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The Human Embryo *in vitro*: A Processual Entity in Legal Stasis

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Abstract

This doctoral research explores the ways in which UK law engages with embryonic processes, namely under the Human Fertilisation and Embryology Act 1990 (as amended).

The research offers a fuller understanding of these elusive and evolving biological processes, and in particular, how they can, in turn, allow us to understand legal process and legal regulation more deeply. To do so, the thesis employs an anthropological concept - liminality - coined by Arnold van Gennep, which is itself concerned with revealing the dynamics of process. Liminality may be described as being concerned with the spaces *in between* distinct stages of human experience or with the *process* of transition between such stages. With this framing of liminality in mind - which is often characterised as a three-stage process of human experience - the research is divided into three parts, broadly reflecting the three parts of van Gennep's liminal schema: *into*, *through*, and *out* of liminality.

It is argued herein that in regulating the embryo – that is, a processual *liminal* entity in itself - the law is regulating for uncertainty. Tracing the legal governance of the early stages of human life, from its inception to today's regulatory frameworks, the research diagnoses a 'legal gap' between the conceptual basis for regulation, and practical 'realities' of the 1990 Act (as amended). In particular, this 'gap' is typified by uncertainty surrounding embryos *in vitro,* and what this thesis diagnoses as 'legal stasis'.

In order to situate this novel liminal analysis within existing paradigms, however, the thesis first frames embryos *in vitro* as 'gothic', building upon emergent analytical responses to postmodern forms of categorisation. This framing helps to articulate the nature of, and the reasons for, the abovementioned 'legal gap.' This framing is nonetheless incomplete without

a liminal lens, as it draws our attention to the dynamics of the processes occurring within this 'gap'. It is argued that considering the 'problem' in this manner enables us to move beyond conceptualisation, towards realisation.

The gothic, and the liminal are thus used to critically assess legal representations of the embryo, and suggests that there are ways in which the law might better embrace the multiplicity of environments through which the embryo *in vitro* can travel, that is, either towards reproductive or research ends. It is argued that full recognition of these variable, relational liminal states of the embryo is important for the future of artificial reproduction and embryo research, and that this does not currently happen. In order for the law to reflect better the uncertain nature of embryonic processes, and the technologies that create them, the thesis posits a nuanced, contextual reframing of the embryo that captures the multiplicity of embryonic 'pathways' available within the 1990 Act (as amended).

The overarching objective of this work is to consider a more coherent and robust intellectual defence of the ways in which we justify different treatments of *in vitro* embryos. It thus proposes a 'context-based approach' that embraces the variable, relational pathways already facilitated by the 1990 Act (as amended) in order to lead the embryo (and itself) into, through and *out* of liminality.

Lay Summary

At the embryonic stage of human life, development and change happens more rapidly than in any other stage of growth. In the UK, human embryos may be created outside of a woman's body (*in vitro*), and used either for reproductive purposes (i.e. IVF), or for scientific research. The legal framework governing these practices and processes has been in place for almost three decades.

This thesis argues that the embryo may therefore be described as a processual entity, that is something going through evolution and change; leaving one state of being, and *becoming* another. This thesis asks: to what extent does UK law embrace embryos' processual nature?

In order to understand these processes and their regulation more deeply, this thesis uses a concept derived from anthropology: liminality. Arnold van Gennep coined this term in the early 1900s in his study of human ritual ceremonies, for example those that take a child from 'boyhood' to 'manhood'. Its importance lies in the fact that it can be applied more widely, and in particular as an analytical lens to understand processes more deeply. The argument is made that the law governing the regulation of embryos created and used *in vitro* does not properly reflect the processes that embryos go through a) biologically, and b) within the various 'pathways' they can be led through our current legal framework. For example, the 'research embryo' has a very different end to the 'IVF embryo'. The thesis exposes the full implications of recognising this, and ultimately advocates an approach that embraces these pathways, or variable 'contexts'.

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Declaration

As per Regulation 32 of the Postgraduate Assessment Regulations for Research Degrees (2017/18) I acknowledge that portions of this thesis have appeared in the following peer-reviewed publication:

- Samuel Taylor-Alexander, Edward Dove, Isabel Fletcher, Agomoni Ganguli-Mitra, Catriona McMillan, and Graeme Laurie, 'Confronting the Liminal Spaces of Health Research Regulation: Beyond Regulatory Compression' (2016) 8(2) Law, Innovation and Technology 149.

As per Regulation 34 of the Postgraduate Assessment Regulations for Research Degrees (2017/18) I confirm that:

- This thesis has been composed by me;
- This is solely my own work, except where work that has formed part of jointly authored publications has been included. This has been clearly identified above on this page; and
- This work has not been submitted for any other degree or professional qualification.

Catriona McMillan

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1. Introduction

1.1 Background

'The embryo' is not the same embryo it was 28 years ago. As medical science marches forward, commonly held constructions of the embryo are becoming increasingly problematic. The physical contexts in which the embryo can exist are growing and changing, as are its possible *teleologies*.[1] The politics of fertility have been extended to new heights[2] with the harnessing, control and enhancement of reproductive genetic procedures in the biotechnology industry. In recent years, the processes of reproduction have been given "unprecedented forms of scientific assistance,"[3] none of which would have been possible without the research that came before it. In 1978, Louise Brown was the first child to be born through *in vitro* fertilisation ('IVF').[4] Since then, the embryo *in vitro*, born from an assemblage of biological and technological matters, generated complex ontological and moral questions for the law.[5]

[1] For the purposes of this thesis, this term is used to highlight the reproductive and research ends for regulated embryos *in vitro*. This is discussed in detail in Chapter 6.
[2] Sarah Franklin, 'Postmodern Procreation: A cultural account of assisted reproduction' in Faye Ginsburg and Rayna Rapp (eds), *Conceiving The New World Order: The Global Politics of Reproduction* (University of California Press, 1995) 326.
[3] Ibid.
[4] The procedure whereby an egg is fertilised by a sperm outside of the body.
[5] While this thesis does not claim that law is necessarily the solution, or answer to these moral questions, this work explores ways in which law might address these questions in a more coherent and justifiable manner.

The Human Fertilisation and Embryology Act 1990 ('the 1990 Act') is the key piece of legislation on the embryo *in vitro*. Yet, because of the changes and opportunities facilitated by the 1990 Act, reproduction and research have been defined and redefined,[6] in legal, cultural, social, political and even economic senses.[7] Arguably, its influence on our spheres of understandings in this domain can be grouped under three broad headings:

1. On the embryo *in vitro* itself;
2. On science (persons and practices e.g. research practices and researchers); and
3. On the family (in the broadest sense e.g. donors, potential parents, hypothetical mothers, and hypothetical children).

The regulation of emerging technologies may be described as the governance of processes in persistent flux, and in some cases, it is the regulation of what we do not yet know or fully understand. Reconciling process with progress, therefore, has not been easy. Nonetheless, the regulation of the embryo *in vitro*, and all the practices that law currently allows is, in essence, regulating for processes of change.[8] Considering that it has been over 27 years since the 1990 Act was passed in its original form, is it time to legally reconceive 'the embryo'?

This thesis, carried out as part of a five-year Wellcome Trust funded interdisciplinary project entitled 'Confronting the Liminal Spaces of Health

[6] Franklin 'Postmodern Procreation' (n2).
[7] There is much contemporary debate surrounding the commodification of, and accessibility to fertility treatment. For more on this, see: Donna Ferguson, 'IVF and the NHS the parents navigating fertility's postcode lottery' (*Guardian*, 10 May 2014) https://www.theguardian.com/money/2014/may/10/ivf-nhs-fertility-postcode-lottery-cut-costs accessed 29 January 2018.
[8] Samuel Taylor-Alexander et al, 'Confronting the Liminal Spaces of Health Research Regulation: Beyond Regulatory Compression' (2016) 8(2) Law, Innovation and Technology 149.

Research Regulation,'[9] seeks to explore the ways in which UK law engages with embryonic processes, and with the scientific processes to which *in vitro* embryos are subject. While its focus is on the first strand of the tri-partite set of considerations laid out above, it also recognises the law's regulation of embryos invariably has an effect on the second and the third headings.[10] Embryos created *in vitro* sit at the core of modern reproductive and scientific life. They are uniquely transformative, as regulated biological entities, and for that reason they move between normative delineated legal spaces, and beyond them, for example, from creation in the laboratory into the human gestational environment or from creation in the laboratory to controlled destruction in that same sterile environment. Embryos' processual nature, for this thesis, lies in their growing, changing, and transforming nature.[11] Embryonic evolution is the most rapidly fluctuating biological process in human life.[12] This complexity is mirrored in legal frameworks that are simultaneously detailed and ambiguous. In the eyes of the law that governs these entities - the 1990 Act (as amended) - embryos are neither subject (in a strict legal sense of being a legal person), nor mere object (in the strict sense of being only a 'thing'),[13] yet, as we will see, the self-same law often supports their treatment as both at the same time.

More granularly, this doctoral research argues that in regulating this processual, *liminal* entity, law is regulating for uncertainty. It assesses the extent to which law incorporates and makes use of embryonic legal-

[9] Award No: WT103360MA.
[10] These, as this thesis' conclusion discusses, may be distinct areas of future enquiry for research, building upon the findings of this work.
[11] Scott Gilbert, 'An Introduction to Early Developmental Processes' in Scott Gilbert *Developmental Biology* (6th ed, Sinauer Associates, 2000). https://www.ncbi.nlm.nih.gov/books/NBK9992/ accessed 29 January 2018.
[12] Ibid.
[13] Marie Fox, Pre-persons, commodities or cyborgs: the legal construction and representation of the embryo' (2000) 8(2) Health Care Analysis 171.

ontological boundaries.[14] In Part One, this work calls particular attention to the legal boundedness of embryos *in vitro,* which, I argue, are in contrast to the processes it leads embryos through. To explain, I use 'legal boundedness' here to refer to law's tendency to put the objects of its regulation in 'silos', which can result in "largely disconnected ecosystems."[15] I argue that this has contributed to a 'legal gap' between the conceptual basis of the 1990 Act (as amended), and the 'pathways' it has made available to the embryo.

Further, I claim that embryo regulation, as it stands, is ill equipped to deal with the multifaceted, relational[16] nature between embryos *in vitro*, and the variable contexts that the law (itself) takes the embryo *into, through* and *out* of. I thus call for, and consider, the basis for a more coherent and robust intellectual defence of the ways in which we justify the different manners in which law treats different types of embryos created purposively towards different ends. The main question that this thesis seeks to answer is the following: Overall, does law reflect and embody processual regulation, if so, what does this look like?; and if not, what form could it take if reform were thought to be desirable?

1.2 Analytical framework

In order to answer my overall research question, above, this research employs a socio-legal analysis that draws on the abovementioned anthropological concept of 'liminality'. The term, coined by anthropologist

[14] Here meaning the ontologies of an entity drawn out in law. Discussed further in Chapters 3-4.
[15] Graeme Laurie, 'Liminality and the Limits of Law in Health Research Regulation: What Are We Missing in the Spaces In-between?' (2016) Medical Law Review 47, 50.
[16] Relational to persons who create, use and gestate them. Discussed further in Chapters 6 and 7.

Arnold Van Gennep,[17] may be described as being concerned with the spaces *in between* distinct stages of human experience or with the *process* of transition between such stages. It is often utilised to understand, and examine, those who occupy, and often transgress delineated spaces; it is inherently concerned with better comprehension of the processual nature of *becoming*. This research, which seeks to understand these processes, thus employs this concept in order to explore how we can better apprehend legal process and legal regulation more deeply with respect to embryos that are created to become particular types of entity, that is, a possible future person, or an object of research, or indeed possibly other ends.

To explain further, even though the law has made considerable effort to clarify bio-ontological categories of being (for example, distinguishing between gamete and embryo), these lines are still blurred. This is demonstrated by on-going debates, for example, concerning the nature, scope, and limits of embryo research, time-limits on abortion, and indeed in UK and European Court of Human Rights ('ECHR') case law about whether, when and how protections might be given to the 'unborn'. A liminal lens emphasises the processual nature of biological growth in early human life; that is, a continuous process from conception to birth and beyond. Part of the research problem, is, therefore, that there is a mismatch between present and evolving scientific and social understanding and legal approaches, when considered along ontological lines. This has significant moral and social implications, and thus begs a question about how well regulation in this area operates and whether it can, or should, be improved. Further, the tripartite liminal process (*into, through,* and *out*)[18] mirrors the process embryos go through under the 1990 Act (as amended). It highlights

[17] Arnold van Gennep, *The Rites of Passage* (University of Chicago Press 1960).
[18] Ibid 21. Also see Chapter 6, section 2 of this thesis.

(as shown in a Diagram 1 in Chapter 7)[19] the various thresholds embryos are led to, and beyond. For example, embryos are led into, through, and out of research, the processes of which (especially 'through') may be prolonged by activities such as embryo freezing.

Overall, this lens enables thinking to move beyond purist legalistic approaches in a field that is especially non-legal. It implies that law requires more than legal reasoning to adequately reflect that which it regulates, especially when it comes to embryos. It also enables the analysis in this thesis to move *between* and *beyond* delineated legal spaces.

While liminality is central to this work, I also argue that, as a lens, it does not wholly allow us to assess the *nature of*, and the *reasons for* the 'legal gap' (identified in Part One). Building on the works of others,[20] I argue that embryos *in vitro* fit well within a framing that has emerged in response to postmodern categorisations of the 'Other': principally, the 'gothic'.[21] As a response to the 'Othering' of those who do not fall into law's liberalist norms (a sovereign, self-sufficient subject,[22] or an object), it helps us to understand, more deeply, the embryo's uncertain nature, and law's responses to it therein.[23]

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[19] Also see Appendix 1.
[20] Namely the works of Mary Ford (now Mary Neal), and Isabel Karpin. See Mary Ford, 'Nothing and Not Nothing: Law's Ambivalent Response to Transformation and Transgression at the Beginning of Life' in Stephen Smith and Ronan Deazley (eds) *The Legal, Medical and Cultural Regulation of the Body: Transformation and Transgression* (Routledge, 2009); Isabel Karpin, 'The uncanny embryos: Legal limits to the human and reproduction without women' (2006) 28(4) Sydney Law Review 599.
[21] More on this in Chapter 5. See, for example: Kelly Hurley, *Gothic Body* (Cambridge University Press, 1996); Victor Sage and Allan Lloyd Smith (eds), *Modern Gothic* (Manchester University Press, 1996); and Fred Botting, *Gothic* (Routledge, 1996).
[22] See Ford (n20)
[23] Ibid.

1.3 Thesis Structure

This thesis has been divided into three parts: 1) Into Liminality; 2) Through Liminality, and 3) Out of Liminality. This division emphasises the embryonic processes that law begins, regulates, and ends, and further, reflects the tripartite stages of van Gennep's processual understanding of human liminal experience. Each of these Parts has its own abstract, detailing the aims and key arguments. These may be found on the title pages for Part One, Part Two, and Part Three. The structure of this thesis, and each Part, is briefly summarised below.

1.3.1 Part One

In 'Part One: Into Liminality', this work argues that the law governing embryo research and IVF has led the embryo *in vitro*, and itself (the law), *into* a form of (what this thesis diagnoses as) 'legal stasis'. Notably, the thesis starts with the premise of the embryo as a processual entity, rapidly transforming from one biological state to another. In other words, it is quintessentially *liminal*[24] (the meaning of which is discussed in Chapter 6). It is law's reflection of these processes, within its framework, that this thesis is interested in. It begins by asking: to what extent does law, in fact, reflect these processes?

Chapter 2 provides a doctrinal tracing of law's engagement with the embryo from its early construction in law to the modern day. It does so with a view to demonstrating law's evolution alongside scientific and societal understandings of the embryo. Notable from this legal history is the law's

[24] This framing has already been used in a different context, see Susan Squier, *Liminal lives: Imagining the human at the frontiers of biomedicine* (Duke University Press, 2004).

persistent efforts to engage with the embryo's uncertain, processual nature. This chapter situates the embryo within its legal context by tracing the inception of the embryo in law, and the evolution of its regulation. It aims to show that throughout its relatively short legal history, the regulation of the early stages of human life has attempted (to one extent or another) to engage with the processual and uncertain nature of the early stages of human life. To this end, the chapter provides a doctrinal and analytical history of 'the embryo' in UK law. This analysis is important for this thesis in order to show that process matters for law making in this context. This framing also sets up Chapter 3's discussion of the contemporary context in which we regulate the embryo in *vitro*, and serves as a stark counterpoint because, as will be shown in Chapters 3 and 4, the processual now seems to be lost or overlooked.

Chapter 3 also adopts a doctrinal approach to look at the embryo-in-law in the present day, the basis of which was set by the Warnock Report[25] and the 1990 Act (as amended). One of the primary ways in which the law has engaged with the embryo is through affording it an ethico-legal 'special status'.[26] The chapter assesses current laws in relation to this, particularly regarding the law's engagement with embryonic processes.

In Chapter 4 it is then argued, building upon recent critical literature on the regulated embryo, that in the context of the present day, the law is inadequately engaging with the embryo's uncertain, processual nature. Despite regulating a multiplicity of embryonic processes, and pathways through the law (for example, a 'research pathway', or a 'reproductive pathway'), all embryos are (at least per the intellectual basis of the 1990 Act)

[25] *Report of the Committee of Inquiry into Human Fertilisation and Embryology* (Cmnd 9314, 1984) ('The Warnock Report').
[26] Ibid 11.18.

regulated under a singular 'special status'. It is at this stage that this work makes a marked move from referring to 'the embryo' to 'embryos' in order to reflect this multiplicity. Overall, the ossification of legal development in this area is diagnosed as a 'legal stasis.' The chapter finishes by asking two questions: 1) Why might this be? And 2) How might we move law past this stasis, assuming it is desirable to do so?

Overall, the analysis from Part One reveals a clear juxtaposition between law, as an institution that creates clear-cut boundaries, and the embryo, as a processual, changing and rapidly evolving liminal entity. This is not to say that the law is not processual to some extent, which in fact, as this Part's analysis shows, it always has been. If process has always been central to law making in this field, however, as the end of Chapter 4 argues, there is room for its further incorporation into our legal framework, again, assuming it is desirable to do so.

1.3.2 Part Two

'Part Two: Through Liminality' explores a hitherto underexplored connection between a response to the postmodern that has emerged – namely, 'the gothic' - and the anthropological lens used in this thesis, that is, liminality.[27] Based on this, and building upon previous analysis regarding the static nature of the regulation of the embryo *in vitro*, Chapters 5-6 aim to understand legal responses to embryos, and processual regulation therein, more thoroughly. This Part's overarching question is thus: 'How can we understand legal process, and legal regulation more deeply?'

[27] 'Liminality' is occasionally referred to in gothic literature, but the link between the two concepts has hitherto been unexplored in any depth, to my knowledge.

With a view to answering question 1) above ('why might this be?'), Chapter 5 explores parallels that may be drawn for embryos, from a concept that has evolved as a response to the 'Othering' of certain sectors of society. This concept, namely the 'gothic self', is closely linked to the 'monstrous',[28] and explores the ways in which we respond to persons (and entities) that are not self-sovereign (something that law arguably presupposes). In exploring this framing, this chapter draws on the work of Mary Ford[29] and Isabel Karpin[30] and frames the regulated embryo *in vitro* as paradigmatic of 'the gothic', and emphasises the utility, for law, in recognising the parallels between this concept and embryos.

This work argues that framing embryos *in vitro* as 'gothic' is undoubtedly useful for understanding the nature of, and the reasons for our current framework more deeply. Nonetheless, I also argue that, as a frame of analysis, 'the gothic' alone does not address the 'legal gap' fully. This is because it does not directly deal with understanding the dynamics of process in a deeper sense, which, as Part One shows, is required in order to answer its second question: 2) How might we move law past this, assuming it is desirable to do so? It thus leaves the question for this thesis as: how might we regulate embryos more processually? Chapter 6 therefore introduces, and discusses the anthropological concept of liminality,[31] which – as already noted - is concerned with the dynamics of processes and states of in-betweenness. After Van Gennep developed liminality, in the context of tribal societies, others, including Victor Turner,[32] have since developed liminality to encompass several dimensions within modern

[28] Ford (n20).
[29] Ibid.
[30] Karpin 'Uncanny embryos' (n20).
[31] van Gennep (n17).
[32] Victor Turner, *The Forest of Symbols: Aspects of Ndembu Ritual* (Cornell University Press, 1967).

societies.[33] For this thesis, then, liminality can be used as a tool to help show us how law, along with the embryo, can emerge out of the regulatory purgatory they are in today. Indeed, current law may arguably be described as reflecting many of the major symptoms of 'permanent liminality', a modern theory of liminality concerned with that which does not emerge out of the 'other side' of processes/change. This chapter will first introduce the concept, before going on to apply it as a lens to embryos *in vitro*, and the framework governing them in the UK. It argues that both embryos *in vitro*, and the law that governs them, have features of 'permanent liminality'.[34] Finally, it will draw on lessons from Chapter 5 in order to consider what 'the gothic' and liminality, combined, might tell us about how we can close the above discussed 'legal gap.'

By the end of Part Two, the thesis will have shown that there are ways that law can better (in terms of processuality) navigate and capture the contexts that it is leading the embryo *through*. It finishes by asking: How can law better reflect the uncertain nature of embryonic processes, and the technologies that create them?

1.3.3 Part Three

In 'Part Three: Out of Liminality', this research explores how lessons learned from a gothic analysis, and liminal lens (per Part Two) may be taken from *conceptualisation to realisation*. It will be argued that if the law were to take process seriously (as it has done in the past), and that if liminality teaches us about the permanent liminality of law in this area, then it is perhaps time for

[33] For example, see Squier (n24).
[34] Árpád Szakolczai, 'Permanent (Trickster) Liminality: The Reasons of the Heart and of the Mind' (2017) 27(2) Theory and Psychology 231.

the law to explicitly recognise the separate contexts that it is leading the embryo into, through, and *out* of.

Chapter 7 explores what processual regulation *could* look like, as a framework for governing the use and production of embryos *in vitro*. Given that liminality, as a lens, enables us to understand more deeply the multiplicity of contexts in which embryos are used and created, it shall be argued that if law wants to continue accounting for process, as it has done in the past, then it might consider what this thesis calls a 'context-based approach.' This approach, which explicitly attempts to recognise the separate contexts that law is leading embryos into, through, and out of, is not prescribed *per se*, but rather is offered as a way of legally embracing a processual approach (if that is indeed what we want for law).

Finally, in Chapter 8, this thesis concludes by considering some of the broader implications that a context-based approach might have. It takes two examples: 1) the potential implications for the 'legal gap' identified in Part One, and 2) contemporary debates surrounding the 14-day rule. Importantly, this Chapter is not assessing what we *should* do, but what some of the things that the law *could* possibly do via this approach. Rather, it emphasises that the analysis of this thesis can *add* to legal, ethical, and social discussions on the embryo *in vitro*.

Before this work commences, the rest of this introduction will clarify and discuss certain key premises for this research. First, it asks 'what is an embryo?' (for the purposes of this research), a question to which law, science, and other disciplines each have their own answers.

1.4 Definitions

1.4.1 'Embryo'

This subsection clarifies the meaning of "embryo" and "embryos" for the purposes of this research. First, I acknowledge the undecidable, unknowable nature of 'the embryo' (or 'embryos') in definitional terms. There is undoubtedly some disparity within the scientific communities themselves, as well as between science and the social sciences with regards to their definition.[35] Navigating the biological definition, or purporting to define the embryo in general, is not this thesis' aim.

Second, this thesis is primarily concerned with embryos *in vitro*. The thesis does not extend as far as to discuss the research upon and/or use of foetal or abortus tissue. Nonetheless, due to the nature of tracing the legal history of governing this early stage of human life, Chapter 2 does not exclusively focus on embryos (of which there was very little mention until the 20th Century), and thus uses embryo/foetus interchangeably until a concrete *legal* distinction emerges in the chronology.

Third, it is clear that the embryo, however defined in law, has no objective definition (like many things). This thesis shall not attempt to provide one for law. Rather, it will look at the law's navigation of these actual/possible/multiple definitions, as they have changed throughout history, and as they are used today. I argue that this navigation is important for the future of human health, as affected by the governance of the use of

[35] See Marie-Andrée Jacob and Barbara Prainsack, 'Embryonic Hopes: Controversy, Alliance, and Reproductive Entities in Law and the Social Sciences' (2010) 19(4) Social Legal Studies 497.

embryos for reproduction and research. As stated, this work will focus on the embryo *in vitro* as a cornerstone to the regulation of reproduction and research under the 1990 Act (as amended). Thus, for the purpose of this thesis' references to the entity, when referring to embryos *in vitro*, it is referring to entities created within the rubric of the 1990 Act (as amended), in line with the legal definition of embryo given in the legislation under s1.

This definition has been used because this is the primary legislation with which this research is concerned. By taking this definition for the purposes of this thesis' reference, this work is not necessarily supporting its use within law. The above described of what the 1990 Act (as amended) calls 'permitted embryo' (i.e. a 'human' embryo) is human and anything else is not; but it is nonetheless unclear on what 'human' entails. How we should define embryos, or indeed 'human' embryos is a matter beyond the ambit of this work, the reasoning for which is discussed briefly below, and further in Chapter 7. It was nonetheless important to clarify this up front and in advance of the discussion which follows.

In sum, herein when this work refers to 'the embryo', it is primarily referring to the embryo-in-law (as opposed to 'the embryo' in other contexts). Notably, at the end of Chapter 4, this work makes a marked shift from referring to 'the embryo' to 'embryos', in order to reflect the findings of Part One (the multiple 'embryos' governed under the 1990 Act's singular 'special status). Exceptions are made to this when discussing the works of others.

1.4.2 The embryo's 'moral status' and 'legal status'

This work refers to 'moral status' and 'legal status' throughout the text in reference to embryos and occasionally foetuses. In this thesis, 'moral status'

is primarily taken to mean the moral standing of embryos within society.[36] While the latter is mentioned throughout, it is not the focus of this work *per se*. Nonetheless, this work recognises that neither the embryo's moral status,[37] nor value, [38] is either fixed or unfixed; there is no objective truth in this regard. 'Legal status' is used to refer to the status afforded to embryos *in vitro* in law, by the 1990 Act (as amended), and underpinned reflection of the Warnock Report's recommendations. [39] Legal status is of course inherently moralistic, but the key differences for the purposes of this work are: a) embryonic 'status' in ethical and societal deliberation more generally, and b) law's interpretation, and reflection of this. As explained further in the next section, this thesis, as a thesis in law, is only concerned with assessing (b). What is legally appropriate, or what we *should* do, which arises out of analysis of (b) is of course a separate debate. No particular stance is taken in this regard because it is not necessary to do so for the purposes of making the original contribution that is claimed in this thesis. In addition to the above, I also acknowledge that there is a crucial legal difference between the legal status of the embryo for IVF and research, and the legal status of the embryo in an abortion context. Of course, this difference in moral status was not set out in law (albeit not explicitly articulated) until the 1990 Act.

Overall, it is important to emphasise that primary point of interrogation in which this thesis is interested is the way in which law navigates embryonic

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[36] See Agnieszka Jaworska, and Julie Tannenbaum, 'The Grounds of Moral Status' (The Stanford Encyclopedia of Philosophy*,* 10 Jan 2018) https://plato.stanford.edu/entries/grounds-moral-status/ accessed 29 January 2018.
[37] Ibid.
[38] See Schroeder, Mark, 'Value Theory' (The Stanford Encyclopedia of Philosophy, Fall 2016 Edition), Edward Zalta (ed) https://plato.stanford.edu/archives/fall2016/entries/value-theory/ accessed 20 January 2018.
[39] The meaning of, or contours of which were not described within the Warnock Report. See Warnock Report (n25) 11.18.

moral *status*, as that focused upon in the Warnock Report, rather than moral *value* (which is more difficult for law to capture).

1.4.3 Process

As mentioned above, this thesis starts with the premise that 'the embryo' is a processual entity. This subsection explains what is meant by 'process' for the purposes of this work.

There is not one definitive way in which we can talk about process, generally speaking. For the purposes of this thesis, process is a focal point for two reasons: the inherently (perhaps undeniably) processual, transformational, and rapidly changing nature of embryos *in vitro*; and the regulation of multiple scientific processes (for example implantation, research, or cloning) under the framework of the 1990 Act (as amended).

The Oxford English Dictionary defines 'process' as: "going on, continuous action, proceeding" and, philosophically, as "the course of becoming as opposed to static being."[40] This thesis employs the term 'process' in line with the above definitions, and the term is relied upon in order to highlight the importance of the different steps taken in achieving (potential) embryonic ends. As mentioned above, process is an integral part of the liminality literature, which refers to it in a similar manner (albeit dependent on context). Arnold van Gennep began by using it to highlight the transitional aspects of tribal rites of passage,[41] and much later Susan Squier discussed the cultural impact(s) that relatively new processes of becoming that

[40] 'process, n.' (OED Online. January 2018) http://www.oed.com/view/Entry/151794?rskey=eUDGoU&result=1&isAdvanced=false accessed 20 February 2018.
[41] See van Gennep (n17).

embryos (amongst other entities, e.g. foetuses) can go through as a result of the transformation of medicine.[42] Integral parts of these (liminal) processes are thus a sense of transition, transformation, and becoming, from one state to another. All of this is discussed further in Chapter 6.

1.5 Thesis Dimensions

This section draws out the contours of this thesis by, first, delineating what it is *not* about, and second, emphasising the key dimensions of this enquiry.

1.5.1 This work is not about…

How we *ought* to treat embryos, legally or otherwise.

To echo the above section, as a legal thesis, this work does not make claims regarding moral correctness. As Emily Jackson concludes in *Regulating Reproduction,* "law is not capable of divining any absolute truths about the moral status of the embryo."[43] While law cannot distil any objective truths, it arguably still needs to divine some sort of 'right' based on social consensus, and if it is to do so, as it has done, it has to go forth in a legally appropriate[44] manner. It should therefore be noted that this thesis does not intend to directly discuss what the embryo's moral status *should* be, but rather the aspects of its regulation that liminality (and the gothic) calls into question. This helps us to critique the law *as it is*. It is suggested

[42] Particularly, as they are affected (and 'reconfigured') by the relationship between biomedicine and science fiction. See Squier (n24).
[43] Emily Jackson, *Regulating Reproduction* (Hart, 2001) 229.
[44] By 'legally appropriate', I mean appropriate for the pathways or processes it enables persons to put embryos through.

that if the law is not as well justified, as it seems, then it becomes problematic for society and for those affected by it (as the debate mentioned above shows). Neither a gothic framing, nor liminality, necessarily provides a concrete answer to this contentious issue. Nonetheless, this thesis contends that, as an analytical framework, they can enable us to think about more justifiable ways to regulate embryos, in their various states of *becoming*.

Thus, this work is primarily interested in how law deals with the reality of a plurality of entities – embryos – created with different purposes in mind. It is concerned with law's creation of possible pathways and with how it regulates those entities in question as they proceed along the respective pathways. It is thus more of a forensic analysis of law's role in challenging and acknowledging these pathways, and providing appropriate structure around them ('appropriate' here meaning that it is suitable for that pathway, and the end to which each pathway leads).

1.5.2 Dimensions of this thesis

With all of the above in mind, the bullet points below delineate the key areas of enquiry for this thesis, broken up into three parts:

- Part One: In what ways does UK law engage with embryonic processes, if at all?
- Part Two: How can we understand legal process, and legal regulation more deeply?
- Part Three: How can law better reflect the uncertain nature of embryonic processes, and the technologies that create them?

- Overall, this thesis asks: Does law reflect and embody processual regulation, if so, what does this look like?; and if not, what form could it take if reform were thought to be desirable?

Now, to Part One of this thesis, which begins by exploring the ways in which law has engaged with the embryo, as a biological entity of unclear and changing parameters.

Part One: Into Liminality

Part One of this thesis draws out the contours of the research problem. In doing so, it asks: how consistently does, and can, law treat the embryo? It will show that the answer is that law has treated the embryo inconsistently, and this is because law has changed relatively regularly, historically speaking, to reflect changing knowledge and perceptions of the early stages of human life. In other words, I argue that process has been central to law making.

With a view to demonstrating this, Chapter 2 provides a historical account of law's engagement with embryonic (and foetal) processes. Building on this, Chapters 3 and 4 focus on the development of law since the advent of IVF and the regulatory framework imposed by legislation such as the 1990 Act (as amended). The point is made that, while we persist in talking about 'the embryo' in lay and legal circles, law has in fact created a multiplicity of embryos, for example as future persons and as research "artefacts,"[45] to name just two.

By the end of Part One, this thesis will show 1) that process is important for law-making in this field, and relatedly that 2) there is a 'legal gap' between the intellectual basis, and practical 'realities' of the present framework. This 'problem' then becomes the basis for consideration of alternative conceptualisations explored in Part Two.

[45] John Kenyon Mason, *Human Life and Medical Practice* (Edinburgh University Press, 1988) 94.

2. The Evolution of 'the Embryo' in Law: A Matter of Process

2.1 Introduction

Reproductive law in the UK has developed against a background of competing and changing interests. These interests include a morass of moral and religious values, and, further the perceived interests of the embryo, the mother, and medical professionals. As time has passed, and our biological understandings of the early stages of human life have evolved, the law has attempted to recalibrate the balance of these interests in one way or another. Although reproductive technologies and embryo research have only been available for a handful of decades, legal protection of the embryo (and the foetus) dates back several hundred years.

The following sections provide a brief historical tracing of the presence of the embryo in statute and case law in the UK (or lack thereof). This chapter has been written as a precursor to a central contribution of this thesis: if the law wants to continue on to reflect the processual nature of the embryo, this thesis offers a frame of legal analysis that captures the embryo's uncertain, processual nature that can inform policy responses to its existence and use. This frame of analysis shall be discussed in Part Two.

This chapter chronologically traces past legal engagement with the human embryo, from the 13th century, to the end of the 20th century. It does so with a view to demonstrating that a historical perspective is required to

understand that process is a key facet of law making in this area. Notable from this legal history is the law's persistent efforts to engage with the embryo's uncertain, processual nature. We cannot fully understand our present position without understanding the social, moral, and legal context from which it was born. By looking at the past 'legal embryo,' we can see how the law has reached today's 'legal embryo'. Before this tracing begins, however, some points of clarification should be noted.

