial-intelligence-but-for-how-long/ > accessed 26 Dec 2018
< www.transportation.gov/AV/federal-automated-vehicles-policy-september-2016 > accessed 20 December 2018
Brian A. Browne, 'Self-Driving cars: On the Road to a New Regulatory Era' [2017] Vol 8 Journal of Law, Technology and the Internet
< https://ifr.org/ifr-press-releases > accessed 27 Dec 2018
Kim Yoon-mi, 'Korea drafts "Robots Ethics Charter"' (The Korea Herald, 5 April 2010) <www.koreaherald.com/view.php?ud=200704000021> accessed 27 Dec 2018
< https://ifr.org/ifr-press-releases > accessed 27 Dec 2018
<https://akikok012um1.wordpress.com/japans-ten-principles-of-robot-law/> accessed 28 Dec 2018
<https://ec.europa.eu/digital-single-market/en/robotics> accessed 26 Dec 2018
https://oeil.secure.europarl.europa.eu/oeil/popus/ficheprocedure.do?land-&reference=2018/2088(INI) > accessed 28 Dec 2018

Janosch Delcker, 'Europe divided over robot "personhood"' (*Politico*, 13 April 2018) <https://www.polotico.eu/article/europe-divided-over-robot-ai-artificial-intelligence-personhood/> accessed 28 Dec 2018
< www.un.org/en/universal-declaration-human-rights > accessed 2 Jan 2019
<https://www.gov.uk/government/groups/horizon-scanning-programme-team> accessed 21 Dec 2018
All Answers ltd, 'Why Do We Need Law in The Society Philosophy Essay' (UKEssays.com, Dec 2018) <https://www.ukessays.com/essays/philosophy/why-do-we-need-laws-in-the-society-philosophy-essay.php?vref=1> accessed 28 Dec 2018