First, while this account focuses on legal history in reference to governance of the early stages of human life, there are other aspects of this history that, for example, direct us to consider the gendering effects on women's lives, and it is thus important to note that there are different ways in which history can be told.[46] This research tells history from the perspective of law's engagement with the embryo, with a view to exploring the origins of the legal embryo (i.e. the embryo in law), as an entity distinct from the legal foetus; the beginnings of which are intertwined with evolving understandings of the early stages of human life at the time.

Second, it is important to be clear, at this stage, that the legal demarcation of 'stages' of human life might be seen as categorical, and thus anti-processual.[47] This is not untrue. Nonetheless, a key point about the development of these 'categories', for this thesis, is that it (eventually) moved law towards recognising, increasingly, the transformative nature of gestation, and embryonic growth. Another key point, for this chapter, is that to some extent the processual nature of the embryo (*in vivo*) has historically been central to law and legal development. As the next section shall discuss,

[46] To echo Sheelagh McGuinness and Michael Thompson 'Medicine and abortion law: complicating the reforming profession' (2015) 23(2) Medical Law Review 177, 199.
[47] See Chapter 1, subsection 4.3 for the definition of 'process' for the purposes of this work.

the origins of legal demarcation between different 'stages' of development go as far back as the 13th century in the UK.

Third, 'the embryo', as an entity, was relatively rarely mentioned in law until the inception of the 1990 Act, although prior laws did govern what we would now call 'the embryonic stages of life'. For these reasons, the following section looks at the law's navigation of changing scientific and social perceptions of what we might term 'embryos' *and* 'foetuses' today, until a legal distinction was made between these two entities emerged. While this work recognises that 'embryos' and 'foetuses' are commonly considered different biological [48] entities, legally, socially, and scientifically, the demarcation lines between the two remain somewhat blurred, particularly historically. Thus, with the absence of a historical distinction between the two, where both were often referred to as 'the child', in this first section I use these terms interchangeably where historical legal distinction has not been made, and where such fluid terminology was also used. Relatedly, it is important to note that the embryo *in utero* is relevant for the purposes of this chapter in order to provide a holistic overview of the frameworks from which our present one was borne. Nonetheless, as this thesis is primarily concerned with the embryo *in vitro* and the regulation of the earliest stages of human life, in later sections the working definition of 'embryo' (at least in terms of demarcating it from a foetus) shall be the early stages of human life as regulated by the 1990 Act.[49]

[48] This may be considered as different from whether or not considers embryos and foetuses to be *morally* distinct entities.

[49] It is important to note the purpose of this is not to imply that a clear differentiation should be made between the two stages of growth, but to provide some descriptive clarity for the reader. Biologically, there may be some crossover with current definitions of the foetus, but as there is no clear legal distinction between the two entities, it would not be useful for this thesis to attempt to make one at this juncture.

Fourth, while this chapter discusses process, and the development of regulatory frameworks therein, the use of this word should not be taken to imply that these developments were a form of progress, or indeed, 'progressive'. As the below shall show, many legal developments throughout history may be described, for some, as anti-progressive, particularly for the reproductive rights of women.

Thus, overall, Chapter 2 shows:

- That looking purely at contemporary debates in this field would give an incomplete picture of processual regulation and;
- That we need a historical perspective to understand that process matters for the regulation of the early stages of human life.

Before we turn to the chronological tracing, the next subsection provides a brief background on 'quickening', a key biological moment for law from the 13th to late 19th centuries.

2.2 Background

The basis of English and Scots laws governing the early stages of human life, in both civil and criminal contexts, may be found in a concept used in early Christian religious philosophy, 'quickening.' To explain, the term 'quickening', per its use in law, was derived from the ecclesiastical distinction between an *embryo formatus*, and an *embryo informatus*;[50] based on the belief that there is a difference between embryos that had 'animated'

[50] Bernard Dickens, *Abortion and the Law* (MacGibbon and Kee, 1996); Glanville Williams, *The Sanctity of Life and the Criminal Law* (Knopf, 1957).

(began to move within the womb), and thus had a 'soul' (and could therefore be baptised) and those that had not. 'Quickening', a term still used today, refers to the point in pregnancy at which the foetus became 'animated'; in other words when the woman first felt the foetus' movements in her womb. Throughout much of history, this stage of pregnancy has been of huge philosophical and practical importance to pregnant women: "in the days before blood tests and First Response kits, the quickening often provided the first reliable sign of a woman's pregnancy."[51] For centuries, quickening remained as a legal and moral dividing line for when interference (resulting in termination) may (or may not) occur. The law thus started off, in reference to the embryo/foetus, by treating pregnancy in two stages.[52] This is mirrored in Bracton's distinction between a 'formed' foetus, and a 'quickened' foetus, in 2.3 below.

It is worth noting that, at a similar time to the development and use of 'quickening' in UK law, 'preformation', a theory of the beginnings of human life, was commonly touted by scientists, particularly in the 18th century.[53] The theory of preformation, in its original form, held that a 'homunculus' (pre-formed person) was 'planted' in the woman during sexual intercourse, which then grew in size over nine months in her womb.[54] For preformationists,

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[51] Ruth Graham, 'The quickening: the momentous pregnancy event that became a relic' (Slate, 29 May 2015) http://www.slate.com/articles/double_x/doublex/2015/05/the_quickening_the_momentous_pregnancy_event_that_became_a_relic.html Accessed 30 August 2017.

[52] For clarificatory purposes: considering that mothers usually cannot feel movement until the 16-20 week stage, in the following sections reference to 'quickening' refers to a stage which we, today, would call the early stage life in the mother's womb a 'foetus' and not an 'embryo'.

[53] Jane Maienschein, 'Epigenesis and Preformationism', (The Stanford Encyclopedia of Philosophy, first published 11 October 2015) https://plato.stanford.edu/archives/spr2017/entries/epigenesis/ Accessed 01 September 2017.

[54] Alice Baxter, 'Edmund B. Wilson as a Preformationist: Some Reasons for His Acceptance of the Chromosome Theory' (1976) 9(1) Journal of the History of Biology 29, 30.

biological growth was thus a matter of physical growth, not biological process. This contrasts with epigenesis:

> For Aristotle, the causes lie internal to the combined fluids rather than outside. An individual life begins when the male and female semen are brought together. This is an external action and it starts the individual developmental process in motion. From that point on, the process is internal and driven by internal causes. The process then leads to development of form of the individual's type.[55]

Thus, to contrast the theories, in one the woman is essentially an incubator, whereas the other recognises (at least more so) the essential role of the woman in embryonic process: with "[p]reformation, stability, and predictability stood on one side, with epigenesis, dynamic process, and change on the other."[56] While this theory is not referenced in Hansard at any point in parliamentary discussions on the embryo,[57] it is highly possible that the rise and fall of preformation had a direct effect on the law. As we shall see below, the return of epigenesis in the 19th century coincided with the removal of the quickening distinction; in its place came a more processual legal approach.

Moreover, it was not until the late 18th century that doctors started to learn more about the nature of the embryo/foetus pre-quickening,[58] and eventually their cellular processes became clearer in the 19th century with advances in microscopy. Interestingly, Aristotle is also credited with the theory of

[55] Maienschein (n53).
[56] Ibid.
[57] This was researched via the Hansard website. The term was not present in any of the search results. This may be explained by the fact that the online records only go back to 1803, by which time epigenesis was becoming more the commonly held scientific theory anyway.
[58] See below.

epigenesis (the theory that an embryo evolves from cell differentiation),[59] the cellular theory commonly held today (albeit in a different form than Aristotle's). Thus, preformation and epigenesis stood in stark contrast, until the latter was proven biologically[60] accurate through experiments in the 19th century.[61] Until then, the law addressed scientific (and perhaps moral) uncertainty surrounding how we should treat embryos by providing no sanction against interference at this stage.

2.3 Pre- 19th Century

Henry of Bracton[62] made one of the earliest recorded references to the relationship between early human life and the law in the UK. Writing in the 13th Century, he posited that where a foetus had formed or quickened, terminating it while *en ventre sa mere* ('in the mother's womb') was murder:[63]

> If one strikes a pregnant woman or gives her poison in order to procure an abortion, if the fetus is already formed or quickened, especially if it is quickened, he commits homicide.[64]

It seems that for Bracton, causing the miscarriage of a foetus that had began moving was more morally and legally criminal than terminating a foetus that had formed, which occurs several weeks before quickening

[59] Maienschein (n53).
[60] Philosophically and/or metaphysically speaking, it is more complicated. See Maienschein (n53).
[61] Baxter (n54).
[62] Also known as Henry Bretton, Henry Bratton, and Henry de Bracton.
[63] Samuel Thorne (tr)*, Bracton on the Laws and Customs of England*, vol 2 (Belknap, 1968); Andrew Grubb, 'Abortion law in England: the medicalization of a crime', (1990) 18(1-2) Journal of Law and Medical Ethics 146, 147.
[64] Thorne (n63) 341.

(around week 8).[65] Here lies once of the first instances of an attempt to account for process in law. While this was of course not explicit, one can infer from the use of quickening as a legal 'marker' that there was some degree of recognition of rapid growth and development of the early stages of life *in utero*. It might be counter argued that this was a matter of legal utility rather than an attempt to recognise process; as discussed above, it would have been difficult to know at this time whether or not a woman was pregnant before quickening. Nonetheless, I argue that 'processual law'[66] here, and described below, does not have to be intended, or created with the purpose of being processual. Nor was it always entirely processual. Notably, it is the importance of the process of development for making, and amending law, that this thesis wishes to highlight.

In 1641, Sir Edward Coke wrote that while the abortion of a foetus was a "great misprision," it was "no murder."[67] He did, however, consider abortion worthy of criminal punishment:[68]

> If a woman be quick with childe, and by a potion or otherwise killeth it in her wombe, or if a man beat her, whereby the child dyeth in her body, and she is delivered of a dead childe, this is great misprision, and no murder; but if he childe be born alive and dyeth of the potion, battery, or other cause, this is murder: for in law it is accounted a reasonable creature, in *rerum natura*, when it is born alive.

[65] 'You and your baby at 0-8 weeks pregnant' (NHS Choices, 28 February 2017) http://www.nhs.uk/conditions/pregnancy-and-baby/pages/pregnancy-weeks-4-5-6-7-8.aspx?tabname=pregnancy Accessed 02 January 2018.
[66] By this, I mean law that accounts for process in one way or another (although not necessarily 'fully').
[67] Co Inst III, 50.
[68] Coke (n67).

In other words, at this time, terminating an unborn embryo/foetus was not 'murder' at common law, yet still a punishable criminal offence. As of yet, 'the embryo' had not emerged as a legally recognised entity. It was not granted legal protection at this stage, nor was it commonly referred to in law. It seems that the legal 'marker' at this time was based on what they 'relied' on as evidence (at least, what they thought they could rely on). It is unclear what was meant here by 'born alive', but from his discussion of the status of the 'child' in the womb in the sentence beforehand, we can glean that Coke was referring to *ex utero*, or 'born' children. This is interesting, for the purposes of this research, because this type of approach, to some extent, accounts for the processes that need to take place in utero before an embryo/foetus can be 'born alive'.

One of the earliest direct legal references to an 'embryo' in the UK may be found a short time after Coke's writings, but in Scots law, in the case of *The Town of Stirling v the Unfreemen in Falkirk and Kilsith* from 1672:[69]

> That there is a great difference to be made between a law that never attained observance, and a law that once was observed, but has long lain in desuetude; the second is, indeed, a law, because it had once a perfect and a consummate being; the first is no better than an embryo, and deserves not the name of a law; and of this kind be the acts founded upon by the pursuers. That the regalities have possessed all these privileges immemorially.[70]

To provide some context, the question before the court was whether a posthumous son could benefit from an estate, even if he was not included in the deceased's will. Interestingly, it was held that he could. The above

[69] (1672) 2 Bro Sup 642.
[70] Ibid at 643.

phrase "no better than an embryo"[71] arguably suggests that the court regarded embryos as less deserving of legal recognition than one that had been 'observed' (i.e. the pregnancy was visible). Growth *in utero*, to the point of physical visibility, had to have been observed, then, for the law to observe the foetus as deserving of its attention (here, retrospectively). Furthermore, it exemplifies understandings of embryonic/foetal growth's effect on the physical, legal limits of proof at that time, where quickening still applied as both a civil and criminal law test.[72]

Writing almost a century later, William Blackstone traced the historical evolution of abortion in common law, confirming the writings of those before him. Although his works were predominantly written in relation to civil rights and civil immunities, under the heading of the right of security, his commentary provides more insight into the legal status of the embryo at that time, and the preceding years:

> Life is the immediate gift of God, a right inherent by nature in every individual; and it begins in contemplation of law as soon as an infant is able to stir in the mother's womb. For if a woman is quick with child, and by a potion, or otherwise, killeth it in her womb; or if any one beat her, whereby the child dieth in her body, and she is delivered of a dead child; this, though not murder, was by the antient law homicide or manslaughter. But at present it is not looked upon in quite so atrocious a light, though it remains a very heinous misdemeanour. An infant in *ventre sa mere*, or in the mother's womb, is supposed in law to be born for many purposes. It is capable of having a legacy, or a surrender of a copyhold estate made to it. It may have a guardian assigned to it; and it is enabled to have an estate limited to its use,

[71] Ibid.
[72] See *Nurse v Yerworth* (1674) 3 Swanston 608, [620].

> and to take afterwards by such limitation, as if it were then actually born. And in this point the civil law agrees with ours.[73]

Stages in growth process, however demarcated, were thus important for criminal purposes. At this time (1765), and in contrast to earlier years, while the abortion of a quickened foetus was a criminal offence, it was not murder.

Moreover, quickening evolved as a bright moral-legal line for other areas of criminal sanction, too. A few years later, in 1770, Blackstone wrote:

> Life begins in contemplation of law as soon as an infant is able to stir in the mother's womb...to be saved from the gallows a woman must be quick with child- for barely with child, unless he be alive in the womb, is not sufficient.[74]

The firm sanctions provided by criminal law thus intertwined with civil law to depict the physically apparent, quickened foetus as if it were 'born' for many legal purposes.[75] Indeed, before the invention of ultrasound technology (in the 20th century, discussed below) it would be hard to know that an embryo was there, and in order to be guilty of procuring, or attempting to procure an abortion, *mens rea* was necessary.[76] Similarly, intent to leave inheritance could not be presumed at that time where quickening had not occurred. In fact, at this time the law was more commonly concerned with the unborn 'child' as a potential inheritor, than as a potential 'victim'; the majority of

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[73] William Blackstone, 'Amendment IX, Document I' in *Commentaries on the Laws of England*, (Chicago University Press, 1765) 388.
[74]William Blackstone, *Blackstone's Commentaries (*4th edn, Clarendon Press, 1770) 129; quoted in Deirdre Madden, *Medicine, Ethics and the Law in Ireland* (2nd edition, Bloomsbury Professional) 206.
[75] For example the law of inheritance, or the criminal offence of causing an abortion.
[76] While *mens rea*'s presence as a requirement in law has been variable throughout English legal history, it can be traced back to Bracton's time. See Eugege Chesney, 'Concept of Mens Rea in the Criminal Law' (1939) 29(5) Journal of Criminal Law and Criminology 627.

case law on unborn children at this time fell within the civil realm.[77] The underlying presence of the criminal law remained nonetheless. Although Blackstone noted that abortion was no longer a very serious offence, the common law continued to take it as a lesser criminal, yet still "heinous"[78] criminal offence. In this manner, the more uncertain, less visible stage of life was not covered in law at this time. It seems that at this time, before early stage pregnancy was ascertainable by medicine, law's way of dealing with uncertainty with regards to the embryo/foetus was not to attach any criminal offence. Only when the foetus' presence was certain could an offence have occurred.

To summarise the findings detailed above, the origins of legal protection of the early stages of human life in the UK date back as far as the 13th century, with 'quickening' acting as a bright legal and moral boundary. For centuries afterwards, this distinction stood fast, and became crystallised in our legal system through common law, and then through statutes. This crystallisation may be attributed to the low technical and physical visibility of the embryo/foetus during these times. The distinction between pre- and post-quickening was evidently a demarcation that was important for law in the UK during the 17th and 18th centuries; it was treated as a bright moral and legal boundary. Although *partus formatus* was less commonly referred to at this time, pre-quickening and pre-*partus formatus* were thought to occur at a similar time, when the 'whole body' of the foetus has formed, usually in the third month.

But how do these boundaries interact with processes? It seems, from the below (and Chapters 3 and 4), that legal boundaries, based on understandings of embryonic/foetal processes, were tallied with law's

[77] Based upon searches via Westlaw, and other online case law resources.
[78] Blackstone (n73).

requirement for some sort of certainty with regards to what we can and cannot do (both criminally, and civilly).

2.4 The 19th Century

The early 1800s saw the introduction of stricter criminal sentences against interference with embryos/foetuses *in vivo*. It also witnessed the introduction of statutory frameworks on the matter, which provided more legal detail than previously. The sanctions attached to the pre- and post- quickening distinction of the 17th and early 18th centuries were reinstated by one of the first Acts of English law which gave status to what we would now refer to as the foetus (then 'child'), Lord Ellenborough's Act 1803 ('the 1803 Act').[79] While causing the termination of a pregnancy did not constitute murder in and of itself under the statute, it rendered an *indented* act of causing or performing an abortion one that was punishable by death.[80] Under s1, a death penalty was prescribed where an abortion was attempted or performed post-quickening. Otherwise, s2 prescribed 'transportation'[81] for fourteen years. In other words, the 1803 Act differentiated between procurement, or attempts to procure an abortion, *before* and *after* 'quickening'.

The Offences Against the Person Act 1828 ('OAP Act 1828')[82] repealed the 1803 Act in its consolidation of offences against the person, and once again, prescribed the death penalty for post-quickening abortions[83] (pre-quickening

[79] Also known as the 'Malicious Shooting or Stabbing Act 1803'.
[80] A similar Act was also enacted in Scotland around this time, see Malicious Wounding, etc (Scotland Act) 1825.
[81] A common alternative to the death penalty in the 18th and part of the 19th century, where convicted criminals were transported to one of the colonies to serve their sentences.
[82] Also known as 'Lord Lansdowne's Act. This Act only applied in England and Wales.
[83] OAP Act 1828, s13.

abortions were still not deemed an offence). While s2 of the 1803 Act punished only to procure abortion via the use of instruments or tools, the OAP Act 1828 extended this prohibition on post-quickening abortion to include efforts carried out by *any* means. Sir Robert Peel, who steered Lansdowne's Act through the House of Commons, declared that the purpose of the Bill was to clarify and simplify the frameworks, and that its contents were considered desirable by "persons whose knowledge of the subject and experience entitled their opinions to credit and respect."[84] Thus, as (relatively) modern medicine grew as a discipline, law seemingly turned its attention to it increasingly.[85]

Capital punishment for attempting to procure or causing post-quickening abortions was not repealed until the OAP Act 1837. The objective of the OAP Act 1837 was to render the law relating to offences against the person more lenient, thereby facilitating enforcement.[86] Interestingly, this Act also revoked the enduring distinction between pre- and post-quickening abortions. Section 6 of the OAP Act 1837 replaced this section of the OAP Act 1828, and abolished the death penalty for abortions 'post-quickening'. While an offence under the new Act no longer prescribed capital punishment, the penalties remained harsh. Section 8 of the OAP Act 1828 prescribed hard labour, and solitary confinement as punishments. Now, 'causing miscarriage' at any stage of pregnancy was a punishable offence. Thus, as technological perceptions of the foetus became clearer (visibly and physically), quickening was gradually replaced by other, earlier stages of pregnancy. For example, the stethoscope was invented a few years

[84] (1828) 19 Pad Deb HC, 350.
[85] As an aside, alongside its incorporation of medical opinion, it was undoubtedly was also affected by changing variables in society, religion, economy, and political agendas (for example) and thus these other factors of course also affected the level and series of punishments attached.
[86] John Keown, *Abortion, doctors and the law: Some aspects of the legal regulation of abortion in England from 1803 to 1982* (Cambridge University Press, 2002) 31.

beforehand by Laennec, and became widely adopted by physicians; it was used to perceive movement, and the heartbeat of the foetus, within the mother's womb.[87] In the dissolution of the pre- and post-quickening distinction, it seems that legal protection had been extended to all stages of pregnancy, including what we would call 'the embryo' today. Thus, the early stages of human life *in vivo* were protected in law from conception (as long as it could be proved that the woman was pregnant, see *Rex v Scudder* 1828[88]). Apparently the reasoning behind this change was the subjectivity of the criterion for 'quickening',[89] which as aforementioned is based on the woman's first perception of foetal movement.

To provide some analysis, as pregnancy became a more medicalised process[90] (and less of a religious 'event'), which seemingly resulted in the medicalisation of abortion law, quickening dissolved as a bright moral and legal limit, and the law began to move toward the (relatively) more gradualist approach we have today. The medicalisation of pregnancy coincided with increased visual knowledge of early stages of human life (e.g. post-mortem experimentation revealed that male and female embryos do not develop at different rates in 1723).[91] Nonetheless, as we have seen, while the harshness of sanctions against the termination of pregnancy declined with the rise of medicine, the law became increasingly restrictive at the same time. The disappearance of 'quickening' from the OAP Act 1837 suggests that the

[87] John Heilbron, *The Oxford Companion to the History of Modern Science* (Oxford University Press, 2003) 780.
[88] *Rex v Scudder (*1828) 1 Mood CC 216.
[89] 'Correspondence between his Majesty's Principal Secretary of State for the Home Department and the Commissioners Appointed to Inquire into the State of the Criminal Law' (1837) HC XXXI 43.
[90] To quote Marie Fox "I share Sheldon's understanding of 'medicalisation' as a process whereby medical discourses become dominant to the extent that other understandings and knowledges are marginalized" in 'Pre-persons, Commodities or Cyborgs' (n13) 185; Sally Sheldon, '"Who is the mother to make the judgment?": The constructions of woman in English Abortion law' 1(1) (1993) Feminist Legal Studies 3.
[91] Joseph Needham, *A History of Embryology* (2nd ed, Cambridge University Press, 2015) 76.

appeals of obstetricians and doctors at the time did not go unnoticed.[92] Remarkably, a survey revealed that there was no accepted consensus that quickening marked the start of foetal life in the areas of obstetrics and medical jurisprudence.[93] As far back as 1794, there have been recorded medical claims that there is no difference between pre- and post-quickening 'child', aside from its growing size.[94] Medical opinion at that time, and preceding it, thus undermined the significance which law (and lay opinion) ascribed to quickening.[95] Nonetheless, as shown below, the law eventually caught up with this approach.

Several years later, the OAP Act 1861 wholly repealed the OAP Act 1837. Until the OAP Act 1861, it was unclear whether it constituted an offence for a woman to commit self-abortion. The new Act confirmed the tripartite features of the ruling in *R v Goodhall* (1846):[96] (1) that pregnancy was not necessary for an offence to have occurred where committed by a third party; (2) the prohibition of self-abortion; and (3) the offence of obtaining or supplying means commonly known as intended to procure a miscarriage.[97] The law had thus gradually developed in a manner that increased its restriction on abortion through the medium of criminal law, following the incorporation of predominant medical consensus of the time.[98] While punishments were relatively less 'extreme', the breadth of sanctions, and possible perpetrators (including the woman herself), broadened.

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[92] Keown (n86) 33.
[93] Based largely on the Index-Catalogue of the Library of the Office of the Surgeon-General (Washington D.C.); see Keown (n86) 31.
[94] Thomas Denman, *An Introduction to the Practice of Midwifery* (J Johnson, 1794) Vol. 1, 26. Also see John Burns, *The Anatomy of the Gravid Uterus* (Glasgow University Press, 1799) 115.
[95] Johnathan Herring, *Medical law and ethics* (Oxford University Press, 2016) 334.
[96] *R v Goodhall* (1846) 1Den C 187.
[97] Ibid.
[98] Grubb (n63) 147.

Medical professional interests and development have significantly shaped the landscape of abortion law in England, Wales, and Scotland.[99] The medicalisation of pregnancy[100] thus became consolidated through the criminal law. But was the advance of the medical profession the most prevalent drive for legislative changes over the years? And what does this have to do with processual law, if anything? Do medicine and process go hand-in-hand? I argue that while this is not necessarily the case, medicine (to some degree) furthers our understanding of process. Whether these understandings are correct, or further, interpreted in law 'progressively' is another thing. One might say that as the boundaries of proof in this area have changed, so too have our attitudes toward the foetus and embryo. Or are these changes singularly associated with advances in medical understandings? Perhaps, but considering apparent lack of medical consensus in the late 1700s and early 1800s on quickening being the defining moment in becoming 'with child', it must be questioned whether there is more to this. Whilst the embryo/foetus has been set against the hard sanction that the criminal law represents, the criminal law, whether attempting to consolidate and clarify (like Ellenborough and Lansdowne), facilitate prosecution (1837), or consolidate and confirm the common law (1861), has increased levels of punishment (albeit while removing capital punishment) against intent to procure, or successfully procure abortion.

While the years preceding the 20th century gradually extended laws governing the embryo/foetus, and attached the criminal law to the regulation of the early stages of human life, it has arguably laid a path for legal process, and made way for the incorporation of social considerations into the law.

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[99] McGuinness and Thompson (n46) 178.

[100] See Richard Johanson, Mary Newburn, and Alison Macfarlane, 'Has the medicalisation of childbirth gone too far?' (2002) 324 (7432) British Medical Journal 892 ; Barbara Rothman, 'Pregnancy, Birth and Risk: an introduction' (2014) 16(1) Health, Risk and Society 1, 3.

Arguably, we have seen evidence that law began to leave behind the question of 'when does life begin to matter?' and started to think about the broader network of actors in early-life processes (importantly, the perceived interests of women, albeit in a relatively minor way). It is of particular significance to reiterate that process and progress are not synonymous. Indeed, the increasingly severe range of punishments for termination of pregnancy was not necessarily progressive.[101] While it may be described as such in one sense, in that capital punishment was removed as a sanction, the growth of criminal law (and thus range of crimes and possible perpetrators) in this area may not necessarily be seen as 'progress'. Process and progress thus do not necessarily make easy bedfellows. Nonetheless, a move away from a legal boundary with quickening, toward legally encompassing all stages of pregnancy is, in and of itself, processual. On the other hand, one boundary was just replaced with another; binding the early stages of human life seems to have been the predominant legal response to embryonic processes from the outset. While this might sound counterintuitive per a 'processual' approach, delineating stages of growth undoubtedly recognises development.

As mentioned above, towards the end of this century, preformationism was abandoned in favour of epigenesis, given the rapid advances in microscopy that occurred at that time.[102] While the law had not yet reached the 'gradualist' approach of the amended Abortion Act 1967, and the 1990 Act (as amended) today, the removal of the quickening distinction arguably reflected increased awareness that pregnancy, and embryonic/foetal growth was a process, not a sudden (and perhaps not even divine) 'event'. New modes of visibility, beyond foetal movements (such as some of the first

[101]Depending on one's definition of progress, notably for someone who has a more conservative position on abortion this might be viewed as progressive.
[102] Ananya Madal 'Embryology History' (News Medical, 23 June 2014) https://www.news-medical.net/health/Embryology-History.aspx Accessed 3 September 2017.

post-mortem experimentations on pregnant women, and the discovery that male and female embryos develop at the same rate) drove law to react to new understandings of embryonic/foetal processes. Overall, it seems that law began to change rapidly with the explosion of experimental science, and new technologies in the late 19th and (as we shall see next) 20th centuries. Until then 'quickening', preformation, (and other theories of conception/growth that we do not rely on today, such as formation)[103] stood as moral, legal, and scientific navigators of the uncertainty that went with conception and embryonic/foetal growth. The use of experimental techniques and the advances in microscopy (and the increased knowledge of embryonic/foetal development that came with that) in the 19th century were arguably mirrored in law with amendments to the way that stages of embryonic/foetal growth were depicted in law.

2.5 The 20th Century

As we have seen, the common law's insistence upon only extending protection to a "reasonable creature in being"[104] limited the old criminal law's protection of the foetus/embryo.[105] Up until the late 20th century, Parliament added to the common law through a patchwork of statutory provisions, and in doing so provided "some semblance of protection for the fetus at various stages in development."[106]

With the advancement of science, 'quickening' was gradually used less and less in civil and criminal legal rhetoric, and replaced by other markers such

[103] For example, Bracton (n63) 279; and Grubb (n63) 147.
[104] Coke (n67).
[105] George Cole and Stanislaw Frankowski, *Abortion and protection of the human fetus: legal problems in a cross-cultural perspective* (Martinus Nijhoff, 1987) 95.
[106] Ibid.

as viability, the 'moments' of which have become far more 'visible'. Under the Infant Life (Preservation) Act 1929 ('ILP Act'),[107] procuring or attempting to procure an abortion was no longer a criminal offence, as long as it was carried out for the purpose of preserving the life of the mother, and in good faith. Nonetheless, it was deemed illegal in all other circumstances to terminate a viable foetus 'capable of being born alive.' Viability,[108] as a legal boundary was thus enshrined in the ILP Act at 28 weeks, 4 weeks later than previous law (as advances had been made in science at the time, meaning the foetus was presumed viable at a later stage).[109]

In 1939, the landmark case of *R v Bourne*, marked the way for the later Abortion Act 1967 ('1967 Act'). Here it was held that a doctor might lawfully perform an abortion, despite s58 of the then OAP Act 1861.[110] In this case, a young girl was raped and became pregnant. Her doctor, Bourne, performed an abortion on her and then turned himself into the police. In the trial, Macnaughten J upheld Bourne's defence that the indictment for abortion should be altered to include the word 'unlawful', so that the Crown would have to establish that the defendant's use of an 'instrument' was 'unlawful'. In his summary, Macnaughten J distinguished between a skilful surgeon performing openly and "charitably," and the private termination of pregnancy for gain by an "unskilled operator."[111] He also rejected the view that there was a clear line between health and danger to one's life; that life could be greatly hindered by one's health.[112] The law at the time has been described as lying between those who wanted women to be able to have abortions, and religious views that it should never be performed, to which

[107] This Act did not apply in Scotland.
[108] The time at which a foetus may be 'born alive' if it were to be *ex utero.*
[109] See HL Deb, 06 December 1928, vol 72, cols 425-429, 425.
[110] Lois Bibbings 'Legal Commentary- R v Bourne: A Historical Context' in Stephen Smith et al (eds) *Ethical Judgments: Re-Writing Medical Law* (Bloomsbury, 2017) 158.
[111] *R v Bourne* [1938] 3 ALL ER 615, [1939] 1 KB 687, 689-690.
[112] *Bourne* (n111).

end it was only allowed in order to preserve the mother's life. Here we can see an incorporation of social justice aims into a judgment, which the law has continued to do.[113] It should be noted that although *Bourne* is widely regarded as having carved the legal landscape in this area, there is disagreement amongst legal commentary on the extent to which *Bourne* can be read as a momentous liberalisation on the law on abortion.[114] It has thus not been lauded by all as a victory for social considerations, per the perceived interests of the woman.[115] While an explicit provision for 'therapeutic abortion' may have been absent from the OAP Act 1861, in reality this procedure was regularly performed on women at the time nonetheless, and precedent for this gradually extended in case law up until its cementation in the *Bourne* case. Here we see the introduction of gradated approach to criminal sanctions at early stages of human life, gradating the process of embryonic/foetal evolution *in utero*. For the purposes of this thesis, it does not say anything about embryo *in vitro* (thus far), but, importantly; it informs us about the nature of law's evolution with regards to incorporating the processes of the early stages of human life.

After *Bourne*, the scope of therapeutic abortion was extended further in *R v Bergmann and Ferguson*,[116] and *R v Newton and Stungo*,[117] to respectively include the honesty of a doctor's belief as a defence, and considerations of

[113] For example, with the famous 'compromise position' embodied in the Warnock Report (n25).
[114] McGuinness and Thompson (n46); for example contrast Sally Sheldon, *Beyond control: Medical Power and abortion control* (Pluto, 1997) 18, who describes it as having "carried the law far beyond the intention and letter of the statutes"; Keown (n86) 52-57 who argued that "This view is based on the belief that the prohibition on abortion by s.58 was absolute and was so regarded by the courts until 1938. This belief is, however, inconsistent with certain judicial and extra judicial pronouncements…the case appears not so much as an example of radical judicial legislation as of conservative exposition of the law".
[115] For an alternative judgment that considers this more see, for example: Sheila McGuinness 'Judgment 1- R v Bourne [1939] 1 KB 687' in Stephen Smith et al (eds) *Ethical Judgments: Re-Writing Medical Law* (Bloomsbury, 2017) 146-150.
[116] *R* v *Bergmann and Ferguson* [1948] 1 BMJ 1008.
[117] *R* v *Newton and Stungo* [1958] CrimLR 469.

the woman's physical and mental health. Nonetheless, the effect of these cases, and the ILP Act was that the termination of an embryo/foetus was a criminal offence, save in certain circumstances where the life or health of the mother was at stake. The strongest legal protection was given to a viable foetus under the ILP Act, the termination of which was a criminal offence in any circumstance.

Physiological visibility was eventually replaced by technical visibility when engineer Tom Brown and obstetrician Ian Donald developed the first ultrasound machine, first used in Glasgow in 1956.[118] Further advances were made in the 1950s in molecular biology, when the DNA helical structure was discovered.[119] This led to the emergence of developmental biology, which studies the correlations between genetics and the embryo's morphological development.

Some years later, the 1967 Act cemented the *Bourne*,[120] *Bergmann*,[121] and *Newton*[122] cases, as the first statute relating to the early stages of human life to have territorial extent over Scotland, in addition to England and Wales. The grounds for abortion are set out in ss1(1) and (2) of the 1967 Act. Similar to before, no explicit reference was made to the 'embryo' in this statute, which clearly maintained that the termination of an embryo/foetus at any stage was illegal, save in certain prescribed circumstances.[123] It is worth noting that while the 1967 Act has clearly been shaped by evolving medical

[118] Tanya Lewis, '5 fascinating facts about fetal ultrasounds' (LiveScience, 16 May 2013) https://www.livescience.com/32071-history-of-fetal-ultrasound.html Accessed 2 September 2017.
[119] Madal (n102).
[120] *Bourne* (n111).
[121] *Bergmann* (n116).
[122] *Newton* (n117).
[123] Where continuance of pregnancy would have risked the life or health of woman or existing children/family, or where there was a risk that the child would be born with a serious physical or mental handicap. See Abortion Act 1967, s5(2).

opinion,[124] the extent to which the 1967 Act, even in its updated form, acts as a permissive piece of social legislation has been questioned by some. For example, Sheldon argues that the primary purpose and consequence of the 1967 Act was not to promote the reproductive autonomy of women, but instead to found a more "rigorous and subtle system of medical control over women's fertility."[125]

At this time, a link still existed between this Act and the ILP Act, and from 28 weeks, the foetus was legally protected in almost all circumstances.[126] It is worth noting that in terms of the Congenital Disabilities (Civil Liability) Act 1976,[127] the law provided a degree of retrospective protection to the embryo *in vivo*. Under this law, damages could be awarded as a result of injury to the embryo/foetus *in utero* caused by the negligent actions of third party (although 'embryo' was not explicitly mentioned in this Act either). This was part of a network of frameworks at play, a facet of the law that remains today with the co-existence of frameworks like the 1967 Act and the 1990 Act, notwithstanding the case law (all discussed in Chapter 3).

Overall, up until the end of the 20th century the term 'embryo' had little mention in law. Despite this, it was protected for much of history, particularly after the quickening distinction was dissolved in the 19th century. Quickening thus acted as a legal limit, which reflected knowledge of the time around the way in which embryos/foetuses *in utero* evolve.

[124] Jackson, *Regulating Reproduction* (n43) Chapter 3.
[125] Ibid 78; Sheldon (n114) 30.
[126] Abortion Act 1967, s5(1).
[127] England and Wales only.

2.6 Conclusions

This chapter has shown that process is a central facet of regulating the embryo in the UK, historically speaking. It is nonetheless worth noting that the scientific, visual experiences of the embryo that were relayed to society shaped the law throughout medico-legal history. It is important to consider that visibility will not have been the only factor in legal change here. Religion and politics, amongst other things, are likely to have played a significant role. These, however, do not necessarily detract from the fundamental role of the embryo's scientific visibility (i.e. the relative visibility of its developmental processes) in shaping all of this.

From the above, we can see that the processual nature of law lay in the fact that regulation commenced by asking 'when does life begin to matter?' Over history, the goal posts marking out legal boundaries on this have shifted in accordance with scientific, religious, and social changes. These posts might have shifted based on a number of things, however the issue for this work is not what caused the shifts in posts, but more where these limits shifted to. Law always became processual, relative to the social, scientific and religious limits at the time, having made judgment on what 'matters' based on what was known at the time, i.e. they believed that at the 'quickening' stage of the process, a mother can feel foetal movement and/or the pregnancy is physically visible.

With the rise of science and technical visibility, the legal boundary of quickening was removed. No longer did the law only protect the foetus after the woman first felt its movements; instead the whole process of pregnancy

fell within the ambit of its protection.[128] The above frameworks have not necessarily been hailed as historical advances in the law, but rather a step back that further criminalised women, and gave protection to the very early stages of human life in the womb. Therefore, a key aspect of the relation between law and process that this change in law articulates, for the purpose of this thesis, is the turbulent relationship between process and progress. Nonetheless, the changes beyond the original framework for 'quickening' was certainly progress towards what we have now; the ILP Act was the first time in the UK's legal history that embryonic stages *in vivo* were protected in law (although not by name).

To summarise, further advances in medicine began to change legal boundaries even further. Quickening was replaced by foetal viability, which was enshrined in law by the ILP Act 1929, at 28 weeks (later reduced to 24 weeks in the 1990 Act's amendments to the 1967 Act). By the 1950s, science had advanced even further; ultrasound had been invented and the helical structure of DNA was discovered. With these advances, the processual nature of the early stages of human life was more visible than ever. For the first time, we could see images of the embryo/foetus growing within the mother's womb. Shortly after these advances came the 1967 Act, which, despite its flaws was a socially progressive piece of legislation relative to the laws of its kind that had come before it. While this Act did not explicitly recognise 'the embryo' (at this stage in time, there was probably little need to), as a progressive piece of legislation it was more processual than those that had come before it. Here, the relative moral value of the foetus was reflected in law, as a factor directly intertwined with the physical and/or mental health of the woman (or its hypothetical future health). To explain, the law's processual nature lay in the fact that it made persistent

[128] While the relation between law and process shall be explored more fully in Chapter 6 of this thesis, as argued above, process and progress do not always go hand in hand.

effort to account for the processual nature of embryos/foetuses, although, as we have seen, this has not necessarily always resulted in 'progressive' law.

Overall, such a tracing has demonstrated how much the embryo's 'visibility'[129] has affected what it '*is*' over time (socially, and legally). Visibility has been a key link to social and biological understanding of process, and the law has evolved at relatively regular intervals in history to reflect this. While the very early stages of human life are not visible to the human eye, modern science has allowed us to see and understand early life more than ever. Medical professional, legal, and social attitudes have thus changed. The law has evolved from protection of the embryo/foetus at a later stage, to protecting the embryo/foetus throughout gestation, to similar protections with exceptions based upon 'social considerations', to the present legal governance and protection of the embryo that starts where an egg is in the process of fertilisation (albeit only *in vitro*). This reveals an interesting feature of embryo governance: with the emergence of technological 'visibility' of the embryo, the criminal limits to proving pregnancy have changed, and eventually ebbed away. There is something curious about the concurrent relative increase in legal protections for the early stages of life, and increasing incorporation of 'social considerations' into the same laws. The criminal and civil laws in this area has thus been relative to our understanding; that is, a relative reflection of our knowledge of biological process, to some extent.

To summarise the findings and arguments within this first chapter, brief analysis of historical legal developments in this field reveal deeper

[129] As technology has advanced, humans have been able to see – literally - what the early stages of life actually look like, for example through ultrasound and microscopes.

understandings of law and society's relationship with embryos *in vitro*, namely that:

- Process has been historically important for law, regarding the regulation of embryos/foetuses. Historically doing something of course does not always mean we should continue doing it, but *if* one sees it as a positive facet of law making in this area, and enabling the symbiotic relationship between law, science, and society, then law ought to reflect this appreciation of processes.

As revealed further by analysis in the next chapter, key elements can be distilled, from law's evolution in this area, that appear in the framework we have now. This history was arguably an important precursor to the 1990 regime, particularly with regard to law's 'boundary work'[130] surrounding the early stages of human life.

[130] For a more detailed discussion on this see Taylor-Alexander et al (n8) 171.

3. 'The Embryo' in Law Today

3.1 Introduction

As the previous chapter has shown, law making and process have evolved hand in hand with respect to the early stages of human life. This Chapter continues from the last, and in doing so it argues two claims: 1) That the 1990 Act (as amended) has processual aspects, yet 2) There are ways in which it could further embrace process. To build the case for these claims, this chapter summarises the present regulatory framework governing the embryo *in vitro*, with particular reference to its legal status. It traces some of the key arguments put forward in the Warnock Report relating to the embryo's status, their enactment in law, and subsequent amendments of the framework. It finds that, like its historical counterparts,[131] elements of a processual legal approach may be found.

3.2 The Warnock Report

In 1984, the Warnock Committee published the Report of the Committee of Inquiry into Human Fertilisation and Embryology,[132] also known as the Warnock Report. The following subsections summarise the key issues tackled by the Committee in relation to the embryo's ethico-legal status. This has been done with a view to demonstrating the ethical and legal

[131] Counterparts in the sense that they also regulated the early stages of human life.
[132] Warnock Report (n25).

deliberation that took place as a precursor to regulating the embryo *in vitro*. This deliberative process, though not necessarily without flaw,[133] was an essential part of law making in this area. It arguably brought legal and scientific practice out of uncertainty (i.e. due to the lack of a statutory framework for IVF pre-1990), to a new state of being where embryos can be used, legally, for reproductive and research purposes under certain prescribed circumstances.

3.2.1 Background: the ethics of regulating the embryo *in vitro*

In the late 1970s, the embryo was thrust into legal, bioethical, and public debate when Louise Brown became the first child born because of *in vitro* fertilisation (IVF). Science could now track and observe some of the earliest stages of human life entirely outside of the human body. Embryos, newly visible[134] to scientists and society, also became clearly visible as existing at the margins of what we commonly conceive to be 'human'. Embryos *in vitro* thus embodied different hopes and fears for people.[135] As a result, new horizons in the fields of reproduction and research were revealed, and diverse perspectives took shape around these possibilities.

While embryo research created new realms of possibility for some, this advancement came coupled with concerns over the rapid advance of science, and the 'slippery slope' to morally undesirable practices.[136] Scepticism about the moral acceptability of assisted conception, and, in particular, research on embryos – necessarily involving the creation and

[133] Some critiques of the Warnock Report are discussed below.
[134] Not only physically visible, but also much more visible in a social and political sense.
[135] Michael Mulkay, 'Frankenstein and the debate over embryo research' (1996) 21(2) Science, Technology and Human Values 157; Marie Fox and Thérèse Murphy, 'Can Law Facilitate Embryonic Hopes?'(2010) 19(4) Social and Legal Studies 497, 498.
[136] Jackson *Regulating Reproduction* (n43) 182.

destruction of embryos for such purposes – led to several attempts at barring embryo disposal.[137]

In 1982, against this backdrop of public emotion and uncertainty, the UK government established the Committee of Inquiry into Human Fertilisation and Embryology ('The Warnock Committee'). Baroness Mary Warnock, a philosopher, headed the Warnock Committee, which consisted of academics, legal, and medical professionals. They were assigned by the government to consider:

> Recent and potential developments in medicine and science related to human fertilisation and embryology; to consider what policies and safeguards should be applied, including consideration of the social, ethical, and legal implications of these developments; and to make recommendations.[138]

This Committee was the first of its kind to consider the legal, social, and ethical implications of scientific developments in human fertilisation and embryology. In particular, its remit was to consider the permissibility of using embryos in such techniques, as well as the nature of the embryo itself. To provide some background, the Report's foreword begins with the following:

> Our Inquiry was set up to examine, among other things, the ethical implications of new developments in the field. In common usage, the word "ethical" is not absolutely unambiguous. It is often used in the context, for example, of medical or legal ethics, to refer to professionally acceptable practice. We were obliged to interpret the

[137] Ibid.
[138] Warnock Report (n25) 1.2.

> concept of ethics in a less restricted way. We had to direct our attention not only to future practice and possible legislation, but also to the principles on which such practices and such legislation would rest.[139]

In their Foreword, the Committee gave a clear nod to the potential for future change in the uses of embryos *in vitro*, and the regulation of those practices in this area. Interestingly, the Committee made clear here that they aimed to set up the fundamental pillars that would endure throughout these scientific and legal changes, without reference to potential change in 'ethics' (in their reference to the principles on which future legislation would rest). Whether this was intentional is unclear. The Foreword then refers to the social consensus at the time, which was that the law requires governance by "some principles or other,"[140] and that some lines should be drawn in this field which must not be crossed. They emphasise the societal sentiment at the time, that there should be limits to these practices, without which, we would be "a society without moral scruples."[141] The Committee thus stated that:

> People generally want *some principles or other* to govern the development and use of the new techniques. There must be *some* barriers that are not to be crossed, *some* limits fixed, beyond which people must not be allowed to go.[142]

In order to alleviate concerns surrounding where such techniques may lead in the future, the committee recommended that a licensing body be established to monitor embryo research. In answer to this, the Human

[139] Ibid 1.
[140] Ibid 2.
[141] Ibid.
[142] Ibid.

Fertilisation and Embryology Authority (HFEA) was later established under the 1990 Act, an independent regulator of the use of gametes for reproduction, and embryos for treatment and research.[143] This body ensures that those whom they have licensed[144] may store and use embryos in a manner that is consistent with the 1990 Act. While it has the authority to make these licensing decisions, it does not have the power to license any practice clearly outwith their remit, as provided by the same Act. Today, it represents the longest established regulator of human embryo research in the world.[145]

3.2.2 How to regulate the embryo *in vitro*

The Report was evidently written with an absence of moral consensus in mind, as the Committee was careful to emphasise early on that consensus was near impossible to reach. Nonetheless, in answer to this problem they also recognised the importance of legislation as a benchmark for societal moral standards. To quote extensively from the Warnock Report's foreword:

> In recognising that there should be limits, people are bearing witness to the existence of a moral ideal of society. But in our pluralistic society it is not to be expected that any one set of principles can be enunciated to be completely accepted by everyone. This is not to say that the enunciating of principles is arbitrary, or that there is no shared morality whatever. *The law itself, binding on everyone in society, whatever their beliefs, is the embodiment of a common moral*

[143] Human Fertilisation and Embryology Authority, 'How we regulate' https://www.hfea.gov.uk/about-us/how-we-regulate/ l accessed 29 Jan 2018.
[144] It is a criminal offence to store or use embryos without a licence from the HFEA, see 1990 Act (as amended).
[145] Sarah Devaney, *Stem Cell Research and the Collaborative Regulation of Innovation* (Routledge, 2013) 62.

> *position. It sets out a broad framework for what is morally acceptable within society.* Another philosopher put it thus: "The reasons that lead a reflective man to prefer one…legal system to another must be moral reasons: that is he must find his reasons in some order of priority of interests and activities, in the kind of life that he praises and admires". In recommending legislation, then, we are recommending a kind of society that we can, all of us: praise and admire, even if, in detail, we may individually wish that it were different. Within the broad limits of legislation there is room for different, and perhaps much more stringent, moral rules. What is legally permissible may be thought of as the minimum requirement for a tolerable society. Individuals or communities may voluntarily adopt standards that are more exacting. It has been our business, however, to recommend how the broad framework should be established, within our particular area of concern.[146]

Herein lies one of the key issues for this thesis. Indeed, there is no untruth to the above; the law sets out a broad framework for what is morally acceptable in society,[147] and it did so with this Act. But how, legally speaking, is it practical to continue with a legal framework centred around a singular 'special status' for the embryo, when it implicitly morally demarcates types of embryos, namely those used for reproduction and those used for research? As this thesis aims to show over Parts 2 and 3, a case may be made for legally harnessing the processual nature of embryo regulation (with its multiple, not unitary, processes). This is not to critique

[146] Emphasis added. Warnock Report (n25) 2-3.
[147] The role of law in society is of course debatable, and much more complex than this. For more on this, see e.g. the works of Thomas Hobbes, John Locke and Emmanuel Kant.

the approach of the report at the time; indeed, the text specifically recognises the unpredictability of future science.[148]

Notably, before the 1990 Act came into force, the human embryo had no legal status *per se*.[149] It did not have legal personhood, nor did it have a right to life. Nonetheless, as we have seen in the previous chapter, certain laws were in place, such as the 1967 Act, which accorded the embryo/foetus *in utero* certain protections. The Report noted this, and suggested that while they did not recommend that embryos be afforded the same status as children or adults:

> 11.17...The status of the embryo is a matter of fundamental principle which should be enshrined in legislation. *We recommend that the embryo of the human species should be afforded some protection in law*…
>
> 11.18 That protection should exist does not entail that this protection may not be waived in certain specific circumstances. Having examined the evidence presented to us about the types of research which might be carried out on human embryos produced *in vitro,* the majority of us hold that such research should not be totally prohibited. We do not want to see a situation in which human embryos are frivolously or unnecessarily used in research but we are bound to take account of the fact that the advances in the treatment of infertility, which we have discussed in the earlier part of this report, could not have taken place without such research; and that continued research is essential, if advances in treatment and medical knowledge are to continue. A majority of us therefore agreed that research on human embryos should continue. *Nevertheless, because*

[148] Warnock Report (n25) 1.5.
[149] Ibid 11.16.

> *of the special status that we accord to the human embryo, such research must be subject to stringent controls and monitoring.*[150]

The Report did not explain, however, what this 'special status' entails, nor did it signify its philosophical source.[151] This is not to say that this 'status' was not justified at the time, on some level, as a kind of 'comfort blanket' in the socio-political climate of the time. The status was seemingly put forward as a safeguard upon the slippage of that research into 'frivolous'[152] territories. The committee refers to this in the next section of their report, where they emphasise that a precise time limit of the development of an embryo *in vitro* was required "in order to allay public anxiety."[153] They took the view that the 'primitive streak'[154] was the best marker in development to place a time limit, as it "marks the beginning of individual development of the embryo."[155] Interestingly, on the creation of embryos for research, some members felt that there was a "clear moral distinction between the research use of embryos available by chance… and embryos brought into being for the purposes of research alone and where there is no question of their being transferred into a woman."[156] The Committee nonetheless recommended that, as this should be controlled by legislation, an embryo *in vitro* may be the subject of research "whatever its provenance", up to the 14 days after fertilisation took place.[157] At the time, most authorities put the development of the streak at about fifteen days after fertilisation.[158] The Committee also noted that they were satisfied that 'spare' embryos "may be used as

[150] Emphasis added. Ibid 11.17-8.
[151] Ford (n20).
[152] Mary Warnock, *A question of life: The Warnock report on human fertilisation and embryology* (Blackwell, 1985) 64.
[153] Warnock Report (n25) 11.19.
[154] The first visible signs of the nervous system.
[155] Warnock Report (n25) Ibid 11.22.
[156] Ibid 11.25.
[157] Ibid 11.30.
[158] Ibid.

subjects for research", as long as informed consent was gained from the couple for whom the embryo was generated.[159] Here, we see the introduction of a new boundary, joining the other boundaries attributed to the embryo/foetus in law up to this time.[160] In some ways, the 'primitive streak' is the Committee's own version of 'quickening'. After all, law has replaced one boundary with another to reflect changing consensuses (medical, ethical, social, and so on) regarding the early stages of human life. Perhaps unwittingly, this seems to follow previous legal trends toward delineating stages in the growth process with bright legal lines.

In the end, the Report took, broadly speaking, a utilitarian approach to its recommendations and deliberations.[161] Baroness Warnock later spoke of this approach in 2007, where she observed:

> At the centre of the moral thinking behind the 1990 Act was broad utilitarianism…As legislators, parliamentarians have to be utilitarian in the broadest possible sense…On the committee, we thought that utilitarianism in this broad sense was the philosophy that must lie behind any legislation- weighing up harms against benefits.[162]

The Report did not explicitly answer the question of "when does life begin to matter morally," but rather considered the viewpoints submitted and "provide[d] the human embryo with a special status without actually defining that moral status."[163] Nonetheless, the Committee can be understood as *implicitly* having answered the latter question, by allowing research up to a

[159] Ibid 11.24.
[160] Discussed in Chapter 4. See Laurie, 'Liminality and the Limits of Law' (n15) 49.
[161] Natasha Hammond-Browning, 'Ethics, Embryos and Evidence: A Look Back at Warnock' (2015) 23(4) Medical Law Review 588, 619.
[162] Mary Warnock, HL Deb, 19 November 2007, Vol 696, Col 721; quoted in Hammond-Browning, 'Ethics, Embryos and Evidence' (n161) 619.
[163] Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 605.

certain stage in development.[164] In other words, they prescribed that "as the embryo develops, it should receive greater legal protection due to its increasing moral value and potential."[165] This policy, known as the gradualist approach, is somewhat in line with the Abortion Act 1967, which affords more protection to the foetus as it reaches later stages in development[166] (although in other ways these laws do not align at all). This in and of itself may be described as recognising the processual (albeit not necessarily progressively so, see 2.1 above). It seems that it was important for the Committee that such an approach continue. This was not mentioned explicitly, but is implicit in its efforts to replicate a somewhat gradualist approach that recognises embryonic development (and any 'significant' markers within it).

The rhetoric of the Warnock Report was processual in many ways. Further, with its reconsideration of law, and its underpinning principles, it brought the embryo *in vitro* (and its uses) out of the uncertainty it had previously been shrouded in, in the 1970s. The Report, operationalised within the resulting 1990 Act (discussed below), provided boundaries and parameters on reproductive and research practices concerning the embryo. Yet, as the rest of this chapter will show, notwithstanding the processual legal efforts of the past, the processuality of law (whether reconsidering it, evolving, or moving boundaries) has slowly halted, particularly after the 2008 amendments.[167] Now, over 30 years since the Warnock Report was published, its influence remains strong within our legislative framework on human fertilisation and embryology.[168]

It is evident that an issue for the Committee was how to regulate such a

[164] Ibid 606.
[165] Ibid.
[166] See Abortion Act 1967, s1.
[167] With the exception of the Mitochondrial Donation Regulations (2015).
[168] Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 589.

controversial field, where a plurality of views exists on the matter. The Committee thus reviewed a wide range of evidence from a variety of groups, bodies, and persons. In her 2015 article, Natasha Hammond-Browning explored and discussed this evidence, upon which the Committee's recommendations (and thus subsequent law) were based.[169] This article was one of the first of this kind on this topic. From Hammond-Browning's examination of the evidence submitted,[170] she found that two central ethical questions emerged: "When does life begin to matter morally"? and "Should we permit research upon human embryos?"[171] It seems that both fed into their central query: how should we regulate embryos? Noting that there was little consensus in the submissions, and notwithstanding that consensus is unlikely to ever be reached on this matter; Hammond-Browning divided the evidence in favour of or in opposition to embryo research into nine different headings (each of which she discussed in turn).[172] On this basis, she found that the diversity of views on the matter, contained in submitted evidence, made reaching consensus a serious challenge for the Committee.

The Report was quite explicit that it was not going to tackle questions of the meaning of human 'life' or 'personhood'. Instead, it articulated its remit as "how it is right to treat the human embryo."[173] The Report examined the arguments for and against the use of human embryos for research. Here, the Committee noted the plethora of views on the embryo's status, evidenced by the submissions received prior to the Report.[174] They discussed each position in turn, before concluding that while the embryo deserves some

[169] Ibid 588.
[170] Gathered during a week long visit to the Houses of Parliament. 97 pieces of evidence relevant to the debate were found, as well as 101 submissions made post-publication of the Report. She also found submissions from 300 organisations, and 695 submissions from the public. See, Hammond-Browning (n161) 591-592.
[171] Ibid.
[172] Ibid 593.
[173] Warnock Report (n25) 11.9.
[174] Ibid.

protection in law, this protection should not be absolute.[175] Notably, the source of this protection is not entirely clear from the Report. It cited the state of law at the time, which afforded some protection to the embryo, but not absolute protection. [176] Nonetheless, one can glean from their recommendations that this protection is sourced (at least in part) by virtue of being a member of the human species.[177] Further, any recognition of the embryo as morally recognisable from the moment of creation would have been a huge step back from the recognition of the bodily integrity and autonomy of women with regards to reproduction, brought about in law (at least relatively speaking) by the 1967 Act.[178]

What can we learn from this? To take stock, so far we have seen that law has responded to new understandings of the early stages of human life, as the process of pregnancy became more 'medical' and less of a religious event. Throughout this evolution in understanding, from the 13th to 20th centuries, the key question in law (framed in one way or another), seemed to be: how should law treat the early stages of human life? Considering the relative 'boom' in new understandings that occurred in the late 20th century, culminating in the use of IVF and birth of Louise Brown, a considerably new amount of knowledge (and public concern) needed to be navigated in law. The Warnock Report's ambit was nonetheless no different to previous iterations of law in this area. The key question was almost the same: how should we treat the embryo, legally? Within that, while not explicitly, the Report tackled (to some extent), the question of where in the embryonic process the state should delineate legal limits (as law has always done in the past), by recommending a 'limit' on research based on the development of the primitive streak at 14 days. Again, this was arguably a reflection of

[175] Ibid.
[176] Ibid 11.16.
[177] Ibid 84.
[178] Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 608.

process, by delineating a stage in the process that has been determined as important by those charged with law-making, or informing law-making.

I thus argue that process remained important, at least to some extent, for the Committee, and we have seen that through the above summation of their deliberations. The Report did not refer to previous iterations of legal-moral lines, neither quickening, nor viability (presumably because these were much later stages in the process and thus not relevant to them). Yet, there are similarities between the Committee approach and previous iterations of laws governing the early stages of human life. The Committee, tasked with deliberating on how the UK ought to treat the embryo in law, dealt with moral uncertainty by providing boundaries at a stage in the process deemed 'appropriate' in accordance with the socio-medical climate of the time. While they met the task by providing a 'compromise', the societal response to the resulting bill still reflected the moral uncertainty navigated in their report. Gothic themes of Frankenstein[179] and the 'mad scientist' permeated public debate. This is the subject of the next subsection.

3.3 The embryo post-Warnock: 1985-1990

Six years after the Report was published, the Government enacted legislation, which was closely based upon its recommendations:[180] the 1990 Act. As Michael Mulkay has pointed out, the delay between publication of the Report and enactment of the 1990 Act was caused by a political 'tug of

[179] Relating to uncertainty surrounding how we ought to treat the embryo, see Chapter 5.
[180] Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 590.

war' between 'pro-research' and 'pro-life' groups.[181] Before and after the production of the Report, there was rather vociferous objection to assisted conception from the pro-life movement, particularly groups such as Life and the Society for the Protection of the Unborn Child. These groups were active in the organisation and briefing of MPs and peers opposed to the proposals for regulation laid out in the Warnock Report.[182] At this time, these organisations appeared to have both parliamentary and public opinion on their side.[183] As Mulkay noted, this conservative lobby was "well organised, virtually unopposed and in control of a large section of parliamentary opinion."[184] In 1985, their efforts nearly succeeded with Enoch Powell's Unborn Children (Protection) Bill 1985 ('UCP Bill'),[185] which passed at first reading. It only failed to go any further because "an alliance of scientists and Members of Parliament succeeded in talking it out of time."[186] The UCP Bill did not explicitly purport to ban research, but instead proposed the banning of embryo disposal, which would have rendered research impossible, but embryo research is a crucial antecedent to infertility treatment.[187] As Baroness Warnock stated in the Progress Educational Trust's 2016 conference:[188] "…if we are to have IVF, we need research. The two very much go hand in hand."[189]

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[181] Michael Mulkay, *The Embryo Research Debate. Science and the Politics of Reproduction* (Cambridge University Press, 1997); discussed in Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 590-591.
[182] Jackson, *Regulating Reproduction* (n43) 182.
[183] Ibid 183.
[184] Mulkay, 'Frankenstein' (n135) 19.
[185] This bill prescribed that embryos should only be created if they were going to be implanted into a woman. This would have prevented most IVF treatment, and all forms of embryo research.
[186] Jackson, *Regulating Reproduction* (n43) 183.
[187] Ibid 182.
[188] Mary Warnock, 'The Warnock Report and the 14-day Rule' (speaking at the Progress Educational Trust's, *Rethinking the Ethics of Embryo Research: Genome editing, 13 days and beyond London*) 7 December 2016.
[189] Ibid.

Yet, despite the abovementioned concerns about 'slippery slopes',[190] the Warnock Report had previously emphasised the importance of "…keeping the temporal perspective short, and reliance on imagination to a minimum":[191]

> The pace of scientific discovery is unpredictable. Indeed, a number of major developments have taken place during the lifetime of the Inquiry. The changes, which take place in society itself, are also difficult to predict. The impact of scientific discoveries on the society of the future is therefore doubly hard to predict. We took the pragmatic view that we could react only to what we knew, and what we could realistically foresee. This meant that we must react to the ways in which people now see childlessness and the process of family formation, taking into account the range of views encompassed by our pluralistic society, the nature and value of clinical and scientific advances and the benefits of research.[192]

Here, we see a recognition that this type of law is temporally limited, given the manner in which science, family, and society's views of them (and thus their hopes for law in relation to them) can evolve relatively rapidly. Perhaps even the Committee itself would not have intended for all of its recommendations to stand the test of time in the way that they have. As discussed below, durability is not necessarily a productive "hope" for law in this field,[193] where rapid scientific and social changes take place.

Between 1984 and 1990, the scientific and medical community continued to campaign, and eventually swayed parliamentary and public opinion, chiefly

[190] See Mulkay, 'Frankenstein' (n135)
[191] Ibid 172.
[192] Warnock Report (n25) 1.5.
[193] See Jacob and Prainsack, 'Embryonic Hopes' (n35).

by emphasising the potential benefits of embryo research to human health.[194] For example, the Progress Educational Trust (established in November 1985) arranged for families affected by genetic disease to visit members of the House of Lords prior to the debates on the Human Fertilisation and Embryology Bill.[195]

Uncertainty surrounding how we should morally and legally treat embryos, and what this law might lead to in the future, permeated debates throughout the 1990 Act's inception and beyond. From this we can see that that the only certainty when it comes to the embryo is that its status is heavily contested. Regular reference to fictional genre in the news media expressed widespread fears about the advance of technology and science. As Mulkay concludes, while those against research predominantly used this imagery, it paradoxically ended up weakening their campaign because of its fictional connotations.[196] There was thus an imaginative thread throughout the debate;[197] an "extended temporal perspective"[198] into the unknown future, and these gaps were thus filled with premonitions of possibility. It "created interpretive space in which to exercise their critical imagination."[199] Indeed, the unregulated embryo of the 1970s and 1980s may be described as what liminal scholars would call a "condition of possibility,"[200] typical of a space 'in between' that the embryo of the time certainly occupied, i.e. between a space of scientific and public consciousness, and legal regulation.

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[194] Jackson, *Regulating Reproduction* (n43) 183.
[195] Ibid.
[196] Mulkay, 'Frankenstein' (n135) 173.
[197] From both sides, some supporters of research were also cited by Mulkay as looking to the future.
[198] Mulkay, 'Frankenstein' (n135) 170.
[199] Ibid 171.
[200] For example, see Tim Stanley, 'Three Parent Babies: unethical, scary and wrong' (Telegraph, 03 Feb 2015) http://www.telegraph.co.uk/news/health/11380784/Three-parent-babies-unethical-scary-and-wrong.html last accessed 20 September 2017.

As briefly highlighted above, in discussing the embryo, its nature, and its potential legal status, the Report and the resulting 1990 Act arguably brought the embryo out of this particular liminal condition (the unregulated possibilities of which caused great concern), into a new, bounded condition where these concerns were allayed. Law's response to public uncertainty, and the unknown, was to enact boundaries based on the Warnock's reflection of embryonic processes. Despite all of these difficulties, the Bill passed, and the 1990 Act came into force on 1st November 1990.

3.4 The Human Fertilisation and Embryology Act 1990

This section briefly summarises some of the key features of the original 1990 Act (many of which stand today) for the purposes of this PhD research. It does so with a view to marking out both the processual and anti-processual elements of this law. Much of the 1990 Act incorporated the recommendations of the Warnock Report, so the following discussion will not go into unnecessary detail on the reasoning behind the provisions.

3.4.1 The 1990 Act

The 1990 Act was introduced to regulate IVF, embryo research, and provide a statutory basis for the HFEA. As mentioned above, it also acted to expand the permitted circumstances for abortion under the 1967 Act, and thus (for many, but not all)[201] solidified therapeutic abortion in law.[202] There are several sections of the original 1990 Act that are worth noting for the

[201] See Sally Sheldon, '"Who is the mother to make the judgment?": The constructions of woman in English Abortion law' 1(1) (1993) Feminist Legal Studies 3.
[202] In addition to amending s1 of the 1967 Abortion Act, subsections (4) and (5) of section 37 of the 1990 Act also amended the wording of s5(1) and (2) of the Infant Life (Preservation) Act 1921.

purposes of this analysis. First, in s1, the 1990 Act defined the embryo as follows:

> 1. Meaning of 'embryo', 'gamete', and associated expressions
> (1) In this Act, except where otherwise stated—
>
> (a) embryo means a live human embryo where fertilisation is complete, and
>
> (b) references to an embryo include an egg in the process of fertilisation, and, for this purpose, fertilisation is not complete until the appearance of a two cell zygote.
>
> (2) This Act, so far as it governs bringing about the creation of an embryo, applies only to bringing about the creation of an embryo outside the human body; and in this Act—
>
> (a) references to embryos the creation of which was brought about *in vitro* (in their application to those where fertilisation is complete) are to those where fertilisation began outside the human body whether or not it was completed there, and
>
> (b) references to embryos taken from a woman do not include embryos whose creation was brought about *in vitro*.
>
> (3) This Act, so far as it governs the keeping or use of an embryo, applies only to keeping or using an embryo outside the human body.

Thus, in a somewhat revolutionary swoop, the 1990 Act provided for the first time a statutory definition of the 'embryo'. Interestingly, for the purposes of this research, it made use of the word 'process', and in some ways, it might be argued as having recognised the processual quality of the embryo.

Section 1(b) seemingly accounted for the fact that fertilisation is not a 'moment', but a transition from one state (two separate gametes) to another (a two-cell zygote). Nonetheless, it is also worth noting that these legal provisions were (and still are) simultaneously anti-processual. The law-markers took the word 'process' and then entirely contradicted what the ordinary meaning of this word might arguably entail, by including multiple cellular, zygotic and embryonic stages under one heading (for the purposes of the 1990 Act): 'embryo'. This, in and of itself, is not necessarily problematic; it was a legal tool used to capture all embryonic processes *in vitro.* This definition was later proven incomplete by the *Quintavalle*[203] case (discussed below). Under the 1990 Act, a 'human' cellular entity was thus an 'embryo' as soon as fertilisation is complete, which it defined as being marked by the presence of a two-cell zygote. This stage happens as a result of mitosis[204]. When an embryo is fertilised *in vivo*, both of these latter stages occur before implantation into the uterine wall. Section 2(3) of the 1990 Act prescribed that a woman is not 'pregnant' until implantation has taken place.

The 1990 Act is thus governed (and still governs) the embryo, in a sense, before pregnancy might hypothetically take place if it were *in utero*. This was in stark contrast to the pre-20th century laws, which did not protect early human life until well after implantation generally takes place (at least 16 weeks). A further contrast to the laws that came before the 1990 Act is that this framework now allowed for a multiplicity of technological processes to create and use the embryos it regulates. In the past, embryos could only ever be *in vivo*, and thus the only outcomes possible were either termination or birth. These outcomes have not changed under the 1990 Act, but the processes by which they reach these ends have multiplied. Under this new

[203] [2003] UKHL 13.
[204] Mitosis is a type of cell division that results in two 'daughter' cells, these 'daughter' cells then each divide to produce to more, and their 'daughter' cells divide, and so on.

framework, for example, embryos could be: led through implantation, frozen, tested on through PGD, or researched upon. Even when on a reproductive pathway through the law,[205] many embryos still end up being destroyed as part of the IVF process, as often more are created than needed for implantation. Further, there is no complete programme of donation to other women. Surplus frozen embryos may be destroyed, particularly if stored close to their time limit, and a degree of surplus embryos are donated for research. Many of the processes legislated within the framework of the 1990 Act thus result in termination of the embryo.

Furthermore, research embryos do not necessarily have to be entirely 'human.' A new process was thus legislated for. Yet on this pathway through the law, there is only one available end to the process (at the moment): termination. The 1990 Act did not explicitly mention what is meant by 'human embryo', except what can be inferred by its explicit ban on keeping an animal egg fertilised by human sperm, in order to test the sperm's fertility or normality, beyond the two-cell stage.[206] Furthermore, in s3, the Act specifies certain prohibitions in connection with embryos:

> 3. Prohibitions in connection with embryos
> (3) A licence cannot authorise—
> (a) keeping or using an embryo after the appearance of the primitive streak,
> (b) placing an embryo in any animal,
> (c) keeping or using an embryo in any circumstances in which regulations prohibit its keeping or use, or

[205] See Chapter 7.2, and Appendix 1.
[206] See 1990 Act. Schedule 2, s1(f).

> (d) replacing a nucleus of a cell of an embryo with a nucleus taken from a cell of any person, embryo or subsequent development of an embryo.
>
> (4) For the purposes of subsection (3)(a) above, the primitive streak is to be taken to have appeared in an embryo not later than the end of the period of 14 days beginning with the day when the gametes are mixed, not counting any time during which the embryo is stored.

This section of the 1990 Act also introduced the subsection that famously embodies the Warnock Report's 'compromise position': the 14-day rule. Thus, for the first time it was legal to carry out scientific research on human embryos, but within a limit of fourteen days.[207] While the 1990 Act enacted most of the proposals put forward by the Warnock Report, it remained silent on the key issue of 'respect' for the embryo.[208] The 14-day rule's embodiment in this Act was essentially an operationalisation of the 'respect' called for by the Warnock Committee, as were other limits on the use and storage of embryos, such as prohibiting their placement into an animal. From this we can see that only one particular embryonic context was truly *protected* by law, with regards to where it may be placed and who may place it *in utero*, amongst other things.

The provision of the 14-day rule aimed to provide a compromise between the competing aims of research and those who are 'pro-life', by providing a cut off for research at the point in embryonic development where it begins to develop the structure that will eventually become the spinal cord. There are, however, calls for this rule to be revised after recent studies published in the

[207] Section 3(4) 1990 Act (as amended).
[208] Fox and Murphy, 'Embryonic Hopes' (n135) 498-9.

scientific journals *Nature*[209] and *Nature Cell Biology*[210] have revealed that, the first time, the embryo has been kept *in vitro* for as long as 13 days. Shortly after, the Nuffield Council on Bioethics announced plans to explore a review of this limit.[211] This shall be explored further in Chapter 8.

Yet what do we make of this in light of a processual analysis? It seems that quickening (Chapter 2) has been removed as a stark legal-moral boundary, but only to be replaced by others (the 14-day rule being a good example of this). As our understandings of developmental processes have changed, so have the legal boundaries that attempt to reflect those processes: first, quickening, then viability in the early 20th century, and now, for certain embryos, the 14-day rule. Each process, in its own way, has become 'the new quickening.' It thus seems that law's boundaries have fluctuated, historically, in accordance with what we believe we know (to a degree). This, then, is the element of law that reflects process in part.

In a research context, however, the placement of the embryo *in utero* was strictly forbidden (see s3). In s3(3)(d) (above) we can see one of the preemptive rules of the 1990 Act,[212] which explicitly outlawed human cloning (which had not been developed at the time but was later inserted by the 2008 Act), for any purpose, as per the Warnock Recommendations. Nonetheless, the science in this area developed in unforeseen ways, as

[209] Alessia Deglincerti, Gist Croft, Lauren Pietila, Magdalena Zernicka-Goetz, Eric Siggia, and Ali Brivanlou, 'Self-organization of the attached human embryo' (2016) 533(7602) Nature 533, 251.
[210] Marta Shahbazi, Agnieszka Jedrusik, Sanna Vuoristo, Gaelle Recher, Anna Hupalowska, Virginia Bolton, Norah Fogarty et al, 'Self-organization of the human embryo in the absence of maternal tissues' (2016) 18(6) Nature Cell Biology, 700.
[211] See 'Council to consider '14 day rule' in embryo research' (Nuffield Council on Bioethics, 4 April 2016) http://nuffieldbioethics.org/news/2016/council-14-day-rule-embryo-research/ accessed 4 February 2018.
[212] The 2008 amendments inserted a preemptive provision on mitochondrial replacement (see Human Fertilisation and Embryology Act 2008 ss1(5), 3(5) and 26). This, of course, was changed in the Human Fertilisation and Embryology (Mitochondrial donation) Regulations 2015.

discussed further in the next subsection. It is arguable that from the 1990 Act's conception, the law has inexplicitly demarcated between 'types' of embryos, namely reproductive embryos and research/therapeutic embryos. 'Research embryos' must always, and ultimately, be disposed of; thus to say they are as 'protected' as reproductive embryos, or more so embryos *in utero*, would arguably be logically incoherent.

Notably, s37 of the 1990 Act later significantly amended s1 of the 1967 Act, and extended the permitted circumstances.[213] While it did not explicitly differentiate between the different 'stages' of pregnancy, the 1990 Act's amendments broke the connection between the 1967 Act and the ILP Act by inserting the 24-week time limit in s1(1)(a). With these amendments, the law included more facets of (perceived) women's interests, in addition to those included under the original version of the 1967 Act. Under this new amended version, abortions may be carried out after 24 weeks/'viability' if the woman meets certain circumstances. Notably, at the time the insertion of the 24-week limit was of practical insignificance, as very few abortions were then carried out after this stage, as at this point the foetus was presumed 'viable.'[214] Nonetheless, while the medicalisation of abortion law (i.e. medical knowledge shaping the substance of law) has muted the anti-abortion lobby,[215] it may still have unanticipated consequences. By this time, with advances in medicine, the timeline of foetal viability shortened from 28 weeks per the ILP Act, to 24 weeks.

When discussed in the House of Commons, it was noted that advances in science since the ILP Act mean that foetal viability can begin as early as 24

[213] See Abortion Act 1967 (as amended) s1(1)(a)-(d).
[214] See Sheldon, *Beyond Control,* (n114) Chapter 6.
[215] Jackson, *Regulating reproduction* (n43) 83.

weeks.[216] Although foetal viability may make sense as a biological/legal boundary for many, scientific progress in this area is progressively reducing the age at which a premature baby can survive (although there are biological limits to this without ectogenesis, i.e. artificial wombs outside of the woman's body).[217] This begs questions about how these lines will be drawn if prospective technologies such as ectogenesis become feasible.[218] There has already been academic debate on the drawing of somewhat 'arbitrary' lines in this area of regulation, for example the 24-week limit sits in juxtaposition to embryo research laws, as we see later, where a line of 'respect' is drawn at 14 days.[219]

To return to the historical tracing, between 1990 and 2000, the 1990 Act remained steadfast.[220] One of law's main roles is to provide certainty to its subjects, and arguably the 1990 Act did just that by dictating what we can and cannot do with regards to *in vitro* reproduction and research, thus bringing law out of the uncertainty of the 1970s and early 1980s. As we have seen, this uncertainty did not just stem from not knowing what the law is, but also from societal disagreement regarding how we ought to treat embryos. The latter did not disappear with the 1990 Act, of course, but by providing a framework with a 'compromise', it did navigate this second kind of uncertainty in some sense. This uncertainty arguably returned, however, when the soundness of the 1990 Act was brought into question after concerns were raised about the 'slippery slope to human reproductive

[216] See HC Deb, 24 April 1990, vol 171, cols 166-304,173.
[217]George Winter 'The future of artificial wombs' (2017) 25(7) British Journal of Midwifery 416.
[218] See Zoltan Istvan, 'Artificial wombs are coming and the controversy is already here' (Motherboard, published 4 August 2014) http://motherboard.vice.com/read/artificial-wombs-are-coming-and-the-controversys-already-here accessed 4 February 2018.
[219] For more on this, for example, see Jackson *Regulating reproduction* (n43) Chapter 3.
[220] One of the few amendments to this Act worth noting in this context occurred in s156 of the 1994 Criminal Justice and Public Order Act, which amended s3 to include s3A (prohibition in connection with germ cells), which was coupled with a criminal sanction (as outlined above).

cloning' several years after the first successfully cloned mammal was born in 1997, Dolly the sheep.[221] Further, in 2000 legislation was passed to extend the purposes for which embryos may be used for research, including increasing knowledge about serious disease and developing treatments for such disease.[222] The foundations of the 1990 Act were called into question in 2001 when the legality of a new form of cloning was called into question. This case, and the reactionary laws pushed through after it provide prime example of how advances in scientific processes may require a change in law to reflect those processes. We turn to this case next.

3.4.2 Case law: Quintavalle (2001-2003)

This subsection summarises the proceedings in this case, before going on to provide analysis. In *Quintavalle*,[223] the issue before the Courts was whether embryos created by Cell Nuclear Replacement ('CNR') fell under the 1990 Act. CNR is the procedure through which the "nucleus of an oocyte [is replaced with] with a nucleus taken from a somatic cell of another person".[224] Interestingly, as previously noted, the 1990 Act tried to pre-empt cloning, in s3(d). Nonetheless, while CNR is technically a process of cloning,[225] at the time the 1990 Act defined an embryo as "a live human

[221] For summaries of the issues see, for example: John Harris, ' " Goodbye Dolly?" The ethics of human cloning', (1997) 23(6) Journal of Medical Ethics 350; and Lina Hellsten, 'Dolly: Scientific breakthrough or Frankenstein's monster? Journalistic and scientific metaphors of cloning' (2000) 15(4) Metaphor and Symbol 213.
[222] Human Fertilisation and Embryology (Research Purposes) Regulations 2001.
[223] *R (Quintavalle) v Secretary of State for Health* [2001] All ER 1013, [2001] WL 1347031.
[224] Thérèse Callus, 'Omnis definitio periculosa est: on the Definition of the Term "Embryo" in the Human Fertilisation & Embryology Act 1990' (2003) 6(1) Medical Law International 1.
[225] Notably those in opposition to the practice often appealed to the dignity of the embryo. For discussion surrounding this see for example: Deryck Beyleveld, *Human Dignity in Bioethics and Biolaw* (Oxford University Press, 2001); Roger Brownsword "Stem cells and cloning: where the regulatory consensus fails" (2004) 39(3) New England Law Review (2004) 535.

embryo where fertilisation is complete",[226] but CNR does not involve fertilisation. The court's navigation of this issue proved important for the 1990 Act, the landscape of which changed following this series of judgements. *Quintavalle* thus raised important questions about the function of the judiciary in statutory interpretation in reference to the status of the embryo in law today. While the court's role in making (and unmaking) law is not the direct subject of this thesis, it is important to note the part they have played in the law we have today.

The case was first brought to the High Court, where it was held that a CNR embryo did not fall under the 1990 Act, as it was not "an embryo where fertilisation is complete."[227] Although the Secretary of State argued that a purposive approach should be taken in this case, the judge decided that such an approach would "involve an impermissible rewriting and extension of the definition."[228] In response to Crane J's judgement in the first instance of this case, the UK government rapidly produced law that criminalised the placing of an embryo that has been created by any method other than fertilisation in the womb of a woman,[229] under the Human Reproductive Cloning Act 2001 ('HRC Act').

The case was then taken to the Court of Appeal,[230] where the appeal was upheld. The Court held that an embryo created by CNR, and embryos created by IVF were 'morphologically and functionally indistinguishable'.[231] The Court's decision was made on the basis that both entities had the capacity to develop into a human being, and, further, that the policy of the

[226] 1990 Act, s1(1)(a).
[227] 1990 Act s1(a).
[228] *Quintavalle* [2001] (n223) [62].
[229] Derek Morgan and Mary Ford. "*Cell phoney: human cloning after Quintavalle*" (2004) 30(6) Journal of Medical Ethics 524.
[230] *R (Quintavalle) v Secretary of State for Health* [2002] All EWCA Civ 29, [2002] QB 628.
[231] Ibid at 639.

1990 Act was intended to cover all embryos created outside of the body.[232] This judgment thus confirmed the HFEA's capacity to license the creation of cloned organisms.[233]

Finally, the case was appealed to the House of Lords, who, in a rather strongly worded ruling that effectively shut down the debate on cloning, unanimously sustained the decision of the Court of Appeal.[234] The Court held, in dismissing the appeal, that section 1(1) of the 1990 Act should be given a purposive construction, and that it should be interpreted in the context of the 1990 Act as a whole, rather than based on specific wording.[235] As the 1990 Act was created to regulate live human embryos created outside of the human body, it was held that no activity in this field was intended to be left outwith its ambit.[236] It was also held that since Parliament could not have envisaged the creation of an embryo by any method other than fertilisation at the time of enactment,[237] the 1990 Act could not have intended to distinguish between an embryo created in this way and one produced by fertilisation. Furthermore, it was held that embryos created by CNR, and those created by IVF are 'similar organisms', and thus 'fell within the same genus of facts' as those whereby the policy of the 1990 Act was formulated by Parliament.[238] They also held that CNR did not fall within s3(3)(d) of the 1990 Act. The manner in which the embryos were created was not the main issue, according to the House of Lords, but rather the fact that Parliament had intended to cover all embryos created

[232] Morgan and Ford (n229) 524.
[233] Callus (n224) 1-2.
[234] *Regina (on the application of Quintavalle) v Secretary of State for Health* [2003] UKHL 13.
[235] Ibid [8].
[236] Ibid [14]
[237] Ibid [7]
[238] Ibid [15].

outside the human body with the 1990 Act.[239] As *Quintavalle* and the resulting legislation demonstrated, CNR was a huge scientific advancement that the 1990 Act had failed to anticipate, even though it was mentioned in the Warnock Report. As a result of the successful High Court challenge to cloning regulations,[240] the government quickly introduced the HRC Act, which ended up being entirely repealed by the 2008 Act. The HRC Act acted to ban human *reproductive* cloning entirely; however, the statute left a legislative gap with regard to therapeutic cloning until the House of Lords authoritative decision in 2003, where the distinction for legal purposes, was reintroduced. As a result of *Quintavalle*, the 1990 Act was later amended to include any process capable of resulting in an embryo, as seen in s1(1)(b), and thus the debacle over cloned embryos was effectively drawn to a close. However, licences for treatment cannot be legally awarded where cloned embryos have a reproductive end and a distinction between therapeutic and reproductive cloning was thus introduced into the law.

Why this decision? As aforementioned, perhaps disallowing CNR to fall under the section may have opened a 'can of worms'. Yet, this begs the question: how useful is the implicit regulatory distinction between therapeutic and reproductive cloning?[241] Will it withstand the test of time? It is not within the ambit of this research to discuss the *moral* pros and cons of dissolving such a distinction (and thus allowing reproductive cloning), but it is evident that the standing of this distinction is precarious. As Laurie et al remark: "We suspect that the days of the outright prohibition on reproductive cloning are numbered."[242] Martin Johnson argues that the current law captures embryonic process to some extent with the

[239] Davor Solter et al, *Embryo research in pluralistic Europe*, Vol 21 (Springer Science & Business Media, 2003) 122.
[240] Human Fertilisation and Embryology (research purposes) Regulations 2001.
[241] Graeme Laurie, Shawn Harmon and Gerard Porter *Mason and McCall Smith's Medical Law and Ethics* (10th ed, Oxford University Press, 2016) 268.
[242] Ibid.

introduction of the reproductive/therapeutic distinction, by distinguishing between two 'classes' of embryo. Nonetheless he also argues that it could also do more: "What is being proposed here is a generalizing extension of this concept to reproductive and therapeutic 'processes in general' and to reproductive and therapeutic 'embryos' in particular"[243] (discussed further below). Nonetheless, these types of demarcations were discarded as a regulatory solution by the 2005 House of Commons Science and Technology Committee ('HCSTC') report (see below).

Arguably, *Quintavalle*[244] has demonstrated that we *can* alter the embryo's explicit, legal definition under certain circumstances. Further, the case inexplicitly widened the reproductive/therapeutic distinction. It is not unforeseeable that a similar amendment to those made in 2008 may recur if required. Nonetheless, while important, none of the policy discussions post-*Quintavalle* have addressed the nature and extent of the embryo's legal status. Notably, when definition and status are addressed holistically, it becomes clear that they are not entirely distinct; a change in one has implications for the other. For example, by introducing clarification regarding the definition of the embryo, as noted above, the 2008 amendments consolidated the (inexplicit) legal distinction in status between reproductive and therapeutic cloning.[245] It seems that the legislative response to uncertainty here, as we have seen, was initially a knee-jerk ban on reproductive cloning, but even this law did not cover all forms of cloning; it left a gap regarding therapeutic cloning, which the courts eventually filled on

[243] Martin Johnson, 'Escaping the Tyranny of the Embryo? A New Approach to ART Regulation Based on UK and Australian Experiences' (2006) 21 Human Reproduction 2756, 2761.
[244] *Quintavalle* [2003] (n234).
[245] Laurie, Harmon and Porter (n241) 268.

appeal.[246] This case arguably cemented different 'types' of embryo in law (previously mentioned). Thus, the legal wedge between 'reproductive' and 'therapeutic' embryos grew. As a correlative, the types of processes, and the network of pathways available for embryos under law, also grew.

Overall, however, it is arguable that the *Quintavalle* case, and the resulting 2008 amendments to the 1990 Act, also brought the embryo out of legal uncertainty, if not out of a 'dangerous' moral and legal space. In this space, certain research practices are going on unregulated and/or research practices have been left open to legal challenges through a gap in the law. In this way, we were brought out of legal uncertainty regarding how we can treat embryos under law (i.e. what was and was not legal), and we saw this again here with regards to cloning for research purposes.

It is worth noting, briefly, the (non) role of the European Court of Human Rights (ECtHR) on UK law governing the embryo/foetus. Generally speaking, the ECtHR has avoided ruling definitively on the legal status of the embryo/foetus, but has considered whether they have a right to life under Article 2 of the Convention,[247] holding that this point falls under countries' margin of appreciation.[248] It has recognised that the health and interests of the mother implicitly limit the embryo/foetus' rights.[249] These cases, nonetheless, have arguably had little (if any) effect on the UK's governance of the embryo *in vitro*. It is also worth noting that in *Brüstle*,[250] a patent case, the European Court of Justice ('ECJ') laid down a legal definition of

[246] *Quintavalle* [2003] (n234).
[247] See, for example *Vo v France* (2005) 40 EHRR 12; *Evans v UK* (2008) 46 EHRR 34.
[248]See Brüggemann and Scheuten v Federal Republic of Germany [1977] EHRR 113 on state interference with reproduction and margin of appreciation per Article 8; and *Vo* (n247) [82] regarding margin of appreciation per Article 2.
[249] See *Paton v UK* (1980) EHRR 408 [415]; and *Vo* (n247) [80].
[250] *Brüstle v Greenpeace (*C-34/10) [2012] All ER EC 809.

'embryo'.[251]

These examples are all connected through the different ways in which courts will/will not intervene to define/protect the embryo. Yet, at the same time it is also important to acknowledge that there are very different policy considerations at play. In the UK, the focus has been on the research/'therapeutic' use of embryos and their use for reproduction; ECHR case law has focused more on access to abortion services and the legal status (personhood) of the embryo/foetus therein; and finally, the ECJ has engaged in this debate to an extent, regarding acceptable commercial practices, monopolies, and patents. Nonetheless, underlying all of this, for the UK there is this floating vague notion of the 'special status' of the embryo and the extent to which it should be recognised and taken into account in law. Despite evolving distinctions within our framework as amendments (and decisions) are made, the singular 'special status' has remained.

3.4.3 Post-*Quintavalle*: Redefining 'the embryo?' (2005-2008)

In 2005, the HCSTC produced their fifth annual report. Post-*Quintavalle*, one of the main issues at hand was how to define the human embryo under the 1990 Act. Citing the House of Lords' judgment in *Quintavalle*, the report stated that:

> This purposive approach to the definition of an embryo could be seen as resolving the definition of the embryo. Nonetheless, in its evidence, the HFEA suggests that the definition contained in the HFE Act is

[251] Ibid [12]: "An embryo is a fertilised human ovum capable of development, from the time of karyogamy…"

> unsatisfactory and proposes that "An amended definition of 'embryo' and 'gametes' might clarify that the remit of the Act also extends to embryos that have been created by other means than 'fertilisation' (CNR, parthenogenesis), and to artificially created gametes".[252]

It thus suggested an expanded meaning, but meanwhile the reproductive/therapeutic distinction stood fast. Interestingly, while this report emphasised that attempts to define the embryo based on mode of creation or its capabilities should not be made (quoted below), the 1990 Act later developed to demarcate and define embryos in a manner which arguably derives precisely from the manner of their creation.

The HCSTC report then went on to describe different ways in which this problem might be solved, based on evidence put forward by academics and professionals, and concluded that defining the embryo would not be suitable. To quote extensively from the HCSTC report:

> 52. There are three ways in which the perceived problem of the definition of an embryo can be addressed:
>
> a) By redefining an embryo, at least defining those types of embryo that fall under legislation, according to the way in which they were created. This has the advantage of clarity but it fails to embrace any future technique that might be developed. For example, it might become possible to reprogramme an adult cell to behave like an embryo. Vivian Nathanson from the BMA says: "The question, really, is whether it is possible to find a simple definition that would capture not only all current scientific possibilities but the ones that people

[252] House of Commons Science and Technology Committee, 'Human Reproductive Technologies and the Law: Report of the Fifth Session 2004-5' (2005) 51.

speculate might happen within the next 10-15 years […] but if one cannot find an acceptable phrase for that then we would still commend putting in the concept of cell nuclear replacement because it is so important". If this approach were to be adopted, the legislation would need to be sufficiently flexible to allow new forms of embryo to be included. An alternative approach would be to distinguish between fertilised embryos and what Professor Kenyon Mason of Edinburgh Law School termed "laboratory artefacts". Dr Veronica van Heyningen, a geneticist who contributed to our online consultation, also made this distinction: "I would not […] think that laboratory experiments where you transplant a nucleus for entirely laboratory purposes into an oocyte [egg […]] is an embryo". By making this distinction, as the Human Reproductive Cloning Act 2001 does, it would be possible to provide that only embryos for which fertilisation had taken place could be implanted. The disadvantage of this would be that some of these "laboratory artefacts" may have benefits, both for infertility treatment and avoiding genetic diseases.

b) By defining an embryo by its capabilities. For example, it could embrace any diploid cell (two sets of chromosomes) with the potential to differentiate. However, Professor Lee M Silver from Princeton University describes a broader definition: 'There's a word biologists use to describe a cell, or group of cells, that by itself can develop into a whole animal or person: That word is "embryo". Each random bunch of eight to 10 human ES [embryonic stem] cells is nothing more or less than a "naked" human embryo - that is, an embryo without its pre-placental "coat"'. This comment illustrates the danger that embryonic stem cells might be swept up by such a definition. This problem might be solved by including the provision that the cell(s) must have the potential to develop in the womb in order to be defined as an embryo. However, the cells' potential might

> be open to debate and subject to technological advances. The Scottish Council on Human Bioethics cites German legislation in which any totipotent cell (capable of developing into a complete organism or differentiating into any of its cells or tissues), which has been extracted from an embryo which may divide and develop into an individual human being once the necessary further conditions are provided, is considered to be an embryo.
>
> c) A final option would be to avoid any definition, as is the case in the 2001 Human Reproductive Cloning Act. Using this approach, the term "embryo" would cover the normal usage of the word. We understand that this approach has been taken by the French in recent legislation.
>
> 53. We are concerned that any legal definitions of the embryo based on the way it was created or its capabilities would either be open to legal challenge or fail to withstand technological advance. The attempt to define an embryo in the HFE Act has proved counter-productive, and we recommend that any future legislation should resist the temptation to redefine it. We consider that a better approach would be to define the forms of embryo that can be implanted and under what circumstances. Using this approach, only those forms of embryo specified by the legislation, such as those created by fertilisation, could be implanted in the womb and thereby used for reproductive purposes. Other forms of embryo would be regulated insofar as they are created and used for research purposes.[253]

This issue of definition, while not the central concern at hand, raises some interesting considerations for the purpose of this thesis. The HCSTC

[253] House of Commons Science and Technology Committee (2005) (n252) 52.

contended that defining the embryo would be counterproductive. Defining the forms of embryo that can be implanted, and banning all others, might be logically and practically appealing. It ensures that anything that might be generally held as morally undesirable cannot be implanted (at least not without first having public/legal consultation and subsequent legal change). Nonetheless, legal loopholes cannot be completely avoided, as *Quintavalle* has shown. This approach thus comes with its own problems. Writing in the same year (2005), Catherine Stanton and John Harris argued that: "…the need for clarification of terms such as 'embryo' is important, not solely in the ethical debate, but also to ensure clarity in areas of regulation."[254] They recognised that there are those who do not share this view, and argued that it can render law "rigid and inflexible,"[255] and consequently that law should just outline what is to be illegal.[256] Stanton and Harris said that while this might sound appealing, it would not work for two reasons. First, it is impossible to predict what advances we will have, and therefore whether we should outlaw them. Secondly, they pointed out that avoiding definitions like 'human embryo' leaves uncertainty, as it did with CNR in 2005[257] (until the 1990 Act was changed in 2008). They argued that in a post-Dolly era, the status of embryos created by CNR, and the difficulties caused by advances in science, means we need to alter our terminology. They went on to say: "…drafting less prescriptive legislation in areas of technological development may not be the panacea it initially appears. Particularly in cases where the criminal law is at issue, legislation should err on the side of clarity, putting present-day certainty ahead of possible future uncertainty."[258] Of course, shortly after this was written the law did alter its terminology, but

[254] Catherine Stanton and John Harris, 'The moral status of the embryo post-Dolly' (2005) 31(4), Journal of Medical Ethics 221, 223.
[255] Brendan Gogarty, 'What exactly is an exact copy? And why it matters when trying to ban human reproductive cloning in Australia' (2003) 29(2) Journal of Medical Ethics 84.
[256] Ibid.
[257] Stanton and Harris (n254) 224.
[258] Ibid.

science has continued to advance since the 2008 amendments, and while it was a step in the right direction, arguably did not go far enough (for some).[259] Even post-2008 amendments, some confusion still remains.

It is certainly questionable whether the law is even able to define something so complicated, but if the law were to be reconsidered, is there anything to be said for a definition based upon creation or capabilities (paras 52(a)-(b) above)? Further, is there anything to be said for an approach that combines both? The answers to the latter questions are also explored further in Chapter 7. Interestingly, paragraph 53 also refers to "other forms of embryo" and their regulation "insofar as they are created and used for research purposes." This PhD research's approach is not in opposition to this perspective. In fact, it agrees with the HCSTC report that the embryo should not be defined, *per se* (for they thought it might be open to challenge or fail to withstand technological advances). Nonetheless, as also discussed further in Chapter 7, it does advocate a reconsideration of the embryo's legal ontological constitution(s), with processuality (as central to law making here) in mind.

Paragraph 52(b) is not necessarily illogical; unwanted entities may be caught up in definitions based on capabilities. While this thesis does not necessarily propose that the embryo should be terminologically defined,[260] critiques such as this are arguably symptomatic of the embryo's 'legal status' (and definition's) opacity. As discussed briefly below and further in Chapter 7, the law cannot be expected to withstand *all* technological advances; it is thus important to revisit it. Some might believe that where there are new technologies, law has to be absolutely 'bullet proof', or even 'future proof'.

[259] See Marie Fox, 'The Human Fertilisation and Embryology Act 2008: tinkering at the margins' (2009) 17(3) Feminist Legal Studies 333.
[260] See Chapter 8 of this thesis.

On the contrary, if the law is too 'bullet proof', and thus rigid, it cannot revisit and/or be flexible in light of scientific or social changes. Further, with regards to paragraph 53, presumably the legal challenge that they fear might be something similar to the *Quintavalle* scenario. Nonetheless, this paragraph did not note the arguably positive legal solution that came from the evolution of this law (positive in terms of enabling the aims of the 1990 Act, which the HCSTC support). Further, it is arguable that, looking at the wording in (c) and 53, we can see a focus on end-point. It is essentially saying, 'here are the processes we allow and thus here are the end points we allow', (to be born you have to be genetically 'human' and not cloned). It allowed cloning, but only based on one particular end-point (disposal). For this thesis, an integral feature of taking a processual approach is that one needs to know what that process is leading to (see Chapter 6). The HCSTC thus seem to have engaged with process, but only to some extent, because they did not account for the features of embryonic transformation and evolution (although perhaps they did not want to, given the post-*Quintavalle* climate of the time).

A year after the HCSTC report, the 2006 Department of Health White Paper on the review of the 1990 Act continued in similar vein, and concluded that the legal *status quo* regarding human embryos should remain:

> The Government has concluded that the foundations of the current law remain sound, and provide an effective and appropriate model of regulation for the development and use of human reproductive technologies. This echoes the findings of the recent inquiry by the House of Commons Science and Technology Committee, which similarly concluded that the approach taken to the status of the

> human embryo remained appropriate.[261]

It is unclear what 'foundations of the current law' meant, although it seems likely that it referred to the philosophical basis of the framework, i.e. a 'special status', taken from the recommendations of the Warnock Report. Although the approach advocated by both reports has resulted in somewhat desirable legal and technological outcomes (for those who support IVF and research, regulated through a 'compromise position'), its adequacy after having stood as a pillar of the 1990 Act (as amended) for 27 years nonetheless needs to be subjected to on-going scrutiny. As the *Quintavalle* saga has shown, and the critiques of the law that have surfaced in recent years (for example the 14-day rule) confirm, opening up the embryo debate runs risk of research being 'shut down', which is undesirable to those who support it.

Overall, a main message for this subsection is that law needs to be adaptive. What happened here, instead, is that it has continued to create multiple legal embryos with the deepening of the reproductive/therapeutic distinction, and that in doing so has not accounted for the multiplicity of embryonic processes it leads embryos through (and indeed ends it leads them towards) as identified earlier. That is, the current legal framework, under the rubric of a 'special status', is masking these processes. We thus arguably need to consider the way in which we can manage this in a more transparent and coherent manner.[262]

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[261] Department of Health 'Review of the Human Fertilisation and Embryology Act' (White Paper, Cm6989, 2006) 1.8.
[262] Parts 2 and 3 of this thesis consider this.

3.4.4 The Human Fertilisation and Embryology Act 2008 and Beyond (2008 – 2017)

The subsection briefly explores the 1990 Act (as amended), as it stands today, before going on to engage with the critical literature surrounding the evolution and status of the embryo under the 1990 Act (as amended) in the next section.

The recommendations in the above white paper (2006) eventually became the Human Fertilisation and Embryology Bill, after scrutiny by a Joint Committee of both houses. This Bill received Royal Assent in November 2008, and became the 2008 Act. Some of the key amendments it made to the 1990 Act (some of which have already been discussed) included:

- The meaning of 'embryo'. It is no longer defined as one "where fertilisation is complete." Instead, it is still a "live human embryo," which can include an egg in the process of fertilisation, but it may also include an egg "undergoing any other process capable of resulting in an embryo."[263] This section also explicitly excludes human admixed embryos from the meaning of 'embryo'.[264] This is a nod to human cloning, another technique of creating an embryo not foreseen in the original 1990 Act. Interestingly, the HFEA website refers to this as "ensuring that the creation and use of all human embryos outside the body – whatever the process used in

[263] 2008 Act, s1(2).
[264] Ibid.

their creation – are subject to regulation",[265] rather than the introduction of governance of CNR techniques to the 1990 Act.

- The 2008 Act inserts s3ZA, which details permitted embryos, gametes, etc. for placement in a woman.[266] This section explicitly excludes embryos where nuclear or mitochondrial DNA have been altered being placed in a woman. Nonetheless, section 26 of the 2008 Act also inserts s35A, which provides that modifications may be made in respect to the latter, which indeed later took place in 2015.[267] It also explicitly excludes embryos created by cloning techniques being placed in a woman; and
- The 2008 Act also inserts s4A, which allows for the licensed keeping and use of human admixed embryos for up to 14 days, as long as they are not placed in a woman.[268] Here the legal construct of 'the embryo' has changed within the confines of the 1990 Act, as driven by advances in science. This change arguably brought the embryo out of a condition of uncontrolled flux (highlighted by the *Quintavalle* case), into the boundedness of the law. Nonetheless, in making this change Parliament was careful not to revisit the embryo's 'special status'.

Regarding the first bullet point, it is worth noting that this amendment thus moved us to the stage where law, to some extent, recognises processes needed for an embryo to be eventually born (as we have seen). Now, because of technology, the law also recognises new processes that can result in embryos. Further, the amendments specifically forbid that certain embryos appear in certain contexts, e.g. implantation in a woman's

[265] 'Human Fertilisation and Embryology Act 2008' (Department of Health, 26 July 2010) http://webarchive.nationalarchives.gov.uk/+/http://www.dh.gov.uk/en/Publicationsandstatistics/Legislation/Actsandbills/DH_080211 accessed 04 February 2018.
[266] 2008 Act, s3(5).
[267] Human Fertilisation and Embryology (Mitochondrial Donation) Regulations 2015.
[268] 2008 Act, s4(2).

womb.[269] The legal response to the many transformative possibilities of embryos has been to prohibit them at the earliest stage, including human cloning, human chimeras, and 'enhanced' humans. As Karpin argues:

> …it is through the enactment of prohibitory legislation that (legislative) life is given to entities that are yet to be made. In so doing, the law gives reality to the fantasy of the very beings that it seeks to deny. Law through both regulation and prohibition carries us forward in the imaginary leap that is necessary to take us from the embryonic being to the *post-human* being.[270]

In this way, the law considers the possibilities and possible teleologies for embryos that we do not want. Yet, it arguably provides a way of thinking about it in a more processual way. Whether we want these embryos, is, of course, another question.

Despite the (remaining) underlying 'special status' of the embryo in the 1990 Act (as amended), the word 'status' (or any other of similar meaning) does not appear once in the 1990 Act (as amended) in reference to the embryo. It is clear, however, that the recommendations of the Warnock Report, made in light of its proposal for a 'special status', are reflected here, operationalised through provisions such as the 14-day rule and s4A. The 1990 Act adopted the precise time limit recommended in the aforementioned report, and also criminalised many of the activities in alignment with the report's recommendations. Admixed embryos, CNR and mitochondrial donations, three of the biggest changes to the original 1990 Act, were all referred to in Chapter 12 ('Possible Future Developments in

[269] Karpin argues that by articulating the particular contexts in which the embryo cannot appear, the law creates new possibilities for the embryo. See Karpin, 'Uncanny embryos' (n20) 602.
[270] Ibid.

Research') of the Warnock Report. Cloning was mentioned, but not advised for or against, as it was not technically possible at the time.[271] Admixed embryos were discussed in more depth, as the technique was available at the time. The Warnock Committee took the view that this was justified and should be subject to licensing and termination at the two-cell stage.[272] This was enacted within Schedule 2 of the original Act, and clarified further in the 2008 amendments. The Warnock Committee also noted the potential for the prevention of genetic defects, and the insertion of "a replacement gene which will remedy the defect."[273] On this, they believed that developments in this field would be precluded by the controls they recommended, but also envisaged that the guidance on this may be reviewed in the future to "take account of both changes in scientific knowledge and changes in public attitudes."[274]

3.5 Conclusions

In the above, we see law's development to reflect the changing boundaries of what is 'certain' and 'uncertain'. New uncertainties arise[275] and some old ones remain.[276] We have thus moved, in some ways, from one type of uncertainty to another when it comes to embryo regulation, and this is because what we are dealing with is an inherently processual entity; that in and of itself has not changed. This is not necessarily a 'bad' thing for law, for uncertainty can be used positively. Nonetheless, as also discussed

[271] Warnock Report (n25) 12.11 and 12.14.
[272] Ibid 12.2-12.3.
[273] Ibid 12.15.
[274] Ibid 12.16.
[275] i.e. Should research and reproductive embryos be treated the same? Should the 14-day rule be extended? What can we find out about time between 14 and 28 days? Etcetera.
[276] i.e. the question of how we should treat embryos is, of course, is never certain because there is no objective answer; in recognition of moral pluralism it, is very much a subjective matter.

further in the next chapter, ineffectively capturing that uncertainty can be problematic. This thesis is thus not necessarily advocating that we create absolute certainty in the law, or indeed absolute processuality (arguably neither of which are possible), but rather that we navigate the uncertain, processual nature of the embryo and that the law that governs it in a way that enables us to navigate that liminality, and emerge out of the other side, where deemed appropriate.

While the 1990 Act has been subsequently amended, these amendments do not stray from the Report's original recommendations with respect to any future possible technique that they strongly recommended should be precluded by law.[277] Indeed, Chapter 12 of the Warnock Report addressed several "possible future developments in research," some of which are indeed now possible today: trans-species fertilisation, ectogenesis, cloning, nucleus substitution, and the gestation of human embryos in other species.[278] For some, the Committee merely described what the technique might involve, whilst for others (especially the gestation of human embryos in other species), they emphatically recommended that they should be a criminal offence. Overall, then, law has not strayed far (if at all) from the Report's recommendations published in 1984. Nonetheless, it has arguably evolved, from 1990 to 2008 to 2015, beyond the Warnock Committee's original vision.

Yet, what was the embryo's legal status throughout these processes? We have also seen that the human embryo seems to hover legally between several cultural and moral categories, notwithstanding biological categories, too. While it clearly does not have a legally articulated 'status' under the 1990 Act, it occupies a legal (and for some, moral) threshold between all of

[277] See Warnock Report (n25) 70-74.
[278] Ibid.

these aforementioned categories. Thus, while there is no explicit legal status of the embryo, what we have, legally, is still *something*. By virtue of giving the embryo *in vitro* legal recognition, with attached allowances and limits, it arguably has a status of sorts. Furthermore, bearing in mind that the law adopted most of the Warnock Report's recommendations, its status may indeed be described as 'special', as the Report prescribed. It is "not nothing,"[279] yet not a 'person'. From what we have seen, its status remains 'special', the meaning of which is unclear except that it is afforded 'respect' of sorts. Beyond that, we can glean little regarding what is the extent or nature of this from domestic law. It does not have an explicit legal status, but, as some argue, it may have one implicitly.[280] This begs the question: what does it mean to have 'legal status'? Is it enough to be protected by law? Recognised by law? Entitled to something through law?

On this matter, Ford has asked: even if the 'special' status has a justifiable source, how can we 'value' it in practice except by avoiding harm and/or destroying it? If those who want to accord the embryo this status, but not make termination of pregnancy illegal, then 'special respect' seems meaningless in practical terms.[281] It is difficult to enable a 'middle position'; we either allow embryos to be destroyed, or we do not. For Ford, the embryo's 'special status' is thus, arguably, purely rhetorical; it does not oblige us to "act or refrain in any way."[282]

Yet this is not necessarily the case. Time is an essential component of legal boundaries within the 1990 Act (as amended). To explain, either one can research the embryo for less than 14 days, or one cannot. This means that

[279] *St George's Healthcare NHS Trust v S* [1998] All ER 673, [1998] 3 WLR 936, 952.
[280] Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 606.
[281] Ford (n20) 31.
[282] Ibid 43.

we cannot research the embryo for any longer period of time, for example 30 days or 60 days. But there is another facet to this. One might counter-argue that rhetoric aside, the concept of the 'special status' is still very powerful and has acted as a tool to 'stop us in our tracks' with regards to research on embryos. It is arguably a precautionary position, which reflects that we as a society afford a degree of value to embryos, and thus the special status caveat requires us to proceed cautiously, to reflect, to justify fully, to revisit, to revise, and to continue to monitor as we progress scientifically. If we did not value the embryo at all, then we would have carte blanche to treat it however we wished. If that were the case, research at 30 or 60 or 180 days would not present a problem. Therefore, the embryo's special status need not be an all-or-nothing brake on research, nor a green light position. It thus means something in that sense, however (admittedly) meaningless. The 'special status', then, is (in a way) not a 'compromise', but what this research would term a legal and ethical 'comfort blanket'. Nonetheless, ultimately underlying the initial ideal of the singular 'special' is essentially 'reproductive', embryos on one side (who only ever are on the receiving end of that status to the extent that they cannot be admixed) and research on the other which, for all intents and purposes, are treated as 'artefacts'. There is thus an intellectual mismatch here. That is, there is an incoherence, or 'gap' between the set-up of the law, and the realities of the processes for which the framework legislates. Perhaps this gap has only been widened by the deepening of the reproductive/therapeutic distinction in *Quintavalle* (above).

Moreover, it seems that law has continually navigated two types of uncertainty with regards to embryos (and indeed foetuses):

1. Uncertainty regarding how we ought to treat them in law; and

2. Sometimes, uncertainty regarding what the law governing embryos is (i.e. in the 1970s, and early 2000s).

As we have seen above, one aspect of the law's navigation of embryonic uncertainty (regarding how we ought to treat them) does not disappear, nor is this work necessarily saying that it should. What we can conclude from the above, however, is that it returns to the fore where the second type of uncertainty (legal uncertainty) arises, as we saw with *Quintavalle*.

The first type of uncertainty is particularly interesting for this thesis' enquiry, because the legal response to it seemingly correlates with processuality. The Warnock Committee, tasked with navigating moral uncertainty with regards to how we ought to treat embryos-in-law, met this uncertainty by proposing a 'compromise' (whether or not it was a compromise is another matter). This compromise was met by affording all embryos *in vitro* a 'special status', recognising embryos' unquestionably human origins, and the (perceived) value we thus afford them (to whatever extent). Yet the above has also taught us that this 'special status' is singular, all encompassing, for all embryos. But as we have seen, the 1990 Act has multiple embryos, and multiple processes, arguably further entrenched by the 2008 amendments. As an interim conclusion, therefore, I posit that there is an intellectual gap between the intellectual basis of the 1990 Act (a singular, all encompassing, and vague status), and the practical realities of the multiplicity of pathways (and ends) embryos are led through under this framework. The dimensions of this gap shall thus be discussed further in the next chapter.

To summarise this Chapter's arguments:

- There is not necessarily a disjunction between the 1990 Act (as amended) and the historical development of the early stages of human life, but, with the history of process in law in mind;
- The intellectual basis of the law treats embryos singularly as 'the embryo', by virtue of according one 'special status'. In reality, the 1990 Act (as amended) creates multiple categories of, and pathways for, embryos *in vitro* (with seemingly multiple statuses).

Chapter 4, the last chapter of Part One, shall now examine how the literature has responded to the embryo's special status, and the formation of that as a legal device in order to explore further the dimensions of this 'gap'. From what this research has found, these critiques may be separated into two key themes: 1) contestation of the nature of the embryo's status, particularly, what this thesis terms its 'legal stasis', and 2) pleas to further 'contextualise' the embryo *in vitro* in accordance with their female and technological origins. The two main sections of Chapter 6 draw out and discuss these themes, respectively.

4. From Process to Purgatory: Moving Beyond Legal Stasis

4.1 Introduction

Since the 1990 Act's inception, and especially after its subsequent amendment in 2008, it has been subject to a considerable amount of academic discussion, particularly with regard to the embryo's legal 'status.' As Natasha Hammond-Browning has pointed out in reference to the Warnock Report, "its recommendations were destined to be closely examined."[283] While there has been a lot of support for the Warnock Committee's approach, calls are increasingly being made to revisit the issue in light of recent advances in technology and changes in societal perception of these techniques. These commentaries have thoroughly highlighted some of the key issues with the extent and nature of the embryo's status within law.

Notably, while these critiques are varied (and variedly convincing), academic efforts to provide alternatives for embryo regulation are rare compared to critique of the regulatory structure itself. This thesis has found that while some writers do provide suggestions for an alternate regime, these are more starting points upon which future regulation could build.[284] While appealing, they therefore tend to leave analytical gaps. Below, some of the key themes

[283] Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 606.
[284] This is often acknowledged within their work.

in these suggestions shall be summarised and explored. Based upon this, later Chapters of this thesis (7 and 8) will use liminality as a lens through which to analyse some of the questions left unanswered by these works, and build upon their suggestions. A full explanation and justification for the use of this lens will also be offered.

This chapter explores some of the key academic commentaries in this area, selected based on their discussions surrounding the findings at the end of Chapter 3. Based on this, the following summarises literature on the embryo's 'special status', which, as the below discusses, has the following themes: (1) that law has repeatedly missed opportunities to revisit the basis of the 1990 Act, for which we have good reason, and (2) that the embryo needs to be contextualised further in law, perhaps beyond their present legal bounds. Overall, it finds that the root of the 'special status' vagueness is prevailing *uncertainty* regarding how we ought to treat embryos *in vitro.*

The last section of this chapter ties together these two sections by way of analysis, and concludes that if the production, use, and disposal of embryos *in vitro* for reproduction and research are to continue in light of the advancement of scientific techniques in this field, a more coherent and transparent legal approach is required. This lays the groundwork for Part 2 of this thesis, which charts an analytical framework that might help enable the latter.

4.2 Towards legal stasis?

Building on academic commentaries, this section argues that with the inception of new technologies, particularly with the incorporation of regulated stem cell research into the 1990 Act in 2000, the embryo's

apparently singular and unchanging 'special status' has become increasingly problematic as a legal mechanism or, indeed, as a legal reality. This is so not necessarily because of its indefensibility in its inception, but rather because of the legal stasis, and unreflexive iteration embryonic status that the 1990 Act (as amended) has been led towards. Notably, not all commentaries below cite process expressly, but important lessons can be drawn from them for the purposes of this thesis because of law's limit to reflecting the embryos processual, and uncertain nature.

4.2.1 Fade from discourse

Following the passage of the 1990 Act, the debate on the use of embryos has largely faded from the public arena.[285] For some, this is surprising given that the legislation (and the Warnock Report) "failed to resolve the fundamental issue of the juridical status of the embryo."[286] Fox argues juridical status is both of practical and theoretical importance, considering the number of embryos that exist "in a cryopreserved state and legal limbo in laboratories around the world."[287] As briefly discussed above, the courts have done little (but not necessarily wrongly) to address this, and in fact the embryo's presence in judicial commentary is markedly decreasing. Interestingly, Martin Johnson argues that the issue of the embryo's status cannot be left to the courts. First of all, because there are inherent limitations to the extent of judicial freedom in any area of law.[288] Secondly, "for this approach to work, the legislation must have clearly identifiable purpose(s) that must be assumed to remain unchanged by events," and this, he argues, is clearly not the case, particularly as social/political/scientific

[285] Fox 'Pre-persons, Commodities or Cyborgs' (n13).
[286] Ibid.
[287] Ibid 172.
[288] Johnson (n243) 2760.

understandings can change over time.[289] Not only has the embryo faded from legal discourse, it has also faded from the public arena more generally.

It is important to note, however, that the policy reasons behind this fading are not necessarily unclear. As Baroness Mary Warnock has iterated in the past, and reiterated very recently at the 2016 Progress Educational Trust Conference, IVF and embryo research came very close to being blocked by Enoch Powell's Bill.[290]

While the risk of losing the benefits of IVF and embryo research entirely is one which intuitively some might not wish to take, one cannot ignore the evolution in society and social views on these matters since 1985. Indeed, there are those who believe that public debate may not necessarily lead to the 1990 Act's demise. For example, Therese Callus argues that the decision in *Quintavalle*[291] "stifled democratic debate" on the development of cloning techniques. Her work argues that cases such as this demonstrate how the law has become servile to science, and to scientific criteria, which in turn subdues full democratic debate.[292] She believes that such debate would not 'smother' promising research such as this; rather, it would enable a balance between respect for the embryo and respect for those who benefit from these types of research.[293] Perhaps the answer to this is, therefore, as Mason concluded, that in order to satisfy the pro-life lobby, any reform in the law should recognise that "no-one can deny that the

[289] Ibid.
[290] Warnock (n188). She also iterated that she believes that those who oppose embryo research are still there in the side-lines, "rallying…forces". She added that we have seen every time there has been amendments to the 1990 Act, the same forces have come together and made it extremely precarious as to whether the law will go through. From this, it may seem clear why legislators might not want to bring the embryo's status to the forefront again.
[291] *Quintavalle* [2003] (n234).
[292] Callus (n224).
[293] Ibid 8.

embryo represents a form of human life deserving, as the Warnock Committee had it, some sort of protection and respect in law."[294]

Emily Jackson has described the 1990 Act (as amended), based on the Report's recommendations, as having "stood the test of time rather well."[295] Sarah Franklin, in praise of the Warnock Report, goes further. She writes:

> In spite of the many criticisms of the Warnock Report for its failure to address the supposedly crucial issue of "the moral status of the human embryo" (criticisms Warnock fully anticipated and skilfully answered in the original Preface to her report)…we can see in retrospect why she was wise to do so…embryos exist as a plurality. It is not possible to give them an 'absolute' status – legally or ethically any more than socially or politically.[296]

Arguing that "when some legislation is preferable to none, the absolute must give way to the acceptable", Franklin contrasts Britain to the US, where the dominance of particular religious views over public and political debate have (at least in the past) resulted in a legal stalemate, with little regulation in this area.[297] She thus posits that, learning from this, the law cannot be absolutist but must prescribe what is acceptable as a minimum, as she contends the Warnock Committee did. Similar to Franklin, Natasha Hammond-Browning has argued that while the embryo's status in law is equivocal, it was based upon evidence received by the Committee in their attempt to determine a

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[294] John Kenyon Mason, 'Discord and Disposal of Embryos' (2004) 8(1) Edinburgh Law Review 84, 92.
[295] Emily Jackson, 'The Human Fertilisation and Embryology Bill' (2008) 3(4) Expert Review of Obstetrics and Gynaecology 429.
[296] Sarah Franklin, 'Response to Marie Fox and Therese Murphy' (2010) 19(4) Social Legal Studies 508-9.
[297] Ibid.

suitable mode of regulation for this field in a pragmatic manner, at a time where there was no regulation at all.[298]

There has been much praise and support for the Warnock Report over the years. Indeed, it was thorough in its approach, and its recommendations have certainly stood the test of time. Nonetheless, it is also important to draw the distinction between critiquing the 1990 Act (as amended) as it stands today, and the extent to which its origins were justified *at the time*. [299]

Despite later ruling out revisiting the embryo-in-law, in 2004 the Department of Health stated that while the 1990 Act (as amended) has performed well, and continues to do so, "any cutting-edge legislation, no matter how successful, needs at some stage to be reviewed and any necessary readjustments made to ensure that it continues to be effective."[300] For Hammond-Browning,[301] while the original report is to be praised as seminal work in this regulatory minefield, the societal, legal, and technological advances that have occurred since then mean that it is time for the matter to be reviewed. What the discussion below also reveals, however, is there is more of a dissensus when it comes to ethical desirability of the Report's (and the subsequent Act's) lack of decision on the embryo's legal status. This has led to confusing law.

Hammond-Browning praised the work of the Committee and its subsequent report, which she describes "an excellent demonstration of a report that

[298] Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 619.
[299] This is not to say that there are no commentators who believe that the 1990 Act, and the recommendations it was built upon, are not adequate today.
[300] House of Commons Science and Technology Committee, 'Science and Technology-Written Evidence', (2004) Appendix 1, Annex B, available at: https://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/599/599we02.htm accessed 21 February 2018.
[301] Hammond-Browning 'Ethics, Embryos and Evidence' (n161) 617.

took into account diverse views in order to make recommendations on a number of divisive issues."[302] Nonetheless, she also concludes her paper by calling for another Warnock-esque committee in this 'new era of reproductive technologies and reproductive ethics:[303] "advances in human fertilisation and embryology treatment and research have progressed far beyond what was envisaged by the Warnock Committee in the early 1980s."[304] Citing some of the more recent advances in reproductive science, for example mitochondrial replacement therapy, she prescribes:

> …a new committee that had as its remit the ethical, legal, and social consideration of these new and future used of reproductive technologies and research would undoubtedly be of much value in regulating this next era of human fertilisation and embryology, in much the same way that Warnock has for the past 30 years.[305]

Indeed, as she pointed out, there have been some excellent reports produced in this field since Warnock, from bodies such as the Nuffield Council on Bioethics, but none have looked at this field holistically as the Warnock Report did.[306] Hammond-Browning has not been alone in her analysis. Sarah Franklin has commented that an appropriate aspiration for law in this field would be for more legislative initiatives like the Warnock Committee, "…that both show respect for diversity, and use discordances as a resource in the effort to create a workable and sustainable compromise."[307] She points out that we must remember that morality is not only collective, but also individual, and in this manner, initiatives such as

[302] Ibid.
[303] Ibid 589.
[304] Ibid 617.
[305] Ibid 618.
[306] Ibid.
[307] Franklin, 'Response to Marie Fox and Thérèse Murphy' (n296) 508.

these are (and should be) led not with a spirit of absolution, but of toleration.[308]

Overall, the Report, which as we have seen was in and of itself not entirely un-processual, has stood fast as the intellectual basis for our framework for over 27 years. Why, when we have seen an increasing rhetorical move to disentangle the legal status of the embryo from other considerations (such as that of the potential child),[309] have we not seen a similar move within the regulatory framework? This move has hardly been reflected in law, but at least a little in the rhetoric of the HFEA, and the HCSTC.[310] Questions raised by the issue of the embryo's 'special status' are exemplary of the implications of the law when it remains static in a fast-moving area. While the pathways and boundaries within the 1990 Act have shifted slightly, deepening the reproductive and therapeutic distinction, its 'pillars' have not. I thus posit that legal development, with regards to how we ought to treat embryos in law, has come to a standstill; it has ossified.

When the Department of Health issued the amended Act in 2007, a question arose regarding whether the 1990 Act should be repealed and replaced altogether.[311] This did not come to fruition. Further, as already mentioned, the year before (2006), the Department of Health explicitly ruled out revisiting the embryo's status.[312] The policy reasoning behind the stagnancy of the embryo's status is clear. For example, some have suggested that legislative reform was driven by the government's desire to, first, avoid opening the 'can of worms' that is abortion or to revisit the embryo's legal

[308] Ibid.
[309] Johnson (n243) 2757.
[310] E.g. House of Commons Science and Technology Committee, *Inquiry into Human Reproductive Technologies and the Law* (eighth report) (2004-05, HC 491).
[311] Fox, 'Tinkering at the margins' (n259) 334.
[312] Department of Health (n261) 1.8.

status, and second, to maintain the UK's position at the forefront of research and technologies in this field.[313] Nonetheless, Fox argues that the amendments to the 1990 Act were a missed opportunity to "re-think the appropriate model of regulation to govern fertility treatment and embryology research in the UK."[314]

> By ruling out any reconsideration of the underpinning principles of the 1990 Act, the government foreclosed the possibility of a radical reappraisal of the ways in which we regulate fertility treatment and embryo research.[315]

She adds that the result of this is an undesirably complex and confusing legislative regime.[316] Fox also agrees with Ford that the "fundamental status of the embryo continues to be as elusive and ambivalent as ever… ensuring that the legislation would close off even more contentious debates about what it might mean to be human."[317] She adds that all of this is not necessarily surprising; not only have *in vitro* procedures become normalised, but also the reproduction and research business has become rather lucrative, meaning that the government is keener than ever to maintain Britain's position at the forefront of this.[318]

As advancements in science came to the fore of public concern, particularly around the turn of the millennium regarding stem cell research (SCR) and again a few years later regarding cell nuclear replacement (CNR), debate

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[313] Fox 'Tinkering at the margins' (n259) 333.
[314] Ibid.
[315] Ibid 342.
[316] As she points out, while some of the forms pay heed to the changing structures in family life, 'they fail to embrace the possibilities offered by repro-technologies to radically re-think the nature of parenthood or family, while the welfare of the child remains a matter to be determined largely by health professionals' at 342.
[317] Ibid.
[318] Ibid.

began to take place regarding clarity of terms used in the 1990 Act (as amended). Several writers contend that the 1990 Act (as amended) is not fit for regulatory purposes today. Not only has it been "plagued by twists, turns and controversy" throughout its legislative life, but its regulatory agency has repeatedly found itself "in the eye of the storm."[319] The 1990 Act, and the 1990 Act (as amended), have suffered from a multitude of criticism, including in the media,[320] from their failure to prevent the exploitation of women [321] to its "excessive bureaucracy." [322] One of these criticisms, particularly amongst academics, is the nature and source of the embryo's ethico-legal status within the 1990 Act (as amended).

As discussed in Parts 2 and 3, this thesis's answer to this problem is not to change the status, but rather to reconsider the status as a legal tool for regulating a morally relative entity, especially if there is potential for the furtherance of social justice aims in law. Yet before this is explored, the rest of this section suggests that while each argument may be independently valid, a common thread may be drawn through all of them: law's response to the uncertain nature of the embryo *in vitro* is no longer intellectually defensible. This research argues that this may be attributed in large part to a growing facet of the 1990 Act (as amended), namely the law's 'legal stasis'. This ossification of legal development has not gone unnoticed, as the above shows. Other critiques of the embryos status are often made in tangent with this point, and some even go further to claim that the basis of the 1990 Act

[319] Marie Fox and Thérèse Murphy, 'Response to Sarah Franklin' (2010) 19(4) Social and Legal Studies 511.
[320] Which has previously had, generally speaking, pro-life tendencies. See Mulkay, *The Embryo Research Debate* (n181).
[321]Alok Jha, 'Winston: IVF Clinics Corrupt and Greedy', The Guardian 21 May 2007.
[322] James Meikle, 'Axe IVF Watchdog, Says Fertility Expert', The Guardian 11 December 2014; Ian Sample, 'Clone Research Hampered by Red Tape Says Fertility Expert' The Guardian 2 March 2007; cited in Fox and Murphy, 'Response to Sarah Franklin' (n319) 510. More recent critiques include: Peter Saunders and Geoff Watts, 'Should MPs sanction three-parent babies?' The Guardian 12 June 2012; and Steve Connor, 'Inside the black box of human development' The Guardian 5 June 2016.

was flawed altogether (rather than that it needs revisiting). The below subsection summarises some of the reasons put forward for *why* this stagnancy is problematic, namely that the special status itself is unclear.

While legislative initiatives such as the Warnock Commission are undoubtedly productive, and rightly encompass the spirit of moral pluralism much needed in a contentious field such as this, a sound basis for this (or indeed an alternative legal initiative) is still required for its inception (and thus change) to be brought about. It is arguable that many starting points, although not necessarily discussed in the context of a 'new Warnock', have been provided by socio-legal academics. These are explored in the section below.

4.2.2 A status unclear in nature, source, and extent

Writing in 2010, Fox and Murphy argue that the precise legal status of the embryo "remains undecided, or perhaps undecidable,"[323] and further, that the 2008 Act "remained silent on this key issue."[324] They quote Stephanie Hennette-Vauchez, who describes the failure to offer clear legal definition of the embryo as 'the socio-legal (non)construction of the embryo.'[325] They iterate that "law seems to reject the judgment of social theorists that embryos are 'elusive'… or 'unruly.'"[326] Yet contrary to law's rejection of this, it should arguably be embraced, as it has done so historically. As Chapter 2 has shown, regulation of the early stages of human life has fluctuated

[323] Fox and Murphy 'Embryonic Hopes' (n135) 498.
[324] Ibid 499.
[325] Ibid; in Stephanie Hennette-Vauchez 'Words Count-How Interest in Stem Cells Has Made the Embryo Available: A Look at the French Law of Bioethics' (2009) 17(1) Medical Law Review 54.
[326] Referring to Gay Becker, *The Elusive Embryo: How Women and Men Approach New Reproductive Technologies* (University of California Press, 2000); and Bruno Latour, *We Have Never Been Modern* (Harvard University Press, 1993).

relatively regularly in line with new social and scientific understandings of the former. If this history has shown today's law anything, it is that embryos are indeed 'elusive' and 'unruly', especially in the context of regulation. This notion thus requires further thought.

Ford has also argued that the embryo's 'special status' "contains one of the most arresting examples of an ambivalent response to the embryo/foetus.[327] Her exploration included potentiality, interests, relationships, and notions of human dignity, and concluded that all of these are problematic as a basis for 'special status', if not meaningless. For example, Ford argued that if those who wish to ascribe 'special status' also support legal access to termination of pregnancy, and the right of a woman to refuse medical treatment, then the rhetoric becomes unsustainable.[328] Notwithstanding the contradictory provisions of the 1967 Act and the 1990 Act (as amended) (as discussed below), it is difficult, she pointed out that it is difficult to 'value' an embryo in practice if we allow it to be destroyed. This reflects Mason's point that:

> Either the *in vitro* embryo of Homo sapiens is a human being with rights that are absolute in themselves, and which only become comparative when they are in conflict with those human beings in a more developed state, or it is an artefact to be regarded in the same light as any other product of the laboratory.[329]

To put Mason's argument in another way, either we use embryos for research (and thus destroy them), or we do not.

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[327] Ford (n20) 22.
[328] Ibid 31.
[329] Mason, *Human Life* (n45).

Moreover, as discussed above, the Report recommended that the human embryo's special status should be a fundamental principle enshrined in law, and be afforded a 'special status', without explaining "*either* what form it is to take *or* how it is to be justified."[330] Ford has also pointed out that while the committee described it as a "fundamental principle which should be enshrined in law,"[331] they also added the caveat that the latter "does not entail that this protection may not be waived in certain specific circumstances."[332] She thus described this response as a representation of "a microcosm of wider cultural uncertainty and ambivalence about how such entities ought to be regarded."[333]

> In the end, the law is ill-equipped to respond satisfactorily to life before birth. The kind of 'special status' which best befits the 'inchoate' embryo/foetus, therefore, is one that reflects law's failure to make sense of it, and the reasons for that failure: the status of the postmodern Other. Of course, this kind of status cannot be conferred by law. Whether postmodernist theory will develop in a way that embraces the Otherness of the embryo/foetus remains to be seen.[334]

The murkiness of the nature, source and extent of the embryo's status is not necessarily an issue in and of itself for this thesis. Perhaps it is something that is unavoidable. Nonetheless, it seems it is at the very least symptomatic of law's way of navigating the embryo's uncertain, processual nature. Uncertainty and ambivalence regarding the embryo, characteristic of a liminal state, is not intrinsically unproductive, or undesirable.[335] Indeed, navigating this uncertainty, i.e. the uncertainties surrounding how we ought

[330] See Mary Warnock, 'A question of life' (n152); Ford (n20) 22-23.
[331] Warnock Report (n25) 11.17.
[332] Ibid 11.18.
[333] Ford (n20) 23.
[334] Ibid 44.
[335] Discussed further in Part 2 of this thesis.

to treat embryos, legally, has been the task for the law (governing the early stages of human life) since its inception. As discussed further in Part Two of this work, evolving out of uncertainty (and thus characteristically towards a degree of certainty) is not necessarily productive, or progressive. Yet, it seems that legal response to this uncertainty, or ambivalence, is arguably nonetheless key to reflecting the relative 'value' of the embryo with social justice aims in mind, again as Chapter 2 has discussed.

4.3 Reconceiving the embryo *in vitro*: beyond stasis?

If one accepts that the status of the embryo has ossified within law, what can, or should we do, if anything? This section looks at suggestions for what we might do if revisiting the law governing embryos *in vitro*, not necessarily framed in terms of ossification or uncertainty, but generally, it discusses suggestions for reframing law. A common thread that may be drawn from all of these is that we should account more for the contexts from which embryos *in vitro* are borne, i.e. coming from and being in women, and coming from and being in technology. It thus separates the discussion below into calls to move beyond three (interrelated)[336] normative bounds of law: categories, definitions, and binaries.

One might ask: why should we consider the embryo's status at all? The embryo's 'special status' has lasted well as a regulatory tool and achieved many desirable outcomes. Nonetheless, those who support the practices for which it was made increasingly challenge it. For Fox, the "contested status of the embryo has rendered subsequent questions of reproductive choice

[336] This work recognises that these terms could be used interchangeably here, but are used to separate the below subsections as a reflection of the nuance differences per the authors' uses. Nonetheless, the difference between these three terms is not of vital importance for this thesis. Rather, the lessons learned by exploring how law has navigated them.

more problematic",[337] because, as one example, it marginalises the interests of the woman regarding her embryo/foetus. Her discussion, like this one, is limited to the "cryo-preserved" embryo, i.e. embryos created outside of the woman's body.[338] The introduction of the embryo *in vitro* in the 1980s raised important questions regarding the construction of its identity,[339] most of which have not yet been answered by law:

> The construction of embryonic identity is a contingent, rationally undecidable and rhetorically constructed matter. Frequently it is reduced to the simplistic issue of whether embryos matter or not…framing the question in this way is problematic. It contributes to the polarisation which marks this debate, in which the embryo is either likened to a clump of cells or is accorded moral/legal personhood. It also skews broader public debate on issues like IVF…we must seek a new approach to the issue of embryo status which aims to forge new understandings to inform discussions of the legitimacy of embryo research and reproductive choices.[340]

Assuming that as a non-cognisant being,[341] it cannot have 'identity' in the narrative sense,[342] the embryo's identity can only come from what society and/or the law attributes to it. While Fox is arguably right that embryonic identity is a rhetorically constructed matter, and rationally undecidable, one might wonder whether seeking a new approach[343] is just one form of rhetoric construction replacing another. Yet, as argued above, rhetoric is a powerful

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[337] Fox 'Pre-persons, Commodities or Cyborgs' (n13) 172.
[338] Ibid.
[339] Ibid.
[340] Ibid.
[341] And having never had cognisance, for some, morally different to those who have lost consciousness, either temporarily or permanently.
[342] For example social identity, genetic identity, cultural identity, etcetera, more often than not self-determined, at least in part.
[343] Discussed in chapter 7.

device and can have great effect on what we can and cannot do (e.g. research on embryos). Furthermore, it is arguable that the rhetorically constructed, fundamentally undecidable nature of the embryo's identity is not necessarily the source of the problem she describes, but instead the nature of the rhetorical constructions we have used, and affirmed so far in debate, law, and the courts. These constructions, as she points out, are preoccupied with placing the embryo somewhere within the property/personhood binary, when it clearly does not fit into either *legally* speaking (although there are some who would fit it neatly in one of those categories). Perhaps, then, we should look beyond this. One way to do so, as Part 2 of this thesis suggests, is to move away from a focus on binaries, to what lies *in between* them.

Uncertainty, regarding embryos *in vitro*, has arguably led to legal stasis. Given the above issues faced by law in what, for this thesis, are symptoms of law's purgatorial response to uncertainty regarding the embryo, we arguably need a new ethico-legal approach to thinking about the human embryo. This section discusses some recent scholarly suggestions for re-framing the embryo, moving away from calls for redefinition, toward re-contextualisation of the embryo within law. It does so with a view to beginning to highlight the positive disruptive potential of rethinking the manner in which the embryo is situated in law.

Notably, a re-framing embryos on a contextual basis is also already taking place in some postmodern feminist scholarship.[344] For example, Valerie Hartouni argues that the embryo needs to be situated in a manner that makes its dependency upon the woman's body, or technology, more

[344] Fox 'Pre-persons, Commodities or Cyborgs' (n13) 181-182.

evident.[345] One can see that there has been a particular call to contextualise it within environments old and new. These environments may be divided into two broad areas: a) as dependent upon the woman's body;[346] and b) technology (and as suggested in Chapter 8, people who use this technology) upon which embryos *in vitro* are dependent at that early stage.[347] While both are important, this thesis, in its focus on the 1990 Act (as amended) and its regulation of the embryo outside of the human body, looks primarily at the latter.

4.3.1 Beyond categories?

Amongst academics who call for the law in this field to be updated in accordance with societal and/or scientific advances, there are some who call for the embryo to be revisited in law in order to reflect better newer understandings of 'biological reality'.[348] While these might sound appealing on a scientific level in their reflection of current 'truths', not only is the attempt to legally reflect 'biological reality' nearly impossible, but it is also limited as a sole or principal basis for moving beyond legal stasis.

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[345] Valerie Hartouni, *Cultural conceptions: On reproductive technologies and the remaking of life* (University of Minnesota Press, 1997) 67. Also see Simone Bateman Novaes and Tania Salem 'Embedding the Embryo' In John Harris and Søren Holm (Eds), *the Future of Human Reproduction* (Clarendon Press, 1998); and Donna Haraway, 'Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', reprinted in Linda Nicolson (Ed.), *Feminism/Postmodernism* (Routledge, 1985).

[346] Ibid; while extremely important it will not be covered here, because this research focused on the embryo *in vitro*.

[347] Technology here is taken to mean currently available technologies (in 2017). This research notes that artificial wombs may be available in the future, but discussion of this is not within the ambit of this research. For more on this topic see, for example: Jessica Schultz, 'Development of Ectogenesis: How Will Artificial Wombs Affect the Legal Status of a Fetus or Embryo' (2009) 84 Chicago-Kent Law Review 877.

[348] E.g. Johnson (n243).

Reproductive scientist Jan Tesarik has suggested that clear definitions are required in order to protect early human life from "abusive destruction."[349] He therefore argued that the law should define pre-implantation embryos as a 'zygote' (specifically the period beginning with fertilisation and ending with the achievement of nuclear syngamy[350]), based on 'objective scientific arguments' so that laws may be coherent and easily applicable to the regulation of techniques which lead to embryo destruction, without compromising the rights of infertile patients.[351]

Tesarik was not alone in calling for a closer alignment between law and science in this field. Martin Johnson has argued that early legislative responses to the human embryo in the UK have exaggerated the protection of the human embryo at the expense of other parties.[352] While he admitted that more recent changes, for example the 2008 Act, have 'lessened this embryonic grip', the formulation of law in this area "distorts legal thinking and is fundamentally in conflict with biological understanding."[353] In contrast to Tesarik, however, he did not recommend a definitional approach. There arguably is a parallel here between the medicalisation movement and its influence on law therein that I discussed in Chapter 2. Medicine drove how the law saw the embryo/foetus in the 19th Century, and before. Tesarik's argument was similar to this, except in the context of the 21st Century.

Johnson theorises that it is not strictly correct to call the regulated biological entity an 'embryo' until carried inside a placental support system. If we understand an embryo as a group of cells that can give rise to a foetus and

[349] Jan Tesarik and Ermanno Greco, 'A zygote is not an embryo: ethical and legal considerations' (2004) 9(1) Reproductive biomedicine online 13, 15.
[350] Pronuclear fusion, where the nuclei of the female and male progenitors fuse
[351] Tesarik and Greco (n317) 16.
[352] Johnson (n243) 2756.
[353] Ibid.

therefore a baby, it cannot do so until it attaches to this system of 'extra-embryonic tissues'. There has, nonetheless, been much confusion over legal terminologies in this area. He calls this period the 'embryogenic' stage of development, as the embryo is still being generated at this stage.[354] In the UK, zygotic and embryogenic periods are captured by legal definition.[355] Second, he points out that while the term 'embryo' is used as a categorical description, the embryo's development is a "continuous process."[356] He posits that giving "stage names" to this process "can easily confuse us into thinking that each stage is discrete- semantics distorts concepts."[357] Yet, he also admits that legally defining the embryo is difficult because it is a definition that biology cannot really provide. For him, however, "the fact that lawyers ask biologists inappropriate questions is no reason to give unbiological answers."[358] Third, he points out that even if there were agreement on the biological definition of the embryo, it would not necessarily last very long. "Discoveries and new technologies challenge concepts and understandings."[359]

To build on this last point, the legal embryo is very much bounded within law, not only under categorical descriptions (e.g. as 'embryo', or admixed embryo), but further, under one broad 'special status'. This, arguably, does not reflect the multiplicity of continuous processes that take place under the 1990 Act's rule. One might counter-argue, in its defence as a legal pillar, that this is true, but equally an unchanging moral status can always accommodate changing scientific understandings. I do not deny this. Instead, my argument is that this 'gap' is intellectually incoherent.

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[354] Ibid 2758.
[355] 1990 Act, s1.
[356] Johnson (n243) 2758.
[357] Ibid.
[358] Ibid.
[359] Ibid 2759.

Moreover, while a definitional approach to embryo regulation undoubtedly has its limits and indeed embryonic categories may be described as fictional, or not reflective of science, categories are not necessarily the source of the problems that Johnson describes. According to Thomas: "The truth value of the legal fiction is not simply ambiguous or subjective; it is actually quite irrelevant."[360] The law must provide its own definition(s). Rather than fixating on the rigidity of categories as per Johnson, it might be more productive to consider the fluidity and reflexiveness of those boundaries. As we have seen, there is little disagreement that the embryo is fluid, but the question is: how can the law deal with that? Alternatively, a more effective question might be: is the law's technique (the use of legal fictions) actually working efficiently? This work's answer to the latter is that we seemingly cannot avoid the law's need for categorisation, and therefore fictions will be an inevitable outcome. In regulating something like this, law not only creates its own fictions, but also its own 'truths' in the form of a new 'class' of embryo; the 'legal embryo'. Or, perhaps more accurately, 'legal embryos': the plural here captures the legal reality that not all embryos are made equal and some are destined for destruction from the start.

Indeed, all research and reproductive practice *in vitro* occurs within one particular 'regulatory space,'[361] which Laurie describes as the "metaphysical environment occupied by institutional actors and bounded by law."[362] He notes that in health research regulation, legal instruments often adopt a 'bounded object' approach, which is typified by the creation of artificial

[360] Yan Thomas,'Fictio Legis: L'empire de la fiction Romaine et ses limites Medievales' (1995) 21(1) Droits 17, 18; cf Marie-Andrée Jacob and Barbara Prainsack, 'Unfreezing Embryos?' (2010) 19(4) Social and Legal Studies 515.
[361] Laurie, 'Liminality and the Limits of Law' (n15); also see Robert Baldwin, Martin Cave and Martin Lodge, *Understanding Regulation: Theory, Strategy, and Practice* (2nd edn, Oxford University Press 2012) and Frank Vibert*, The New Regulatory Space: Reframing Democratic Governance* (Edward Elgar, 2014).
[362] Laurie, 'Liminality and the Limits of Law' (n15) 48.

constructs within law. These become the object of dedicated regulators, "who operate within legally defined spheres or 'silos'"[363] (an example of this is the HFEA). Further, for science and technology studies ('STS') scholars, such as Susan Leigh Star, 'boundary objects' are valuable because they have 'interpretative flexibility', which she points out, exists with any 'object'.[364] She refers to her and Griesemer's original example of a road map, which she explains can have different meanings/uses for different groups such as campers or geologists.[365] Boundary objects thus occupy shared spaces. To use Leigh Star's map example, again: "…such maps may resemble each other, overlap, and even seem indistinguishable to an outsider's eye. Their difference depends on the use and interpretation of the object." [366] Considering the above discussions of embryonic (non)categorisation, and the utility of 'bounded objects' for discussions surrounding health research regulation (per Laurie's analysis), perhaps then, embryos *in vitro* are also boundary objects. Phrased interrogatively, is 'the embryo' not a 'boundary object' capable of interpretative flexibility? [367]

As the Liminal Spaces Project team has commented, "a liminal approach complements this scholarship because it highlights the effects of rigid or static classificatory systems in the fluid contexts of biomedical research and regulation."[368] Coupling this observation with STS literature, one may posit that embryos as 'boundary objects' are valuable to us because they have

[363] Ibid 49.
[364] As do other aspects, see Susan Leigh Star, 'This is not a boundary object: Reflections on the origin of a concept' (2010) 35(5) Science, Technology, and Human Values 601, 602.
[365] See Susan Leigh Star, and James Griesemer, 'Institutional ecology,translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology 1907-39' (1989) 19(3) Social studies of science 387.
[366] Leigh Star 'This is not a boundary object' (n364).
[367] Clare Williams et al have discussed embryos as boundary objects per their use for PGD and SCR, see 'Human embryos as boundary objects? Some reflections on the biomedical worlds of embryonic stem cells and pre-implantation genetic diagnosis' (2008) 27(1) New Genetics and Society 7.
[368] Taylor-Alexander et al (n8) 170.

interpretive flexibility, and importantly, this draws attention to the networks at play within the 'silo'[369] of embryo regulation. This sits at odds with any singular categorisation of 'the embryo' in law.

Yet, this is not to say that categorisation is entirely impractical here. Jacob and Prainsack, noting that we must also be alive to the "failure" of once-successful law in this area,[370] argue that: "While law entails an explicit need for actionability, most social scientists would resist the imperative to even temporarily 'freeze' meanings and to operationalize them for application to 'the real world.'"[371] For the embryo(s), as well as other areas of law, their definitions (see below) and context are in a state of constant change. Yet, as their analysis points out, temporal freezing is required at certain intervals.[372] We have seen that the law requires categorisation here, as it does with almost everything. For Jacob and Prainsack, categorisation in itself is a placeholder for something 'messier'.[373] We cannot expect for our hopes, or indeed fears,[374] for this area of law to remain the same for a quarter of a century. Law-makers must be willing, as has been the case in the past, to move the boundaries of law itself in accordance with new 'understandings' (not purely biological).

To quote Fox and Murphy, we must "ditch durability"[375] in the regulation of this fast-paced field. In this way, we can address concerns highlighted by Johnson, Tesarik, and others. We can thus unfreeze concepts such as quickening and make them malleable, and then freeze them again at a later

[369] Laurie, 'Liminality and the Limits of Law' (n15) 50.
[370] Michael Mulkay, 'Rhetorics of hope and fear in the great embryo debate' (1993) 23(4) Social studies of science 721-742.
[371] Jacob and Prainsack, 'Unfreezing Embryos?' (n360) 513.
[372] Ibid 514.
[373] Ibid.
[374] Michael Mulkay, 'Rhetorics of hope and fear' (n329).
[375] Fox and Murphy, 'Response to Sarah Franklin' (n319) 510.

point.[376] We have seen this in the law's use of devices such as 'quickening' and 'viability'. Drawing from STS literature, I argue that if ontological boundaries (or the boundaries upon which embryos sit) are not fixed, as they are not per 'the embryo', then neither should be the law that demarcates them. This is not to say that regular *change* is necessary, but that we must be open (to borrow from Jacob and Prainsack) to 'unfreezing' the law in order to revisit its basic tenets.[377]

Overall, it seems that the ontological boundaries of embryos, particularly those *in vitro* (outwith the literal, physical boundary of the mother's womb) are uncertain; law's response to this reality has been instead to legislate 'the embryo'. To complicate matters further, the transgressive status of embryos *in vitro* continues to raise many "difficult moral and legal questions, which are forced into sharp relief by advances in reproductive technology."[378] As we have seen, conflicts occur within existing legal structures governing embryos *in vitro*; within the framework of the 1990 Act there is a convoluted juxtaposition of a) a distinct lack of rights for some embryos, against b) an articulated[379] protection of all embryos' supposed interests.[380] As argued above, this has left a 'gap' between the intellectual basis of the 1990 Act and the reality of what it legislates for: there are multiple contexts in which embryos can be *legally* created and instrumentalised.

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[376] Jacob and Prainsack, 'Unfreezing Embryos?' (n360) 514.
[377] How this might occur, in reference to the 1990 Act (as amended), is the subject of Parts Two and Three of this thesis.
[378] Helen Beebee 'Introduction to Part 1' in Stephen Smith and Ronan Deazley (eds) *The Legal, Medical and Cultural Regulation of the Body: Transformation and Transgression* (Routledge, 2009) 15.
[379] In the Warnock Report, and reflected in the provisions of the 1990 Act.
[380] This thesis does not aim to negate (or support) the notion that embryos have interest. It is solely concerned with the legal structures that have been set up around those, and their consequences.

4.3.2 Beyond definitions?

This subsection looks further at work of Martin Johnson, who suggests that legally defining embryos is problematic. Given the difficulties that law has experienced so far in defining the embryo, Johnson suggests that rather than relying on judicial interpretation to continue to bridge newly occurring gaps,[381] a new approach to law is required that embeds early human development more firmly. He recommends an alternative legal approach that accounts for our objectives for regulation in this field, our intentions for the embryos governed by the framework, and that relies on definable outcomes. In such a system, it would become necessary for a specified outcome to be identified in regards to medical intervention, and there would be a requirement for intent to reach such an outcome.[382] He thus identifies three classes of 'embryo': one intended for reproduction, another intended for research/disposal, and a third category where 'spare' 'reproductive embryos' are used for research.[383] He is clear that 'intent' means the joint intent of doctors and parents.[384] Thus, his overall claim regarding this approach is that:

> By moving to an objective-based outcome-assessed approach to treatment that clearly prioritizes the child's interests, outcomes not inputs would determine how reproductive practice is regulated. Moreover, the ability to license exceptional activities provides for flexibility should the clinical case be made. Overall, defining medical interventions and gaining agreement on their definitions

[381] He discusses *Quintavalle* [2003] (n234).
[382] Johnson (n243) 2761.
[383] Ibid 2763.
[384] Ibid 2761.

> should be easier and indeed more useful than trying to define 'embryos'.[385]

Johnson then goes on to address whether the problem of 'defining embryos' has been resolved. While admitting that the parenthesised 'embryo' would still feature in legal discourse, he suggests that encompassing all of the artificially bounded 'stage names' are covered within these broad 'classes', it aligns the law closer with biology. Thus, citing the HFEA Code of Practice (sixth edition),[386] he advances that these stages of development should be referred to as 'human generative tissue' (HGT).[387] For Johnson, a less precise description is more advantageous in this field than the alternative.

In the event, he suggests that his approach ('HGT') embeds the 'embryo' in its developmental place within law.[388] He states that "in doing so, it emphasizes its potentiality as one elemental player in the cumulative development of a person:"[389]

> …this approach addresses more directly the interests of the intended child. In doing so, it also provides via the conditional licensing system a mechanism or the interests of parents, public and health care team, as well as the potential interest of the reproductive HGT itself, to be addressed.[390]

Thus, for Johnson, this approach is not necessarily 'anti-embryo'; it does not prevent the restriction of the use of HGTs for reproductive, or other

[385] Ibid 2762.
[386] Human Fertilisation and Embryology Authority, 'Code of Practice' (6th ed, October 2013, first published 2009).
[387] Johnson (n243) 2762.
[388] Ibid.
[389] Ibid.
[390] Ibid 2762-3.

purposes.[391] He adds that if this approach were to be used, the redesignation of non-reproductive embryos as 'therapeutic or research HGTs' would also occur. The use of this type of definition in law would render some of the more controversial research practices (nuclear transfer, for example) no longer problematic "in contrast to the possible ambiguities of inclusion that come with attempts to define 'embryos.'"[392] It removes the possibility of one of the central concerns these practices bring: 'unacceptable' pregnancy and birth outcomes. He also iterates the importance of 'objectives' in his approach, and argues that purposes for licensing can be qualified to provide boundaries for the use of HGTs, similar to Schedule 2 of the 1990 Act (as amended).

Johnson's proposals are thorough and logically combine law and science; as such, they are rather appealing. They move us away from a focus on how to define the embryo, which is not necessarily productive, toward the new contexts in which the embryo can appear through *in vitro* technology. Although he does not describe his theory as such, it is a rather contextual approach, looking beyond definition toward the broader network of considerations that take place when producing/using embryos. This said, there are theoretical gaps in this approach, which would require to be filled if it were to be used as a basis for embedding human development more firmly.[393]

While science, in many cases, can be in broad agreement, it is often not the case that there is whole agreement when it comes to the embryo. As Johnson admits, embryonic definition is not really something science can provide. For example, scientists can disagree semantically on the

[391] Ibid 2763.
[392] Ibid.
[393] Ibid.

knowledge we are purported to have (for example when an embryo becomes 'an embryo'), or the knowledge that we need (as highlighted by scientific debate on extending the 14-day rule). This explains, in part, why law has to come up with its own definition based on all contributing factors. 'Biological understandings' are arguably not purely 'biological' and involve a plethora of considerations, including social, moral, anthropological, and bioethical theory.

Uncertainty regarding embryonic process, as previously shown, does not solely stem from uncertainties regarding biology, but also uncertainties regarding how we feel about the embryo, and changes in the network of actors involved in constructing the embryo's processes. To limit a regulatory framework to decisions based on objective, intent, and definable outcomes (in the manner Johnson has described), contextualised within "biological understanding," thus misses considerations of non-biological understandings (such as new, non-biological family structures). This is not to say, however, that biological understanding should be discounted from legal (re)considerations; on the contrary, as we have seen in Chapter 2, they have been a key 'motor' for the evolution of law throughout history. Notwithstanding the issue discussed in this paragraph, Johnson's theory is also limited in that it does not detail how law, and the dynamics of his processual approach might interact. As Parts 2 and 3 of this thesis discuss, the lens of liminality (itself concerned with revealing the dynamics of process) acts as a key conceptual step between contextualising the embryo, process, and legal processes and regulation.

4.3.3 Beyond binaries?

Law has tended to move the 'goal posts' of its embryonic/foetal boundaries throughout history. This continued to the 1990 Act, yet, embryos/foetuses

have not been comfortably fitted within the boundaries law provides for other entities. This subsection, building on the above discussion of embryos as 'bounded objects', considers literature that discusses law-makers' binary approach to regulation.

Donna Dickenson has noted that law considers those that it regulated to be either a person/subject or a thing/object, but not both.[394] This subsection considers work that cites the predominance of the subject-object/ property-person binary within law. Quigley and Ayihongbe in a forthcoming article discussing their work on 'everyday cyborgs' (i.e. persons with integrated technologies/prosthetics), note that:

> Broadly speaking, the law is divided into that which relates to persons (assault and battery, personal injury, medical negligence, etc.) and that which relates to things in the external world (land law, personal property, sale of goods, etc.).[395]

In a footnote, they then comment that "…although we note that fundamentally all law regulates dealings between persons (or legal persons such as corporations), even law which is about objects."[396] From this, it is worth noting, at this stage, that regulation of embryos *in vitro* does not really regulate the embryos themselves, but the dealings between persons who come into contact with, use, or produce embryos *in vitro*, that is, those that guide them into, through and out of these legal processes in various ways.

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[394] Donna Dickenson, *Property in the Body: Feminist Perspectives* (Cambridge University Press: Cambridge, 2nd edn, 2017), 5.
[395] Muireann Quigley and Semande Ayihongbe 'Everyday Cyborgs: On Integrated Persons and Integrated Goods' Medical Law Review (forthcoming) (doi: 10.1093/medlaw/fwy003) 13.
[396] Ibid, fn64.

Yet how can law manage those who sit somewhere between the bounds of person and technology? In her 2000 article, 'Pre-persons, Commodities or Cyborgs: The Legal Construction and Representation of the Embryo', Fox examined the "ways in which the embryo is constructed in bioethical and legal discourse and to explore the consequences of these constructions for the process of legal regulation."[397] Fox posited that it would be productive to shift from the property-personhood binary towards locating embryos within a "biotechnological milieu."[398] This may be done, she suggested, by using a 'cyborg' metaphor when discussing embryos (or positing the embryo as a 'cyborg'), which would thus contextualise embryos amongst our responses to other cyborgs.[399] For Fox, the term 'cyborg' involves the coupling of animal and machine (for the embryo, technology that enables its maintenance *in vitro*), and captures neatly "the quintessentially technological nature of cryo-preserved embryos."[400] She cited Sarah Franklin, who has argued, "in its ability to embody the union of science and nature, the embryo might be described as a cyborg kinship entity."[401] Thus, she posited that: "designating embryo bodies as cyborgs opens up productive new ways of thinking in which we can acknowledge that as a technological life-form they certainly matter, but leave open for debate the question of *how much* they matter."[402] For Fox, this formulation situates the embryo within a complex matrix of biotechnological entities. It moves us away from a focus on whether or not it matters as an isolated being, and forces us to question how much cryogenically preserved embryos matter in relation to other

[397] Fox 'Pre-persons, Commodities or Cyborgs' (n13) 171.
[398] Ibid.
[399] Ibid.
[400] Ibid 182.
[401] Sarah Franklin, 'Making Representations: The Parliamentary Debate on the Human Fertilisation and Embryology Act' in Jeanette Edwards, Sarah Franklin, Eric Hirsch and Frances Price (eds), *Technologies of Procreation: Kinship in the Age of Assisted Conception* (2nd ed, Routledge 1999) 131; cited in Fox 'Pre-persons, Commodities or Cyborgs' (n13) 182.
[402] Emphasis added. Fox 'Pre-persons, Commodities or Cyborgs' (n13) 182.

creatures.[403] This presents us with the question, for example, of whether they matter more than the woman whose gametes produced them?[404]

Fox thus suggested that this metaphor enables us to pose questions, which lead us beyond current debates regarding the embryo's status. She noted that this not only confronts the dualism that dominates Western thinking, but also compels us to rethink our notions of species.[405] She also noted that there are some who believe this metaphor might be a problematic for women, as it might write women out of the picture "given its conduciveness to technologism."[406] However, Fox advanced that the relational questions revealed by the cyborg metaphor will not leave the embryo 'free-floating'.[407] This approach does not negate that the embryo's status is contestable, but nonetheless overcomes the current ethico-legal position of the embryo, which Fox deemed unsatisfactory.

To add to Fox's analysis, while the embryo is indeed a coupling between animal and machine to a certain extent (as humans are part of the animal species) – or perhaps more accurately a coupling between animal and technology – this coupling takes place within a broader network of interaction between subjects and objects: donors, the embryo, researchers/technicians, scientific objects, and technology. Advancing relational questions regarding the embryo may thus not only be resituated as a non-'free floating' being in the context of female reproduction, but also situate it within the complex of network of actors in the lab (in a research context). A relational approach thus arguably allows us to move beyond the notion of the embryo as a bounded subject-object within law (for it is not

[403] Ibid.
[404] Ibid.
[405] Ibid 183.
[406] Ibid.
[407] Ibid.

bounded in 'reality', whether biological or social), toward a reflection of the complex processes that the law itself regulates.

To further add to Fox's analysis, I would argue the assemblage of technology and biological matter to create embryos *in vitro* blurs boundaries between technology and person; thus, in a way creating the 'cyborg' she describes.[408] The amalgamation of human and technology is becoming increasingly important and so, therefore, is recognising these new contexts. Discussing the 'everyday cyborg,' Quigley and Ayihongbe comment that:

> …the subject-object boundary is taken to be an ontological one (i.e. an empirical reality). This is then imbued with a moral significance which we find reflected in law's structure and operative rules.[409]

Location is thus important for the law (i.e. internal versus external).[410] Yet is this also true for the embryo *in vitro*? While, as Quigley and Ayihongbe also point out, this division may seem pragmatic at first glance, it gives rise to some difficulties, which they detail in reference to the 'everyday cyborg'. To borrow from Quigley, Ayihongbe, and Fox's analyses, but in reference the embryo *in vitro*, there may be at least two ontological difficulties with law's approach:

- The boundary between subject and object, for 'the embryo', is arguably not fixed in legal reality. While embryos never been named under the category of 'property', 'object', or 'thing' under statutory or common law, it arguably at the very least becomes

[408] See Quigley and Ayihongbe (n395).
[409] Ibid 28.
[410] Ibid 29.

the latter two by virtue of the research and *disposal* processes the 1990 Act has enabled.

- The future internal/external placement of the embryo *in vitro* seems to be what matters, ontologically, for law. If, at a particular moment along the embryo's pathway through legal processes, it inherits a quality that deems it un-implantable (whether 'spare', not selected, or from the beginning created as an embryo for research), its practical/real (as opposed to legal) ontology changes to a subject-object that is disposable/destroyable. Embryos *in vitro* have this 'special status', and all that the 1990 Act (as amended) applies to it, but the minute it is within the woman's womb, this special status disappears and a completely different, and from therein a somewhat uncomplimentary set, of laws apply.

It seems that advances in technologies may very well continue to provide challenge to the normative ontological divisions law has provided, for example the use of artificial wombs. Embryos' transgression of multiple normative biological, and legal boundaries maps on to other dichotomies, for example, that between the biological and the artificial.[411] Let us recall Fox's analysis of the embryo as 'cyborg', and her call for embryos to be contextualised within the technological environment, as a product of technology and human biological cells; embryos created *in vitro* arguably straddle the boundary between biology and artificiality. Yet, in the intellectual framework underpinning, the 1990 Act (realised through embryos' 'special status') does not place the embryo on this boundary, but instead firmly within the bounds of biology as a member of the human species. Further, as an entity placed firmly within the bounds of biology by the

[411] Discussed in the context of the blurred subject-object dichotomy, see Quigley and Ayihongbe (n395) 31.

intellectual grounds for this law, further boundary work has taken place by delineating embryos from other human cells (or tissue). Overall, it seems that for law, what matters is whether something is pure matter:

> Thus, for the law it is clear that the types of materials at issue matter. But it is not just that "matter matters"; that is, whether it is important that the materials themselves are biological or synthetic. The process of mattering – how material comes to matter – is significant.[412]

Nonetheless, when law was asked to capture 'the embryo' (and when Warnock was asked to advise on how this should happen), it was confronted with the problem that embryos are[413] neither matter nor subject. Embryos fell into neither of law's normative dichotomies (much like embryos and foetuses *in vivo*, which are 'biological') regarding the biological vs. the synthetic; law has placed them firmly in the same arena as it has already placed embryos *in vivo*: with the biological. Yet herein lies a contradiction, for the law also contains, to borrow a phrase from the above, both processes of mattering and de-mattering embryos *in vitro*, through use via reproduction or research. Processes of mattering,[414] or indeed de-mattering, are not captured by law.

We have seen that law's 'boundary work'[415] concerning embryos is unclear. It does not fall within any of the normative legal categories; it hovers on the apparently bright line between what is subject and what is object. Notwithstanding, it is important to note that all law technically governs only persons and their actions; it does not really regulate the objects themselves,

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[412] Ibid; John Law, 'The Materials of STS' in Dan Hicks and Mary Beaudry (eds) *The Oxford Handbook of Material Culture Studies* (Oxford: Oxford University Press, 2010), 173.
[413] Perceivably (whether they should be or not is outwith the ambit of this thesis).
[414] See Law (n412) ; Quigley and Ayihongbe (n395) 31.
[415] See Taylor-Alexander et al (n8) 171.

for objects cannot act/refrain from acting. The framework governing embryos is no different. Practically speaking, it does not govern the embryo, but rather the persons who do (or do not) use the embryo. The law has also managed to legislate in-between these categories, somehow, fitting embryos between the bounds of property and personhood. This is visible, for example, from the 1990 Act's treatment of embryos as non-subjects (although it does not say this, we can glean this from case law).[416] This is further evidenced by the fact they can be researched on and disposed of, despite their underlying 'special status.'[417]

The legal boundaries discussed above highlight the challenges that embryos *in vitro* pose to prevailing legal ontologies, "perceived realities which get built into law's structure and operation."[418] It thus seems that embryos *in vitro* need to go through a legal and conceptual re-formation that captures the unfixed (processual, changing) nature of its own forms,[419] and the changing status of those who guide embryos through these varying legal contexts.

4.4 Conclusions: from process to purgatory

4.4.1 Chapter 4

In sum, this chapter has traced an emerging consensus amongst some academics that the time has come to revisit some of the core features of this

[416] e.g. *Quintavalle* [2003] (n234).
[417] In one way this almost sounds like law treats embryos as special property (closer to how we treat organs), but with more moral vigour behind them.
[418] Quigley and Ayihongbe (n395) 28.
[419] e.g. whether as 'human', 'admixed', 'reproductive' or 'research'.

framework, including, as Hennette-Vauchez puts it, the "socio-legal (non)construction of the embryo."[420] Further, it has also found that there is a re-emergent call for 'the embryo' *in vitro* to be better contextualised among its female and technical origins.

"It is to the credit of the social sciences that they examine and explicate the genealogies of the legal embryo"', write Jacob and Prainsack, adding, "in turn, the legal embryo and its surrounding legal lexicon can offer fresh material for social sciences."[421] They argue that:

> Legal objects drawn from doctrine or policy, old and new, can be useful in a twofold manner: They do not only constitute raw data, to be deciphered by social scientists, but they can also bring new theoretical insights to social scientists.[422]

Thus, while the academic analyses described above are convincing, the ensuing key question for this thesis is: how might new contextualisations such as these translate to regulatory practice? Fox admits this is a question left unanswered by her arguments regarding cyborgs. She argues that this metaphor should be used as a productive starting point as an alternative to "simply slotting the embryo into convenient but ill-fitting legal categories of person or property."[423] If one, for example, believes that Fox's arguments are convincing, which this work does, how might we take her argument (and the arguments of others) beyond use as a 'starting point'? Similarly, if we are to heed another main call emerging from scientists in particular – that is, to align the law with biology – how might we do so? As we have seen, scientific 'fact' does not always translate easily into law, and Johnson

[420] Hennette-Vauchez (n325).
[421] Jacob and Prainsack 'Unfreezing Embryos?' (n360) 515.
[422] Ibid.
[423] Fox 'Pre-persons, Commodities or Cyborgs' (n13) 184-185.

provides an attractive solution to this. What is arguably lacking in his analysis, however, is a legal perspective that relies on more than 'biological understandings' of the embryo; this is because these are not the only understandings that matter here.

4.4.2 Part One

It is arguable that between 1990 and 2017, the law has gone from process to purgatory, a state whereby it does not move beyond its original iteration.

With regards to another processual element of the law, the embryo itself, increasing embryonic visibility (i.e. increased knowledge of its processes) was brought about by research practices, and thus sparked the inception of the 1990 Act. I argue, therefore, that this 'special status' as a response to embryonic uncertainty is inadequate, and this has contributed legal ossification of the framework. This, I have argued, has resulted in a legal gap between the intellectual set-up of the 1990 Act (as amended), and the realities of the multiplicity of processes it now allows for.

Yet what from can we take from this? What is missing; where is there space for further reflection of embryonic (and other) processes? To be clear, for the purposes of this research, reflecting process means neither a) incorporating every new technology, nor b) that our biological understandings of the embryo have changed *that* much since 1990. Rather, it is about paying attention to the processes and transformations that occur with the regulated subject-object (the embryo) and those around it (donors, researchers etcetera). Further, a processual legal approach does not necessarily indicate that the law wholly reflects embryonic processes.

As such, there is a two-fold 'problem' for law in regulating embryos: embryos neither have a fixed status, nor is it possible to 'fix' their status (practically speaking). Law, accordingly, struggles to capture and regulate what embryos *are* ontologically, as opposed to what the 'embryo' *is* descriptively. This may be, for example, because it does not reflect its biological processual complexities as per Johnson's argument. I thus argue that further conceptual steps are required if we want the law to better respond to the embryo's uncertain nature.

Ultimately, by constructing embryos in law as 'the embryo', under one encompassing 'special status', law has fixed embryos *in vitro* in time and matter. One might counter argue that this is untrue; the law's definition of 'embryo' within 1990 Act was amended in the 2008 Act to provide exception to their requirement that an embryo be 'human', to include human admixed embryos (human-animal hybrids). Nonetheless, this does not invalidate the fixed, bounded, and all-encompassing category that 'the embryo' has become under the 1990 Act (as amended). Legally constructing embryos *in vitro* within the bounds of one 'special status' fixes multiple embryonic processes within one boundary. Thus, I argue that the problematic features of law associated with embryonic status (not all of which this thesis deals with) are also fixed.

From the analyses of Chapters 2-4, I argue that there are two interrelated facets of this legal gap:

- Uncertainty surrounding embryos (*in vitro* and *in vivo*), for example with regards to how we feel about them and how we should treat them. This was reflected throughout history, and in the deliberations within the Warnock Report;

- The 'legal stasis' of the embryo *in vitro*, as regulated by the 1990 Act (as amended); in other words, the ossification of its legal development.

Further, it has been noted that there is not necessarily a disjunction between the 1990 Act (as amended), and the historical development of the early stages of human life. Nonetheless, conjoined, the analysis in Chapters 2-4 have shown that there is cause to better embody process, and move beyond the 1990 Act's original iteration (per its intellectual basis), as law has done in the past. It seems that in law almost blinded itself to process, history of process, and scientific 'reality' of process post-Warnock.

Yet, why, for this work, does all of the above matter? In short, as Part One has found, the intellectual basis of the law treats embryos singularly as 'the embryo', by virtue of according one 'special status'. In reality, however, the 1990 Act (as amended) creates multiple categories of, and pathways for, embryos *in vitro* (with seemingly multiple statuses). Up until now, this thesis has referred to 'the embryo' as it is conceptualised as such in law. Hereinafter, however, this thesis shall refer to 'embryos', plural, to reflect and emphasise the multiplicity of embryonic entities that are created and led into various legal pathways.

While the pleas for contextualisation, above, provide justifiable starting points, arguably the 'legal gap' and relatedly, legal stasis, point to a need to redress the way in which law embraces and/or deals with the uncertain, changing nature of the embryo *in vitro* and our understandings of it. Yet, how might we navigate this? Is there a way in which law can better embrace the uncertain, processual nature of the embryo? There are deeper parallels between uncertainty, the stasis of law, and its anti-processual reflections of the embryo that may be better understood by exploring the connection

between the latter, and 'liminality' itself. These parallels are explored in the next chapter (Chapter 5), which builds on the works of those who frame (the embryo and other uncertain entities) in an emergent postmodern category called 'the gothic.'

The research problem thus carved out by Part 1 of this thesis is: how we can understand process, legal process and legal regulation more deeply with respect to embryos, their protection, and their uses? The following chapters explore how law might better navigate and capture each element of this gap by way of a two-part analysis. The following Chapter 5, first discusses the utility of a framing associated with understanding those who are uncertain in nature, and our responses to them, namely that of the 'gothic'.

Part Two: Through Liminality

Part One of this thesis has shown that while law has changed to reflect changing biological and social boundaries, in its modern form its creation of multiple embryos - while failing to account for the multiple processes at play - has created problems. These may be articulated as a 'gap' between the intellectual set up of the 1990 Act (as amended), and the reality of the processes it has helped to create. This gives rise to the question: how might the law fill this gap, both intellectually and practically speaking? Part Two of this thesis therefore considers how law might navigate this purgatorial state, as diagnosed by Part One, by way of a twofold examination. It does so with a view to providing a frame of analysis that can capture and explain the uncertain, processual nature of the embryo in ways that can inform legal and policy responses to existence and use in reproductive and research settings.

With a view to this, Chapter 5 looks at 'the gothic self': this is an emergent concept that has evolved as a challenge to liberal idea(l)s of the 'self'. Drawing on the works of Ford and Karpin, it draws parallels between this literature, and embryos *in vitro* as a paradigmatic of 'gothic', and argues that there is benefit to legally realising them as such. As a framing, it enables us to explore the ways in which law deals with *uncertainty*, regarding those who fall between boundaries of normative categorisation. This formalisation is a key step in filling the previously articulated legal 'gap,' in that it enables an understanding of the nature of, and reasons for it, yet it still leaves the

question as how we should legally[424] treat the embryos that are so categorised. This thesis therefore argues further that this residual question may be navigated by liminality, a concept concerned with processes and states of in-betweenness.

Accordingly, Chapter 6 applies a liminal lens to my previous analysis regarding the static nature of the regulation of embryos *in vitro*. This chapter first introduces liminality as an anthropological concept, before going on to explain why the human embryo may be described as a liminal being. Liminality, which is inherently concerned with transformation, shall then be used as a means to further analyse the law's navigation of processes and changes in this field. From this analysis, it will be argued that liminality's presence within embryo regulation is twofold: 1) Within the nature of the regulated embryos, and 2) Within the nature of the law that governs them.

By these means and by the end of Part Two, this thesis will have shown that there are ways that law can better navigate and capture the contexts that it is leading the embryo *through*.

[424] Or morally, but this question is outwith the ambit of this thesis.

5. Navigating Purgatory: The Otherness of Embryos

5.1 Introduction

This chapter situates embryos within emergent analytical responses to postmodern forms of categorisation, which often ignore those that fall in-between: the 'gothic self'. In doing so, it provides an important step in navigating the contours of this thesis's previously articulated legal gap, which as a reminder, are as follows:

- The intellectual basis of the law treats embryos singularly as 'the embryo', by virtue of according one 'special status.' In reality, the 1990 Act (as amended) creates multiple categories of embryos with seemingly multiple statuses; and
- Similarly, the 1990 Act (as amended) accords embryos *in vitro* no 'rights', but also purports to protect their perceived 'interests.' This, I have argued, is intellectually, legally incoherent.

This chapter therefore draws parallels to 'the gothic' as a frame of analysis that has grown in counter-response to law's tendency to place entities either within the category of a 'liberal, individual self', or outwith it (not between).

To explain, "the gothic self is everything that [the] liberal self is not";[425] it is characterised by disorder, chaos, and dependency. It cannot be subsumed under the traditional self that the law presupposes of its subjects. Further, within 'the gothic' lies the key concept of 'monstrosity', those on the margins of what we deem to be human: "we stake out the boundaries of our humanity by delineating the boundaries of the monstrous."[426] Overall, this is a useful frame of analysis for the purposes of this research because it provides a category for beings that are transformative and transgressive;[427] ill fitting into our normative forms of categorisation. While 'the gothic' does not explicitly centre around 'the in between', nor law, Part Two argues that we should see gothic entities as such, because of their common placement (legally, and sometimes socially) on the boundaries between liberal, individualised human, and theoretical 'monster'. As discussed in Chapter 2, a parallel discourse of what it means to be 'human' has come to shape the construction of embryos under the 1990 Act (as amended). Within this, embryos *in vitro* are foregrounded as "disputed territory and endangered bodies",[428] reflecting the irresolute discourse leading up to the 1990 Act's inception.

The 'gothic self' is often described as an entity that occupies the boundary between that which we consider familiar, and that which is unfamiliar. This quality, which can invite an uncomfortable mixture of "distaste and sympathy"[429] from many persons, can easily be located in fictional gothic literature. Within this literature, 'monstrous' entities, characterised by their existence on the boundaries of humanity, may be found. These shall be explored first, with a view to a) providing context for this analytical framing

[425] Ford (n20) 34.
[426] Zakiya Hanafi, *The monster in the machine: Magic, medicine, and the marvelous in the time of the scientific revolution* (Duke University Press, 2000) xiii, quoted in Ford (n20) 34.
[427] Ford (20).
[428] Fox 'Pre-persons, Commodities or Cyborgs' (n13) 176.
[429] Ford (n20) 42.

and; b) providing relatable examples for those unfamiliar with this theory. The rest of this chapter shall then discuss scholarly adaptations of this concept, particularly as they apply to embryos *in vitro,* and an analysis will be offered of the regulatory lessons that we might learn from this concept.

5.2 Accounting for those *in between*

5.2.1 The literary birth of the 'gothic self'

Classic gothic fiction often contains a mix of themes, such as death, horror, humanity, and even romance. From classical literature to contemporary depictions of horror, writers create a sense of fear in the reader or onlooker through stories where the protagonist encounters creatures that occupy the boundaries between human and non-human.

Mary Shelley's 1818 novel *Frankenstein* may be described as the original 'gothic' novel, where scientist Victor Frankenstein sets about creating life from non-living matter. In doing so, he unintentionally creates an unsightly 'monster', yet with all the features of a human being. He is revolted by his creation, however:

> I had selected his features as beautiful. Beautiful!—Great God! His yellow skin scarcely covered the work of muscles and arteries beneath; his hair was of a lustrous black, and flowing; his teeth of pearly whiteness; but these luxuriances only formed a more horrid contrast to his watery eyes, that seemed almost of the same colour

> as the dun-white sockets in which they were set, his shrivelled complexion and straight black lips.[430]

It was the abnormality of his apparently 'human' features that invited such a response from Frankenstein and, later in the book, from many others. Importantly, the monster was not necessarily a 'monster' within; it develops very human emotions and needs. Nonetheless, the monster's persistent rejection by society leads to its demise at the end of the tale. Further examples include Robert Louis Stevenson's 1886 novel, *Dr Jekyll and Mr Hyde*, which depicts a man troubled by an ever changing, morphic, split personality and Bram Stoker's 1897 novel, *Dracula*, which effectively invented the form of vampire that we so commonly see in horror fiction today.

There is also, of course, the classic children's fairy tale *Little Red Riding Hood*. While it is not generally typified as 'gothic' fiction, we can see elements of classical gothic themes in the story. The tale, with which most people are familiar, tells of a talking wolf who encounters a little girl in a forest. Here, the wolf has many human capabilities, like being able to speak and plan, but in every other sense is very much a wolf. This mixture of human and animal, mixed with mal intent, is the root of the wolf's frightening quality. The story climaxes where the wolf kills and takes the place of the girl's grandmother.

Indeed, even in modern entertainment some of the most acclaimed horror films (or testified as 'most scary') involve entities or creatures that are human-esque, for example ghosts or zombies. The source of our sense of horror regarding the entities depicted in the above tales is not that these

[430] Mary Shelley, *Frankenstein* (Penguin Classics, 2003) Chapter 5.

entities have no human-like qualities, but "rather, it is the fact that they seem to exist liminally, at the margins of the category of 'human', and interstitially, across or between categories."[431] Whilst traversing or existing between boundaries of categories of humanity, these beings also "conform cleanly to none of them."[432]

Although embryos and foetuses certainly do not invite such extreme responses of fear and adrenaline as the creatures of fictional horror, they certainly act as a very real example of the responses of abjection that the familiar-yet-unfamiliar can invite. Like Frankenstein's monster and Dracula, embryos exist not only at the boundaries of humanity, but on the boundaries of what we know. Further, there is a strong link between research and gothic tales more generally. As mentioned in Chapter 2, research by Michael Mulkay has, for example, found that within the public debate leading up to the legalisation of IVF in the UK, negative images from science fiction such as Frankenstein's monster were used heavily in the debate.[433] He suggests that in public appraisal of scientific advancements, such as the latter, the line between fact and fiction can become easily blurred; the imagery that goes along with this can play a powerful role in popular perceptions about the 'threat' of science, and scientists.[434] Further, Andrew Tudor also argues that novels or films such as Frankenstein are expressions of society's longstanding "cultural ambivalence" toward science within which there is recognition of the power that science's sense of enquiry can have.[435] The link between fiction and reality is thus not tenuous; the line between science fiction and science fact is becoming increasingly blurred with the invention

[431] Ford (n20) 35.
[432] Hurley (n21) 24.
[433] Mulkay 'Frankenstein' (n135).
[434] Ibid 158.
[435] Andrew Tudor, Monsters and mad scientists: A cultural history of the horror movie (Wiley-Blackwell, 1991), discussed in Mulkay 'Frankenstein' (n135) 157-8.

of new techniques such as implanted devices,[436] and artificial wombs.[437] Further, new questions are arising regarding the blurring of traditional lines between other areas of health research (and medical law more generally). Examples include the blurring of the lines (or 'silos') between data and persons; genes and data; organs, persons and property.[438] The blurring of ontological boundaries and legal categories through scientific advancement and social change presents a tremendous challenge for the law's framework. As the regulation of embryos *in vitro* exemplifies, this can lead to a conceptual and intellectual gap within the law. In order to explore this gap, the following analysis uses emerging academic responses to these blurred boundaries, particularly concerning those who exist/hover on the boundaries of normative legal subjecthood (as 'the embryo' *in vitro* certainly does).

5.2.2 Gothic accounts of the postmodern 'Other'

One's feelings toward the fictional beings mentioned above, whether reading a novel or watching a horror film, may be explained by psychological theory of the 'uncanny'. Whilst this theory existed before Freud,[439] he developed it further in a 1919 essay, *das unheimliche*, where he described the feeling of cognitive dissonance induced in a subject looking upon something which is uncanny;[440] to put it simply, an entity or object (or perhaps both) that one is simultaneously repulsed by and attracted to. The

[436] Quigley and Ayihongbe (n395).
[437] Hannah Devlin, 'Artificial womb for premature babies successful in animal trials' (Guardian, 25 April 2017) https://www.theguardian.com/science/2017/apr/25/artificial-womb-for-premature-babies-successful-in-animal-trials-biobag accessed 3 March 2018.
[438] See Taylor-Alexander et al (n8).
[439] These theories utilized a being that one sees a lot in modern horror films- lifelike dolls. See Ernst Jentcsh, 'On psychology of the uncanny' (1906) (2(1) Angelaki: Journal of the Theoretical Humanities 7.
[440] Sigmund Freud, *The Uncanny* (Penguin, 2003).

Gothic fictional genre has used this unique combination to great success in the world of entertainment and publishing. It has also generated much scholarly attention, and has been used by academics in multiple disciplines.[441] As a genre, and as a mode of analysis for those who have been 'Othered',[442] it offers narrative to those who fall between the cracks, or outside of modern (or indeed postmodern) norms.[443]

This trope, in its scholarly form, arose in order to debunk conventional narratives around the latter, including females,[444] and those with a disability.[445] As Allan Lloyd Smith has pointed out in his introduction to *Modern Gothic*, there are "striking parallels between the features identified in discourses concerning postmodernism and those which are focused in on the gothic tradition."[446] Yet, it does not only apply to those permanently between the cracks of norms; Fred Botting wrote that gothic novels warn others of "social and moral transgression by presenting them in their darkest and most threatening form…when the rules of social behaviour are neglected."[447] Heyler, who pointed out that these gothic narratives rely on an emotional response rather than an intellectual one, explores this in her

[441] E.g. In music, see for example Elizabeth Hinds,'The devil sings the blues: Heavy metal, gothic fiction and "postmodern" discourse' The Journal of Popular Culture (1992) 26(3) 151; In literature, see Botting (n21), and Ruth Helyer, 'Parodied to Death: The Postmodern Gothic of American Psycho' (2000) 46(3) Modern Fiction Studies 725, and; In law, see David Punter, *Gothic pathologies: the text, the body and the law* (Springer, 1998).

[442] Simply explained, based on the notion of duality, that definition of self is embedded in having an opposite. The notion of 'Othering' has been used (and indeed rejected) in a number of theoretical discourses, including feminist theory.

[443] Notably some feminist theorist have rejected postmodernist critiques entirely, see Jane Parpart, 'Who is the 'Other?': A Postmodern Feminist Critique of Women and Development Theory and Practice' (1993) 24(3) Development and change 439.

[444] For example: Margrit Shildrick, *Leaky bodies and boundaries: Feminism, postmodernism and (bio) ethics* (Routledge, 2015), and Barbara Creed, *The monstrous-feminine: Film, feminism, psychoanalysis* (Psychology Press, 1993).

[445] For example Jackie Leach Scully, *Disability bioethics: Moral bodies, moral difference* (Rowman & Littlefield, 2008).

[446] Sage and Smith (n21) 6; quoted in Helyer (n441) 727.

[447] Botting (n21) 7.

analysis of the postmodern gothic of the characters in the novel *American Psycho*.[448]

Explorations of the 'gothic self' and 'monster' have emerged, in particular, as a scholarly counterpoint to legal liberalism (the idea that law presupposes individuals to be competent and self-sufficient).[449] As Ford has pointed out, these concepts are both "literary precursors to, as well as contemporary examples of, the postmodern Other"[450] (the former having been exemplified in the literature discussed above). Otherness, in and of itself, is often a transgressive way of being (transgression, according to Ford, means a state of 'non-compliance' with existing norms).[451] 'Others', particularly new forms of Otherness that have formed in the past half-century (for example the 'everyday cyborg'[452]) on the boundaries of the norm, are often overlooked in law.[453] As a result, law remains ill equipped to deal with those that fall in between the cracks of its normative realms of categorisation. Indeed, within the concept of the gothic, the notion of monstrosity plays a vital role. It is closely linked with the notion of the 'abhuman': "the abhuman subject is a not-quite human subject, characterised by its morphic variability, continually in danger of becoming not-itself, *becoming* other."[454]

It is this sense of "social and moral transgression" that may be located in embryos *in vitro*. As Ford wrote, this quality of being 'almost, but not quite'

[448] Helyer (n441).
[449] Discussing whether law presupposes liberal self is outwith ambit of this research. Ford discusses this, see (n20) 31-33.
[450] Ibid 33.
[451] Ibid.
[452] Quigley and Ayihongbe (n395).
[453] In the sense that robust frameworks are not, or sometimes cannot be, in place to deal with them.
[454] Hurley (n21) 3-4.

is close to Freud's aforementioned concept of 'the uncanny'.[455] This peculiar type of familiarity invites negative responses: "abjection (distancing, casting-out), disgust, shame and revulsion."[456] She argued that this language can be easily located in law, particularly in areas such as end of life or disability.[457] If the gothic is in opposition to the liberal, it is also in opposition to the legal, for the law embodies liberal norms.[458] The gothic is not only free from the law, but also "extra-legal."[459] According to Punter, the gothic body is "perpetually unamenable to the rule of law."[460] In other words, the law finds it difficult to permit the exceptional body, "the existence of a monster thus poses the threat to the law."[461] The 'monster' does not fall under any of the law's categories, and thus challenges these; it is therefore something that is difficult to regulate. In her discussion, Ford used the example of the conjoined twins case *Re A*.[462] Here, she described, where the twin's physicality was ambiguous, the individualised liberal self/subjecthood was alluded to in emphasising values such as bodily integrity and dignity in support of surgically separating the twins at the cost of one of their lives.[463] Thus, as Ford noted, so 'illicit' was the twins' physicality that they were "better off separate and dead than alive and conjoined."[464]

The 'liberal self' and the 'gothic body' are thus contrasting models of selfhood. One is individuated and self-contained, and the other "disordered, leaky and lacking in self-sovereignty."[465] Leakiness, discussed in Margret Shildrick's, "Leaky bodies and boundaries: Feminism, postmodernism and

[455] Ford (n20) 35; Freud (n440) 124.
[456] Ford (n20) 35. Also see Karpin, 'Uncanny embryos' (n20).
[457] Ford (n20)
[458] Ibid 34.
[459] Punter (n441) 218.
[460] Ibid 46.
[461] Ibid 45; as quoted in Ford (n20) 35.
[462] *A (children) (conjoined twins: surgical separation), Re* [2000] All ER 961, [2001] Fam 147.
[463] Ibid at 184; discussed in Ford (n20) 36.
[464] Ford (n20) 36.
[465] Ibid.

(bio)ethics",[466] is used to refer to the literal physical "leakiness" of women's bodies, and also the leaks and flows between bodies of knowledge and matter once traditional boundaries (such as the gender binary) are deconstructed. She points out that the normative categories that organise us are discursively unstable, and balance is usually obtained by reiterating them repeatedly over time. An easily relatable example here might be the constant societal reiteration of women's 'body standards'; sometimes changing with trends, but ever iterated all the same. Shildrick, however, argues that we should embrace embodiment as a process, and that we should resist formalisation: "an acceptance of the leakiness of bodies and boundaries speaks to the necessity of an open response."[467] While 'the embryo' may not be described as a typical 'self', neither can the 'selves' expounded in works such as Shildrick's. Both are fluid, occupying unstable categories. These associations are born from embryos' placement in bodies, and their challenge to subjecthood in and of itself, not conforming.[468] Therefore, despite differences in selfhood/personhood, there is much to be drawn from 'leaky', and other 'gothic bodies'. In particular, the aforesaid point that liminality, as a lens, helps us to account for the fluid yet bonded nature between people and 'things.' This point is built upon later in this thesis (Chapters 6 and 7), which explores the importance of relationality for embryonic pathways through the law.

5.2.3 The Otherness of embryos: a 'gothic' framing

This research argues that drawing parallels between regulated embryos *in vitro* and the 'gothic' trope helps to articulate the complexities that law

[466] Shildrick (n444).
[467] Ibid 217.
[468] Ford (n20).

encounters when faced by their processual, uncertain, "transformative and transgressive"[469] nature. This analysis is important because it helps to navigate the contours of the 'legal gap' carved out in Part One. This subsection thus introduces scholarly work on embryos as 'uncanny' and 'gothic' (of which relatively little work has been done so far) before going on to build upon these works in order to draw lessons from them. From Chapter 3, we have seen at least two possible pathways for embryos *in vitro* thus far (reproduction or research/therapeutic use). We could say that embryos are therefore similar to 'the gothic' not only because of what they are, but also because of 1) the premonitional considerations we make of them 2) as Ford argues, where embryos originate from and what we associate them with (women), and 3) where they are, i.e. amongst technology. Each allows us to understand, more deeply, the legal uncertainties surrounding embryos *in vitro*. The following thus explores the 'gothic-ness' of regulated embryos *in vitro* under these three headings.

1. Embryos destined for the womb: physical placement within a woman

Isabel Karpin invokes the idea of 'the embryo' as *unheimlich*, or uncanny, in her work, in reference to the technologically produced embryo that exists outside the body of the woman. Karpin posits that the "technologically produced embryo is constructed as a phantasmal premonition of the child to be."[470] Karpin thus suggests that instead of focusing of the latter phantasmal premonition, we should instead focus on another, the "*not yet pregnant pregnant woman*."[471] In this way, she evokes the assumption that where there are embryos there are also women who will be become pregnant with them. Therefore, they are "premonitionally pregnant," and

[469] Ibid.
[470] Karpin 'Uncanny embryos' (n20) 599.
[471] Ibid.

thus the provisionality of embryos *in vitro* is highlighted.[472] Indeed, *in vitro* embryos, whatever path they are on can only ever achieve personhood through gestation within a woman,[473] and therefore such embryos remain entirely subject to the decisions that any woman makes regarding her pregnancy or non-pregnancy. To add to this analysis, this is a more processual way of framing *in vitro* production, because it recognises processes have to take place for i) women to become pregnant and then ii) birth to take place.[474] This is seemingly absent from contemporary policy.

2. The Female Body: Origins and Associations

Ford argues that all embryos may be described as 'uncanny', and in contrast to Karpin, Ford argues that this is particularly so if they are located *inside* the body. She draws upon literature on the 'gothic', characterised by "ambivalence and uncertainty,"[475] which, as described above is a contrast to legal liberalism. In doing so, she adds something to the 'gothic' discourse, as the gothic character of the embryo/foetus is largely absent from postmodernist critiques of the liberal self, and where it has been recognised this has not occurred with a view to challenging assumptions underpinning this portrayal.[476] This "powerful critique" has rarely been extended to embryos/foetuses, even though they are arguably some of the most paradigmatic cases of transformation and transgression (key elements of being 'gothic') that one can find in a human context.[477] Ford also argues that embryos' (all embryos, but especially embryos *in vivo*) 'gothicness' comes,

[472] Ibid.
[473] At the moment, unless/until artificial wombs (ectogenesis) are available.
[474] Notwithstanding prior processes such as harvesting the eggs, collecting sperm, and fertilisation.
[475] Botting (n21) 3.
[476] Ford (n20) 42.
[477] Ibid 37.

in part, from their origins. They are created through processes that inspire fear and awe: sex and science.[478] They are both powerful, yet exposing and threatening in their own ways.[479] Embryos and foetuses originate in either one or the other, or sometimes both of these "profoundly exciting, but profoundly troubling institutions, so they are, from their very inception, ambivalent and challenging beings."[480]

While on one hand, the 1990 Act (as amended) provides for implantation of embryos *in vitro*, on the other it provides for their scientific use and disposal. Does this in some way dissociate embryos from women? If so, does this make them potentially even more monstrous or gothic? Arguably it does, because not only do the associations of being born from women remain, but their placement in technology, sometimes being part 'human', part animal (for example),[481] furthers their 'abhuman' nature. Yet even where research embryos *in vitro* are not human-animal hybrids, or, as Ford writes even if they could be dissociated from their feminine origins and associations, 'the embryo' would nonetheless remain intrinsically gothic: "its very body, and existence, refute and transgress liberal norms of subjecthood."[482] Further, I add that there are gothic parallels for embryos *in vitro* because of their technological origins, and, for some, technological futures (research embryos).

Not only are women 'leaky'[483] etcetera, but a brief survey of past legal judgments, for example refusal of treatment cases, shows a depiction of the

[478] Ibid 38.
[479] Ibid.
[480] Ibid.
[481] Permitted under s4A of the 1990 Act (as amended).
[482] Ford (n20) 40.
[483] Shildrick (n444).

woman as unreasonable when "in the throes of labour",[484] albeit women have been awarded more autonomy in this area in recent times.[485] These depictions stand in contrast to another typical caricature of the woman and her body, namely, as a powerful and threatening being, "one capable of containing the male both in intercourse and in pregnancy, and performing hidden and profound transformations."[486] 'The embryo'/foetus is, of course, tied up in this narrative, contained within – or destined for - the woman's womb. Ford claims that 'the embryo' 'absorbs' the negative associations associated with contemporary (mis)understandings of female corporeality.[487] As Ford further points out, the latter argument might be open to critique from the standpoint that 'the embryo'/foetus is often imagined as 'free floating',[488] that is, isolated from the woman in public discourse. However, she writes, these two arguments are not mutually exclusive. While, with the increased visibility of the early stages of life, the entire process of pregnancy has become more of a 'public event', it is exactly because pregnancy has become so prevalent in the public imagination that the association between pregnancy and 'the embryo'/foetus has been severed.

Even where an embryo is technologically predestined (see below), its associations with the female body arguably contribute to embryos' gothic parallels, which itself can be inherently negative, given feminist critical literature on 'the monstrous feminine'.[489] For Karpin, this embryonic existence:

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[484] For example: *Rochdale Healthcare (NHS) Trust v C* [1997] 1 FCR 274.
[485] *St George's Healthcare NHS Trust v S; R v Collins and others, ex parte S* [1998] 3 All ER 673.
[486] Ford (n20).
[487] Ibid 39.
[488] See Karpin 'Uncanny embryos' (n20) 604.
[489] Creed (n444).

> ...evokes sympathy and horror in the same moment. Unhinged from the all-encompassing female body and equipped with its own genetic identity it attains an individuality that pre-figures its birth. In this way even in the absence of the mother, the embryo is assigned a holding place in the (human) family. But the hybrid/manipulated embryo amplifies its uncanniness evoking the horror of an alien presence, apparently the same but yet not so.[490]

It is no news to those familiar with feminist literature that women have often been caricatured in every day social and legal discourse as weak (emotionally and physically), vulnerable, dependent and unstable.[491] Feminist discourses have challenged the dominance of liberal notions of the self in the case of narratives surrounding those who might be seen in a process of transformation, or as transgressing modernist norms, including female, 'vulnerable', disabled, and transgender persons.[492] For them, embodying or occupying transformational dimensions causes their marginalisation, and thus invites responses of abjection.[493] Michael Thompson, for example, has argued that within the 1990 Act, the association of the feminine with monstrosity has been exacerbated by the Act's regulation of reproductive technologies; it combines the 'monstrous feminine' with concerns regarding new technologies to produce an image of the female as "an object of horror and fascination".[494]

3. Embryos destined for research: placement amongst technology

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[490] Karpin, 'Uncanny embryos' (n20).
[491] Ford (n20) 39.
[492] Ibid 36-37.
[493] Ibid 37.
[494] Michael Thompson, 'Legislating for the Monstrous: Access to Reproductive Services and the Monstrous Feminine' (1997) 6(3) Socio Legal Studies 401.

For some gothic writers, technology is gothic in and of itself:[495]

> Technology… becomes threatening when it emerges as a dangerous supplement that supplants and exceeds its control. Like the vampire…technology monstrously undoes the system which designed it.[496]

As we have seen above in Chapter 3, some original gothic novellas each with their own gothic-technological associations[497] (briefly discussed at the beginning of this chapter) were regularly cited in media debates leading up to the original 1990 Act.

For some, "Frankenstein's dream of systematic, science-based control over the creation of human beings can be seen as having become a reality in the modern fertility clinic."[498] Mulkay cites Christopher Toumey who posits that many mad scientist stories (like Frankenstein) are presented to us not as enjoyable fiction, but as a warning about scientists and science.[499] These warnings have been easily transferred to media coverage of scientific advancements, especially IVF.[500] In the lead up the 1990 Act, both sides of the debate to support their arguments used this imagery.[501] While direct reference to science fiction was not always present in Parliamentary debate or the media, the negative construction of scientists' motives, and the

[495] Fred Botting, *Limits of Horror: Technology, Bodies, Gothic* (Oxford University Press, 2010.)
[496] Ibid 43-44.
[497] Friedrich A Kittler, *Literature, media, information systems* (Routledge, 2013) x.
[498] Mulkay 'Frankenstein' (n135) 157.
[499] Christopher Toumey, 'The moral character of mad scientists: a cultural critique of science' 17(4) Science, Technology and Human Values 434; quoted in Mulkay 'Frankenstein' (n135) 159.
[500] See Mulkay 'Frankenstein' (n135).
[501] Ibid.

temporal extension of the scientific narrative beyond the matter at hand ('slippery slope' arguments, for example) mirrored some of the more direct Frankenstien-esque rhetoric used in the news media when the issue first aired. The notion of the mad, malicious scientist continued to work behind the scenes. The connotations of embryos within technology, as reproductive or research subject-objects thus undoubtedly has gothic associations.

Yet what do we take from (1)-(3), above? Interestingly, although not articulated in any of the literature cited in this thesis, it seems that the pathways through the law for embryos *in vitro* (see Chapter 3) coincide with the various 'gothic' ways of framing embryos delineated above. To explain, (1) aligns with the 'reproduction' path, and (2) and (3) align with both 'research' and 'reproductive' paths. In this way, a gothic framing of embryos *in vitro* has helped not only confirm, but deepen our understandings of law's *uncertain* 'reaction' to embryos *in vitro.* To explain further, it is important to note that a considerable part of the legal and scientific narrative given to the reproductive (and perhaps non-reproductive process) is the 'casting out' of the woman from the story: "The embryo occupies the legal imaginary with the force of a vivid premonition of the child-to-be."[502] This is the narrative that gives embryos such an uncanny, and 'gothic' quality:

> For Freud, the uncanny develops from the transformation of something that once seemed homely into something decidedly not so...The technologically produced embryo existing outside the female body is at its most uncanny when it doubles for the child...[503]

[502] Karpin, 'Uncanny embryos' (n20) 602.
[503] Ibid.

Gothic literature thus highlights the uncertain moral and legal responses we have had towards human embryos, including those rooted in its association with the female body. While *embryos in vitro* are evidently not (yet) physically located within the female body, these associations remain when outside of the body, by virtue of the female associations 'normal' embryos bear, or from premonitions of their future (potential) placement within a female womb. This seemingly contrasts with embryos destined for research. Overall, there are some similarities in terms and concepts used in this, and the liminal literature, as the last section of Chapter 6 will explore. Karpin and Ford, who have framed embryos as uncanny/gothic (a framing hitherto rather uncommon), have advocated that law recognises the uncanny, and gothic nature of embryos, respectively. Literature has yet to answer how the law might take its next steps towards encompassing such a framing. The next section uses the above to pinpoint key lessons for the law moving forward, by way of drawing from Part One's analysis, and the analyses summarised above.

5.3 Lessons from a gothic analysis

This section builds on the above literature, and analysis of that literature, to expose two important facets of the law's framework for embryos *in vitro*. Both of these lessons articulate two things: 1) The nature of embryos *in vitro*, and more importantly for this thesis, 2) The nature of the law that regulates them. It also argues, nonetheless, that these lessons leave some vital questions, which cannot be answered by any of the analysis made so far, and that we thus need an additional framing in order to move forward, one concerned with navigating processes and states of in-betweenness: liminality.

1. Embryonic ontologies are a challenge to conventional subjecthood

As discussed above, a gothic analysis provides a way to conceptualise and articulate those on the bounds of legal subjecthood. The first lesson from the above is, therefore, that if we conceptualises them as such, then we can bring them out of the outskirts of legal awareness.[504] As we have seen, conceptions of the gothic self are a useful tool for challenging commonly conceived, liberal notions of legal subjecthood. Legal subjecthood, amongst other classifications, denotes a certain 'category', distinguishing subjects from other (non-liberal) persons or things. The law struggles with the 'self' who is not a liberal subject (for example those who defy bodily norms, such as the conjoined twins in *Re A*,[505] or the 'everyday cyborg');[506] selfhood commonly signifies independence and full personhood. It perhaps, then, struggles even more so with those who do not qualify as persons (a 'self'), but also do not seemingly fall within the ambit of property. The gothic body is one that stands in 'stark contrast' to the liberal self;[507] it is everything that the liberal self is not: "Whereas the liberal self is autonomous, the gothic self is dependent."[508]

'Selfhood' is a problematic term to use when discussing embryos. This, however, does not discount it from 'gothic' analysis, even in reference to arguments about legal subjecthood. Yet, as we have seen, there are still many parallels between the gothic trope and embryos. While embryos cannot be said to have selfhood, their legal and social oscillation between the latter and 'property' still places them in stark, somewhat uncomfortable contrast to the aforementioned 'liberal subject'. In other words, the law does

[504] Discussed in Chapter 4 of this thesis.
[505] See *Re A* (n462).
[506] See Quigley and Ayihongbe (n395).
[507] Paul Atkinson, 'Review: gothic imaginations' (2000) 35(4) Soc Stud Sci 653*,* 660.
[508] Ford (n20) 34.

not (at present) class embryos as property (whether or not it *should* is outwith the ambit of this work) nor as person; by failing to do either, the law leaves embryos to sit in awkward relation to both legal categories. As such, it is arguable that the familiar human-like qualities of embryos (amongst other things such as its 'potential'), along with its dependence upon others (namely the woman), 'the embryo' is a problematic (non)category of entity for the law. The law places it in a "category of its own":[509] not quite human, not quite inhuman, but "abhuman." [510]

Thus, as a challenge to conventional subjecthood, embryos' lack of fit within law's normative bounded categories of person or property has provided an ontological challenge for the law (and other disciplines, too). This challenge has seemingly resulted in what this research has diagnosed as the 1990 Act's 'legal gap.'

2. A deeper understanding of the 1990 Act's 'legal gap'

A gothic framing of embryos *in vitro* also aptly highlights some of the contours this thesis' has previously articulated as the 'legal gap' between the 1990 Act's conceptualisation and practical effect(s). This gap has been ossified in the 1990 Act's realisation of the Warnock Report's 'special status.' This status seemingly treats embryos with both favour and disregard in that it gives them 'special protection', but also does not disallow research and disposal.

In order to explain further, it is worth noting a potential criticism of a gothic

[509] *Attorney-General's Reference (No 3 of 1994)* [1997] All ER 936, [1998] AC 245, [255] (Mustill LJ).
[510] A separation from human existence, with different moral rules but not insofar that it is an 'object'.

framing of embryos *in vitro*, per Ford's arguments summarised above: if the liberal law's response to the 'gothicness' of 'the embryo' has been to 'cast it out', does the law appear to show 'the embryo' or foetus a degree of favour?[511] For example, it appears to accord it *some* goodwill by according it a 'special status.' Ford's answer to this is that seemingly positive statements such as the latter do not necessarily negate the abjection response.[512] Abjection is ambivalent, and not necessarily without a sense of approval. It combines fear and revulsion with a sense of identification, and sympathy.[513] Nonetheless, there is arguably more to this. It does not necessarily follow that the law shows embryos *complete* favour. Indeed, it favours all embryos, including research embryos, by giving them a special status in one sense, and has thus given them nominal and somewhat symbolic protection via the 14-day rule, but in another it does not because it still allows for these embryos to be researched upon and destroyed. The difference between special status and law's practical effects is thus a prime example of how responses to something 'gothic' can play out; an apparent (and confusing) mixture of favour and disregard.

Further, it helps us to understand more granularly the difference between reproductive embryos and research embryos, based on the contexts from which they were borne, and are associated with. As an interim conclusion, I therefore posit that our understandings of the importance of process are deepened by a gothic analysis. Although the literature does not state this directly, one may take from it that we need to account (more), for example, for the importance of the woman and the processes in her womb for embryonic/foetal evolution; a link that has become disconnected. But how can we understand these processes more deeply than this? There is

[511] Ford (n20) 43.
[512] Ibid.
[513] Ibid.

arguably a gap in the literature here. The below considers this, before going on to examine the answer in more depth in Chapter 6.

5.4 Conclusions: From conceptualisation to realisation, what is missing?

If one accepts that embryos are well situated within the gothic category, and as a constituent of this category invite these abject responses (as this analysis has argued, from people *and* law), then, as Beebee points out "…to counsel against such responses is tantamount to claiming that the embryo/foetus does not really belong in that category at all."[514] Indeed, this is not what this thesis intends to do; rather, it is quite the opposite: it seeks to use the gothic as a frame of analysis in order to better capture postmodern responses to embryos. I agree with Ford, who argues that we must accept embryos' gothic character. I also argue that we need to do so in order to better understand a) our own responses and, more importantly for this thesis b) the law's responses to them (which has been the allocation of a 'special status' under the 1990 Act). Also, there seems to be a gap in gothic/ uncanny discussions of embryos, in that process seems to be part of gothic throughout. Further, while this framing is undoubtedly revealing it does not "deliver any positive proposal as to how, morally or legally, it ought to be treated."[515] Thus, while this conceptualisation is undoubtedly useful for capturing *those in between*, it leaves the key question of how the law might navigate that. In other words, what are the a) contours and b) consequences of doing so?

[514] Beebee (n378) 14.
[515] Ibid 17.

Although 'gothic' work is not framed in terms of liminality, there is insight to be gained by adding this concept to the analysis. Liminality draws our attention to the importance of a threshold, that is, having the quality of being 'betwixt and between' states.[516] In the next chapter, I shall thus situate 'the gothic' within liminal literature. Combined, these concepts provide a powerful explanation and articulation of why we (as persons), and the law (as an institution), treat embryos as they do. The next chapter of this work therefore explores liminality as an essential component of realising this 'gothic' framing in law, before finally discussing what it might mean for the regulation of embryos *in vitro*.

[516] Victor Turner *The Ritual Process: Structure and Anti-Structure* (Aldine Transaction, 1969) 95.

6. A Liminal Lens

6.1 Introduction

Thus far, we have seen that embryos *in vitro* sit on the boundaries of legal categories, and, further, represent an essence transformation that law is seemingly unable to capture. What complicates the matter for the law, as this chapter shall explore further, is the variable physical boundaries[517] that embryos *in vitro* can move *into*, *through* and *out* of, namely:

- Research within the lab;
- Subsequent (and inevitable) disposal post- research; and
- A woman's womb (and then out of the uterus, either by growth and birth, or by 'natural' or medical termination).

Yet, how can the law better capture this, and thus close the intellectual and practical gap between conceptualisation of 'the embryo' and its reality? This thesis argues that to answer this, we need a concept that deals with the navigation between boundaries, uncertainty, and processes. For this work, that concept is liminality.

This chapter introduces liminality as an anthropological concept, before going on to explain why human embryos may be described as liminal beings. As an entity in a state of constant and rapid change, embryos sit 'betwixt

[517] Not to be confused with variable *liminal states*, which this chapter will identify.

and between' the various realms of legal categorisation. As such, the core problem for law is two-fold: 'the embryo' has neither a fixed status, nor is it possible to 'fix' its status. Law, accordingly, struggles to capture and regulate what embryos *are* ontologically (as opposed to what the 'embryo' *is* descriptively).[518] The challenge in capturing these ontologies is perhaps part of the problem; if, indeed, this is what law has sought to do. I will argue that an embrace of liminality (both as a state embryos are led into, and as a lens) fully reveals the multiplicity of contexts in which embryos are used and created. I will posit that if embryos' current legal status is indeed problematic (or at least out-dated), and if the law would like to take *process* seriously, then it is time for the law to recognise explicitly the separate contexts and processes through which it is leading embryos. I will show that a liminal perspective demonstrates that there are vital aspects of embryos (some of which the law itself creates) that the law might better recognise, namely its contextually variable and relational qualities. To some extent, focus has already been thrown on these matters by a gothic analysis, but, as I have argued, this does not go far enough.

Liminality is important to this work because its application (as a lens) helps us to understand processes, in a scholarly sense. Further, it can also inform practical solutions and approaches concerning how we legally treat embryos. Yet if a key facet of liminal process is being led out of liminality, one must ask where exactly are embryos being led? Section 6.4 of this chapter argues that we must consider whether embryos have a 'telos'. The term, is used here in a basic sense[519] in order to cast light on the purpose, or perhaps more accurately, the *end-stage* of embryonic processes within

[518] See Chapter 4.
[519] As opposed to its philosophical or theological use, which is far more complicated.

law.[520] This analysis is important for Part Three of this thesis, which, draws on lessons from this Chapter in order to look more closely at the ways embryos are led through and out of processes *in vitro*.

An exploration of the nature of the interaction between liminality, law, and embryos is a key facet of this thesis' original contribution, within which there are several lessons. With a view to this, the final part of this chapter assesses the common (and indeed uncommon) threads that may be drawn between lessons from liminality, and the previously discussed lessons from a 'gothic' (re)conceptualisation of embryos *in vitro*. It builds on the Chapter 5's 'lessons' in order to carve out a further contour of this thesis' contribution: the explicit, and important link between a gothic (re)conceptualisation of embryos in law and a liminal lens.

6.2 Rites of Passage

The realm of the liminal is entered when we participate in cultural rituals that transcend everyday life.[521] The term is derived from the Latin term "limen" (a *threshold*), which simply denoted a situation where ritual and temporal limits were removed "in order to facilitate a 'passing through'."[522] The concept, coined by anthropologist Arnold van Gennep in his 1909 book *The Rites of Passage*, emerged from an ethnographic study of ritual practices. [523] These 'rites of passage', often highly staged ceremonies, were commonly found in

[520] As highlighted in the Introduction, it is beyond the ambit of this thesis to discuss the term philosophically and/or morally, it is instead being utilised to highlight the third stage of the liminal process, as discussed above.
[521] Squier (n24) 3.
[522] Árpád Szakolczai, 'Liminality and Experience: Structuring Transitory Situations and Transformative Events' (2009) 2(1) International Political Anthropology 141, 155.
[523] van Gennep (n17).

tribal communities.[524] These were used to stage, often in a ceremonial or formal manner, "…a sensitive point in transition between states or statuses in a person's life or in the life of a collective."[525] In some communities, for example, children might undertake an initiation rite to mark their transition to adulthood when they come of age. Describing these transitions, where one crosses a *threshold*, leaving their old state and entering the new, van Gennep wrote:

> Life itself means to separate and be reunited, to change form and condition, to die and to be reborn. It is to act and to cease, to wait and rest, and then to begin acting again, but in a different way. And there are always new thresholds to cross: the thresholds of summer and winter, of a season or a year, of a month or a night; the thresholds of birth, adolescence, maturity, and old age; the threshold of death and that of the afterlife – for those who believe in it.[526]

These rites of passage, for example birthdays, weddings, christenings and funerals, bring us from one state of being to another: a transitional phase.

Arnold van Gennep sought to understand social transformations, and identified 'liminal rites' as a "…key component of the reproduction of social order."[527] Within these rites of passage, suspension of social order is nonetheless spatially and temporally limited, and therefore 'rites of passage' allow a social transformation to occur without disturbing broader organisational structures.[528] He posited that these transitional moments have

[524] Paul Stenner, 'Liminality: Un-Wohl-Gefühle und der affective turn' (2016) Transcript Verlag 46.
[525] Ibid.
[526] van Gennep (n17)189-90.
[527] Taylor-Alexander et al (n8) 155.
[528] Ibid.

three stages:

> ... [1] the rites of separation from a previous world, *preliminal* rites, those executed during [2] the transitional stage *liminal* (or *threshold*) rites, and [3] the ceremonies of incorporation into the new world *post-liminal rites*.[529]

Put simply, these stages are: "…a separation from everyday life, a move into the margin or limen…and finally a return to everyday life, though at a higher level of status, consciousness or social position."[530] 'Liminality' refers to the middle phase in transition, where the aforementioned suspension of structural order occurs. This suspension marks the sense of *becoming* that happens, where someone enters a threshold as one type of entity, and leaves it as another. This sense of becoming is paradigmatic of the liminal phase.[531] A young man may thus enter a rite of passage as a child, and leave it as an 'adult' or 'man'.

Anthropologist Victor Turner later built upon Arnold van Gennep's interpretation. His work studied the role of liminality in ritual performances, such as initiation rites, and described the manner in which liminal experiences may be both transformative, and a powerful lens that reveals the underlying values and structure of society. He posited that: "Liminal entities are neither here nor there; they are betwixt and between the positions assigned and arrayed in law, custom, convention, and ceremony."[532] Turner also noted that liminality is an "inter-structural situation" that involves a concurrence of opposite symbols; thus in the second (liminal) stage, opposite processes and notions coincide in a single representative.

[529] Emphasis in original. van Gennep (n17) 21.
[530] Squier, *Liminal lives* (n24) 4.
[531] Taylor-Alexander et al (n8) 157.
[532] Turner, *The Ritual Process* (n516) 95, 240; As quoted in Taylor-Alexander et al (n8).

This representative is characterised by the unitary quality of the liminal: "that which is neither this nor that, and yet is both."[533] We may apply this analysis to a multiplicity of transitions, where, for any period of time, person(s) are neither their old selves, nor yet their new selves, for example during a marriage ceremony, or where someone changes their nationality.

Since van Gennep and Turner, liminality has been extended further in modern theory. Building upon the work of Árpád Szakolczai, [534] anthropologist Bjørn Thomassen suggests that there are further concepts that help to reveal both the dangers, and the "analytical potential of liminality."[535] These are mimesis, trickster, and schismogenesis,[536] each with their consequences for those 'in between'. These three concepts reveal the danger of not emerging out of liminality, otherwise known as 'permanent liminality'. Here lies an anti-structural, constant state of chaos where the entity does not or cannot emerge out of its liminal state to the other side. Thus, reincorporation into society is, in some cases, simply not possible.[537]

Mimesis may be described as a mode of unreflexive imitation through imitative behaviour or patterns in the absence of a clear path out of liminality.[538] As Szakolczai puts it, "a real-life situation of transition – unless meticulously regulated in law, as in political elections – starts by a weakening and eventual suspension of the ordinary, taken-for-granted structures of life. The search for a solution usually involves an escalating process of imitation."[539]

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[533] Turner, *The Ritual Process* (n516), 7.
[534] See Szakolczai, 'Permanent (Trickster) Liminality' (n34).
[535] See Bjørn Thomassen, *Liminality and the Modern: Living through the In-between* (Ashgate, 2014).
[536] Laurie 'Liminality and the Limits of Law' (n15) 58.
[537] Szakolczai 'Permanent (Trickster) Liminality' (n34).
[538] Laurie, 'Liminality and the Limits of Law' (n15) 58.
[539] Szakolczai, 'Liminality and Experience' (n522) 156.

Yet, where imitative situations arise, *who* "convinces others to follow this model"?[540] The next concept reveals the risk that a 'trickster' emerges where, again, there is an absence of a clear path out of liminality. This 'trickster', or 'shaman of the liminal', may claim to lead the way out of this situation, but instead exploits it for nefarious ends.[541] Tricksters are outsiders, figures who cannot be trusted, often associated with jokes and storytelling. They exist on the margins of society until a situation arises where the attention of the community is diminishing, and they can place themselves as a central figure; this is where they become dangerous. As Szakolczai explains: "The condition of possibility for such trickster takeovers is a liminal situation where certainties are lost, imitative behavior escalates, and tricksters can be mistaken for charismatic leaders."[542] This figure can be easily located in pre-liminal literature, myths, and folktales for example Hermes and Prometheus in Greek mythology, Loki in Scandinavia, or the North American Coyote. [543] To add to this, more modern familiar examples might include Rumplestiltskin, Jareth (from Jim Henson's 'The Labyrinth'), and (perhaps controversially) The Doctor (from 'Doctor Who'). Tricksters thus emerge to present a seemingly 'rational' strategy that can hook others into following them, and where this occurs, liminality can be endlessly perpetuated rather than following through to the abovementioned third stage (a return to normality); [544] otherwise known as Schismogenesis.[545] Schismogenesis may be described as a:

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[540] Ibid 154.
[541] Laurie, 'Liminality and the Limits of Law' (n15) 58.
[542] Szakolczai, 'Liminality and Experience' (n522) 155.
[543] Ibid 154; For an *interesting* exploration of these types of figures with liminal analysis, see George Hansen, *The Trickster and the Paranormal* (Xlibris, 2001).
[544] Szakolczai, 'Liminality and Experience' (n522) 155.
[545] Coined by Gregory Bateson, see Gregory Bateson, *Naven*, (Stanford University Press, 1958).

> …risk that the transformative process will not be completed because of the (negative) cumulative interaction between parties. This can result in either a state of permanent liminality where a state of crisis is perpetuated, or the incorporation of a 'schism' into society itself at the re-integration phase and a 'splitting off' of groups'.[546]

In other words, where society is continually stuck in a state where unity has been broken, yet those who have been split are forced to stay together (facilitated by a trickster), it can produce an unpleasant state for all and may, for example, induce violence. [547]

It should be noted that Thomassen[548] also argues that liminality should be used to examine, rather than explain, social phenomena.[549] As a mode for examination, he argues, it 'opens the door to a world of contingency where events and meanings - indeed "reality" itself - can be moulded and carried in different directions.'[550] However, this research argues that it can, and perhaps should be used both as an exploratory and an explanatory power in the context of embryos. This is because liminality reveals the array of subjects, objects, actors, and non-actors involved in the day-to-day life of those regulated under and affected by the 1990 Act. It is a lens that enables us to explore possibilities, but it also explains, in tangent with Ford and Karpin's work on the gothic/uncanny embryo (discussed above), the predominant regulatory attitude towards the status of embryos. In other words, it is important to note that for this work the analytical power of liminality comes from the ways in which the lens can reveal, more deeply, the dynamics of process. For scholars like Thomassen, liminality is not

[546] Laurie, 'Liminality and the Limits of Law' (n15) 58.
[547] Szakolczai, 'Liminality and Experience' (n522) 155; also see Bateson (n545).
[548] Thomassen (n535)
[549] Taylor-Alexander et al (n8) 155.
[550] Thomassen (n535) 7.

normative, but just 'is'.[551] This work concedes this, but for the purposes of this thesis, liminality helps us to understand more than how things are; this work focuses on transformational process rather than on (subjective) experience. I argue that it helps to reveal an understanding of how liminality goes beyond the gothic because it informs normative responses, but importantly it is not signalling any particular normative outcome as such (see Chapter 8).

6.3 Widening the lens

This section widens the liminal lens beyond rites of passage, and explores the liminality of embryos *in vitro*. It argues that they are liminal in two key ways. First, and perhaps the most obvious, embryos are biologically and physically liminal - rapidly changing, from one state to another, from a ball of cells to (potentially) a baby. Within that, in certain situations embryos are also physically frozen, with a somewhat unknown future. It is an ongoing process of becoming (what it is becoming will be addressed shortly). Secondly, it is legally liminal, neither person nor property:[552] it hovers between these two legal categories, suitable for almost everything else we regulate. In many ways, it is thus defined by being 'not yet something else', legally, biologically, socially, and so on.

6.3.1 The liminality of embryos

Human embryos may be described as liminal entities, aside from the liminal states that the law has created for them, by delineating categories of being,

[551] Laurie, 'Liminality and the Limits of Law' (n15); Taylor-Alexander et al (n8) 155.
[552] See Chapter 4, section 4.3 of this thesis.

for they are in an ongoing process of 'becoming'. Embryos, as 'liminal lives',[553] occupy the second stage, the marginal, or 'in-between' zone. As Squier states: "these liminal lives test the boundaries of our vital taxonomies, whether social, ethical, biological or economic."[554] Building upon this, the Liminal Spaces project stresses the need to move away from the tendency present in some of the liminality literature to use the word as a synonym for a person who occupies merely 'marginal' space.[555] In the context of health research, as well as others, liminality is central to subjects and objects of regulation, and the spaces that they go through certainly do not occupy the periphery of everyday life.[556] As an entity regulated by the 1990 Act (as amended), embryos occupy a realm of "pure possibility";[557] there are multiple 'ends' to its liminality: research (eventually disposal), reproduction, and 'freezing'. For example, 'the embryo' as a resource for SCR "is defined by its being 'not yet' something else, that is a stem cell is defined more in terms of a biological possibility – its pluripotency – than a well- defined actuality'".[558] It is arguable that there is room for law to recognise this 'pure possibility' more. After all, as we have seen there are many possibilities for embryos under the framework. Possibility is a key facet of the processes it regulates, for example, exact futures are unknown when an embryo is created (unless it is created to be researched on). All there is here, therefore, one possibility, especially at the stages where embryos are frozen or tested via PGD (where possibilities are truly unknown at those stages.) The transitory state of embryos have been recognised in other cultures, for

[553] Squier, *Liminal lives* (n24).
[554] Ibid 4.
[555] Taylor-Alexander et al (n8) 154.
[556] Ibid.
[557] To echo Turner, *The Ritual Process* (n516); Taylor-Alexander et al (n8) 166.
[558] Lena Eriksson and Andrew Webster, 'Governance-by-standards in the field of stem cells: managing uncertainty in the world of "basic innovation"' (2008) 27(2) Science and Culture 99, 105.

example in *mizuko kuyo*, a Japanese tradition for grieving miscarriages that recognises liminality in embryonic life *in utero*.[559]

To return to the above point about liminality's normative quality for this work, Susan Squier, writing on excess embryos, argues that "contemporary medicine necessitates a significant revision of Turner's thesis, one that acknowledges the shifting, interconnected, and emergent quality of human life."[560] Her work explores how science fiction has paved the way for changes in biotechnological science, and uses liminality to explore how science and fiction have altered the contours (ontologies) of human life through several contemporary examples, such as hybrid embryos. She draws upon Paul Rabinow's work to bridge writings on liminality with his concept of 'purgatory'. According to Rabinow, with biological and social ambiguity comes "purgatorial anxiety."[561] In combining the sense of responsibility associated with the latter, and the sense of possibility associated with liminality, Squier uses both as a reminder for the long-term implications of biotechnological interventions alongside the inventive capacity of human beings to change or redirect the trajectories of our development.[562] Quoting Victor Turner, she adopts the following meaning of liminality:

> Liminality, literally 'being on a threshold'- is Turner's term for an in-between state, 'betwixt-and-between the normal, day to day cultural

[559] Elizabeth Harrison and Igeta Midori, 'Women's Responses to Child Loss in Japan: The Case of "Mizuko Kuyō"[with Response]' (1995) 11(2) Journal of Feminist Studies in Religion 67.
[560] Squier *Liminal lives* (n24) 6.
[561] Paul Rabinow*, French DNA: Trouble in Purgatory* (University of Chicago Press, 1999).
[562] Squier *Liminal lives* (n24) 8.

> and social states and processes of getting and spending, preserving law and order, and registering social status.'[563]

Liminality is thus a conceptual lens that challenges us to engage with, and perhaps even embrace the processual nature of regulated (and unregulated) subjects and objects, and their interactions. Through this lens, we can "see and experience the most basic elements of common humanity"[564] and thus "engaging with process and change helps reveal existing social structures and ordering practices." [565] As Squier points out, liminal lives function relationally.[566] In some ways, embryos may function "less as *nouns*- whether subjects of experience or objects of other's actions- than they do as *verbs*, enacting a reciprocal exchange between science and culture."[567] Embryos are thus a prime example of an entity caught between humanity's sense of "tremendous possibility of the new biomedicine, and our purgatorial anxiety to account responsibility for its implications."[568] The rest of this thesis draws regularly from the above, yet Squier's work, unlike this, has no legal focus. Further, this work adds a gothic framing to the liminality of embryos *in vitro.*

As we have seen in Part One, there are multiple processes and ends to embryos *in vitro* under law. These may be identified as:

1. Where embryos are to be used for reproductive purposes;
2. Where they are to be used in research; and

[563] Ibid 3; Victor Turner, 'Frame, flow and reflection: Ritual and drama as public liminality' in Michael Benamou and Charles Caramello (eds) Performance in Postmodern Culture (Coda Press, 1977).
[564] Taylor-Alexander et al (n8) 155.
[565] Ibid.
[566] Squier *Liminal Lives* (n24) 9.
[567] Ibid 10.
[568] Ibid.

3. Where they have an uncertain future i.e. if used for PGD, their future could be either state 1 or 2 (above).[569]

If an essential component to being liminal in nature is 'being led out the other side', then one must ask: if the law is to embrace the liminal, processual nature of human embryos, then where is it leading embryos to? This might be cast as a form of the question: what is/are the telos[570] of human embryos? The short answer, discussed in this section, is that it has no single telos, but multiple ones, as facilitated further by new technologies.

6.3.2 Do embryos have a 'telos'?

The teleologies available to embryos (in a legal sense) in turn impact on the ontology of the regulated embryo(s). For example, if a particular embryo or group of embryos are put on a research path, because we can apply new technologies to them, they then become research artefacts.

What is/are the telos of human embryos? The short answer, discussed further below, is that many embryos created *in vitro* have no single telos, but multiple ones, as facilitated further by the regulation of new technologies. Indeed the 'natural' telos of embryos has never been singular. Once conceived, embryos may be lost naturally from a couple of days in age, right through to the later, foetal stage. Alternatively, they may of course undergo successful gestation within the mother's womb and be born into the world. The development of modern medicine has brought about more than two telos for human embryos. While, as aforementioned, there has never been a guaranteed continuity to embryonic life, modern technology has brought

[569] As above-mentioned, this reflects Turner's description of a state of 'pure possibility.'
[570] 'Teleology' is intended in the Aristotelian sense e.g. purpose, final end, or end goal.

about a more explicit disruption to the latter than ever. As Waldby and Squier state:

> Stem cell technologies introduce a decisive disruption into any imagined continuity between embryonic life and infantile or adult life. Any biotechnology that changes the temporal trajectory of human life has implications for ways of being human.[571]

New research and reproductive technologies demonstrate that embryos are not 'proto-human';[572] meaning that we cannot simply read the biography of human life, and biology, back to our moment of origin. The temporal implications of stem cell technologies, for example "demonstrate the *perfect contingency* of any relationship between embryo and person, the non-teleological nature of the embryo's developmental pathways." [573] The boundaries of human existence are therefore increasingly unstable; "imprecise at best, contested at worst."[574] As research and conception practices are evolving and changing, so does the narrative(s) of embryonic life:

> Thus, assisted conception practices had already unsettled the teleological end point of embryos that places it within a sequential, linear narrative of 'life': gametes-embryo-foetus-child…. For instance, the teleological sequence of embryos may include one or more of the following: be frozen and stored, allowed to perish, implanted into the 'mother' who then miscarries, used for implantation into a woman other than the source of the oocyte (egg), or used by clinicians to

[571] Cathy Waldby and Susan Merrill Squier, 'Ontogeny, ontology, and phylogeny: embryonic life and stem cell technologies' (2003) 11(1) Configurations 27, 32.
[572] Ibid 33.
[573] Ibid.
[574] Squier *Liminal lives* (n24) 7.

> practice assisted conception techniques and further understanding of human reproduction.[575]

Certain embryos thus lack a 'human' teleological trajectory, for example admixed embryos. Some argue even further that if they lack that trajectory, perhaps it is a misuse of language to even call them embryos at all: "An embryo reflects an evolutionary history and a developmental future. If cloned human blastocysts lack this teleological trajectory, it would be a misuse of language to continue to call them 'embryos.'"[576] Whilst this thesis does not claim that the term 'embryo' should be retired from use in certain cases, it is nonetheless worth noting the modern redundancy of the connotations, and teleological implications, of using the term 'embryo' in all contexts.

It seems, then, that modern science, facilitated in law, affects the teleologies of embryos in at least three ways:

1. It *interrupts*;
2. It *pauses*; and
3. It *creates* teleologies for embryos.

It is *interrupting*, in that it can change the liminal 'path' that embryos are on. They can go from PGD to implantation, or to research. They can go from the developmental process, to being terminated where a woman wishes it. It *pauses* it in that allows embryos to be literally frozen in time, in a state of 'permanent liminality', unmoving along any trajectory at all. The law also *creates* teleologies for embryos, in that it creates new situations, possibilities,

[575] Sarah Parry, '(Re) constructing embryos in stem cell research: exploring the meaning of embryos for people involved in fertility treatments' (2006) 62(10) Social Science and Medicine 2358.
[576] Insoo Hyun and Kyu Won Jung, 'Human Research Cloning, Embryos and Embryo-like Artefacts', (2006) 36(5) Hastings Cent Rep 39.

and paths in which they can exist (liminally), and from which they can be led out of (teleologically) that did not exist before. For example, embryos can now be used as a supply of stem cells, the telos of which is to be disposed of or turned into something new, such as an advanced therapy for the treatment of others or a research tool.

One might argue that the use of teleology in this context is misplaced. If, as according to Aristotle the ultimate telos of all humans is 'flourishing', and living a virtuous life (etcetera)[577] then it would seem nonsensical to use it to support practices which result in embryo disposal. Yet, this is not necessarily implicated by use of the word 'telos'. Here it is used to emphasise the third, hitherto unarticulated stage(s) of embryonic legal processes. As Karpowicz et al argue, teleological arguments do not preclude or necessarily support, for example, the creation of chimeras.[578] Whether merging human and non-human tissues, or altering the 'path' on which an embryo might sit (see figures 1 and 2, above), the nature of teleological guidance leaves room for endless speculation on the 'natural' purposes of any living thing without providing guidance on what is 'right':[579]

> …it is not clear whether a teleological view would consider heart transplants or *in vitro* fertilization natural or unnatural. By their very artificiality, these would seem to violate the natural ends of the human components involved and of those who possess them, rather than restoring them to their teleological functions. Yet the same interventions would help humans achieve their natural ends, respectively, of being alive and reproducing.[580]

[577] Or happiness, or pleasure, any teleological theories could apply here.
[578] Karpin, 'Uncanny embryos' (n20) 599.
[579] Ibid.
[580] Ibid.

Scientific intervention has clearly defined, and redefined, the possible telos of human embryos. Yet, what role should the law play here? The answer to this is of course subjective, but there are considerations it might better embrace if it wishes to take a sincere stance on the processual nature of embryos. Reintegration into the community, as per Turner,[581] is neither possible, nor desirable for all embryos *in vitro*.[582] Perhaps, then, the answer to this is not that the law should necessarily lead them somewhere, but to recognise that by virtue of being entities 'betwixt and between', they are already being led out of liminality by technology and society, facilitated in law. Yet, as the below shows, this is not always possible.

6.3.3 Permanently liminal?

As argued in the introduction to this chapter, liminality literature can add to the gothic analysis in order to help us understand our (non)-engagement with the abhuman. Recall that according to liminal literature, the ultimate *telos* of liminal beings is to be led out of liminality. Some, however, may experience 'permanent liminality': a constant state of chaos where the entity does not or cannot emerge out of their liminal state to the other side; reincorporation into society is, in some cases, simply not possible. Thus, some entities can remain (permanently) 'in between'.

Like all that is gothic, and all that is liminal, embryos are "always on the point of dissolving into something else."[583] It is unstable, tenuous, and incomplete. According to liminal literature, the permanently liminal become a

[581] Victor Turner, *The Ritual Process* (n516)*;* also see Thomassen (n535) 92.
[582] Some might say that it would be immoral to make 'birth' possible by implanting a 'research' embryo (including a cloned embryo, or an admixed embryo) into a woman (or even an artificial womb).
[583] Punter (n441) 200.

perpetual 'outsider'. While this has a marked overlap with aforementioned theories of the 'gothic self', nonetheless, as aforesaid, this does not necessarily *always* place them at the margins of moral and social life. Permanent liminality has been used in disability literature to discuss and challenge the experiences of *some* disabled persons in society. Willet and Deegan confront our "hypermodern society", which "creates permanent liminality for most people with disabilities" and is full of barriers for the latter such as "forbidden spaces" (e.g. those without wheelchair accessibility).[584] Persons with disabilities have also been described as experiencing responses of legal abjection.[585] As an "inchoate,"[586] partially formed being, embryos are a model of the various hallmarks of the gothic, and liminal (yet not necessarily marginal).[587] Some embryos' liminality is perpetuated in law, their in-between state ossified either physically (by being frozen) or symbolically by what may be interpreted as failing to provide an effective 'out', or 'third stage of the liminal process. Teleologically speaking law arguably treats research embryos as 'artefacts',[588] yet their *telos* (as an artefact) has arguably been limited by the 14-day rule.

Perhaps the most obvious form of permanent liminality for embryos, then, is their physical freezing within a lab context. "Good quality"[589] embryos may be frozen for use in future treatment, or research. The 'quality' of embryos is unaffected by the amount of time they are frozen. According to the HFEA website:

[584] Jeffrey Willett and MaryJo Deegan 'Liminality and disability: Rites of passage and community in hypermodern society' (2001) 21(3) Disability Studies Quarterly 137.
[585] Ford (n20) 35.
[586] John Seymour, *Childbirth and the Law*, (Oxford University Press, 2000)135.
[587] Ford (n20) 40.
[588] Mason *Human Life* (n45).
[589] 'Embryo Freezing' (HFEA) https://www.hfea.gov.uk/treatments/fertility-preservation/embryo-freezing/ accessed 3 March 2018.

> The embryos will be put in a special substance, which replaces water in their cells. This will protect the embryos from damage caused by ice crystals forming. They'll then be frozen, either by cooling them slowly or fast freezing (vitrification) and stored in tanks of liquid nitrogen until you're ready to use them.[590]

At the end of the standard storage period (10 years, but in some special cases this can be extended to 55 years),[591] where one's embryos have not been used for treatment, there are a number of options: donate them to someone in need; donate them to research; donate them to training, or; discard them (the most commonly selected option).[592] Where embryos are used for training, research, or are discarded, their final (legally governed) process is their disposal, where according to the HFEA, they are "simply removed from the freezer and allowed to perish naturally in warmer temperatures or water."[593] These embryos thus never really 'emerge' out of liminality to a new 'flourished' state. Further, one could also argue that permanent liminality also applies to embryos used for research in particular; never going beyond the 14-day stage and thus all they ever have been (since conception), or will be, is 'in between'. It is therefore arguable that embryos, as "research artefacts"[594] are prevented from becoming the best possible artefact they can be (teleologically, in terms of an object of scientific value), as opposed to the common norm where their use is limited, despite their inevitable disposal.

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[590] Ibid.
[591] Human Fertilisation and Embryology Authority, 'Code of Practice' (8th ed, 2017, first published 2009) 17.13.
[592] 'Embryo Freezing' (HFEA) https://www.hfea.gov.uk/treatments/fertility-preservation/embryo-freezing/ accessed 04 December 2017.
[593] Ibid.
[594] Mason, *Human Life* (n45).

Accordingly, there is little in the way of substantive "feedback loops," a mechanism we explore in our Liminal Spaces paper, 'Beyond Regulatory Compression'.[595] To explain, feedback loops are outputs of a regulatory system routed back as inputs to the various actors implicated in an enterprise.[596] We argue that:

> Using the frame of command-and-control regulation as a particularly acute instance of regulation given effect through law, we posit that such responses often compress and dislocate the 'feedback loops' needed for robust and dynamic steering of behaviour, thus stunting the development of flexible regulatory tools that can better address health research…. To consider command-and-control in particular, such an approach is characterised by what we call regulatory compression. While feedback loops – outputs of a regulatory system routed back as inputs to the various actors implicated in the enterprise – exist between research and regulatory spaces, they are bound by the organisational structures in which they arise. The temporal dimensions of health research regulation play a central role in mediating the resolution of ontological issues (of what something 'is' that is to be regulated) and of democracy (how can we decide appropriate and socially acceptable ways of regulating). When the regulatory space is viewed this way, we can see the effects of respective regulatory approaches in health research practices.[597]

We discuss them in the context of health research regulation more generally, but embryos are rather representative of this point in context:

[595] Taylor-Alexander et al (n8) 164.
[596] Ibid.
[597] Ibid 151.

> Embryo regulation is a form of static, hard law, and the question of the status of the embryo – as laid down by Warnock – has not been revisited since the creation of the original HFE Act in 1990. Even the debacle over cloned embryos was effectively shut down by the House of Lords in 2005 in Quintavalle. This is arguably an example where potential for new, more public input into the regulation of embryos has been blocked, thus maintaining the rigidity and inflexibility of one of the core focuses of the HFE Act, viz., the status of the embryo. Accordingly, there is little in the way of substantive feedback loops, and the statute itself is quite inflexible in this regard.[598]

Although there are, quite commendably, regular consultations on certain proposed incremental amendments to the 1990 Act,[599] notwithstanding the small extent to which this is done in consultations, there are few supplementary opportunities for this issue to be addressed. Therefore, the key issue at hand for this research is that the 'special status' of 'the embryo', a core facet of the 1990 Act that regulates the use of embryos in the UK in multiple contexts,[600] as having been made entirely inflexible by the law, the status itself being permanently liminal in a way. In the years since, the law has seen examples such as *Quintavalle*,[601] where potential for new and more *public* input into the regulation of embryos has been blocked. This acts to maintain the rigidity and inflexibility of one of the core focuses of the 1990 Act (as amended), the 'special status' of 'the embryo'.

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[598] Ibid 164.
[599] For example on mitochondrial replacement therapy in 2014, which resulted in the Human Fertilisation and Embryology (Mitochondrial Donation) Regulations 2015.
[600] Broadly, research and reproduction, although this is explored in Section 3 below.
[601] This case raised the question of whether embryos created by cloning fell under the 1990 Act. It was held on appeal to the House of Lords that they did, and the Act was subsequently amended to reflect this. See *Quintavalle* [2003] (n234).

Embryos may also be framed as liminal in law. This state is, thus far, unchanging. Notably this is not necessarily a 'bad' thing, nor is permanent liminality more generally. It is important, nonetheless, that this state is realised so we might move beyond, and *out* of it (discussed further in the next subsection). Therefore, two of the three liminal states summarised above may be identified as not only 'liminal', but also 'permanently liminal' (1 and 3). Nonetheless, as discussed further in the next section, not only are embryos *in vitro* liminal entities or indeed permanently liminal within the framework that governs them (as argued above), but so too is the *law* that governs them. Overall, this section has drawn out one of the key facets of this thesis' original contribution: the positive potential of permanent liminality. Below, I argue that considering it in this manner allows us to move beyond what we have (if we so desire, although whether or not we desire it is beyond the scope of this thesis), or rather, it provides a framework for discussion when considering moving beyond what we have (and which we have had for about 27 years, at the time of writing).

6.3.4 Liminal law?

This section argues that liminality may not only be identified as a feature of embryos themselves, but also of the law that governs them. Here it is argued that the static, unchanging regulation of embryos *in vitro* identified in Chapters 3-4 is a form of permanent liminality, building upon academic calls for 'frozen' medico-legal concepts to "unfreeze".[602]

From what we have seen above, a diagnosis of permanent liminality seemingly paints a bleak picture. Szakolczai has termed the aforementioned permanent states of crisis, as 'permanent liminality'; a never-ending chaotic

[602] See Jacob and Prainsack 'Embryonic Hopes' (n35) 514.

state.[603] While he describes this state as negative, as with mimesis, schismogenesis and trickster above, it is arguable that 'permanent liminality' has positive potential, at least as an analytical lens. In revealing the permanence of an inherently processual legal and physical condition, this analytical process leaves scope for this purgatory's disruption. Indeed, calls have already been made by some to "ditch durability" as a hope for law in this ever-changing field.[604] This thesis argues that permanent liminality can create a new 'condition of possibility' when this state of stasis becomes apparent; a condition for change.

One aspect of these concepts particularly speaks to the UK's regulation of embryos *in vitro*. Mimesis, the blind following of certain practices without reflection, might arguably be located in the 1990 Act's iteration, and apparent reiteration of embryos' 'special status'. Recall that the question of the status of 'the embryo', as laid down by the Warnock Report, has not been revisited since the creation of the original 1990 Act. It is arguable that Parliament has been unreflexively iterating embryos' 'special status' since the 1980s, without revisitation or reflection. It has not been questioned in Parliament since its inception, and in fact has been specifically noted as *not* up for discussion in deliberations leading up to the 2008 amendments to the Act.[605] This correlates with the above discussion of 'feedback loops'.

While this may seem bleak, it is nonetheless worth noting, what this thesis calls the 'positive analytical potential' of liminality. Szakolczai has termed the aforementioned permanent states of crisis, as 'permanent liminality'; a never-ending chaotic state. While he describes this state as a negative, as with mimesis, schismogenesis, and trickster above, it is arguable that

[603] Szakolczai, 'Permanent (Trickster) Liminality' (n34).
[604] Fox and Murphy, 'Response to Sarah Franklin' (n319) 510.
[605] House of Commons Science and Technology Committee Report (n252)

'permanent liminality' has positive potential, as an analytical lens. In revealing the permanence of a particular situation, whether it be the regulation of embryos or others, the analytical process leaves scope for the disruption of this permanence. Indeed, calls have already been made by some to 'ditch durability' as a hope for law in this ever-changing field.[606]

In a collection of papers entitled 'Embryonic Hopes',[607] Fox and Murphy posit that contemporary law-making on embryos cannot and should not be durable: "We think that durability has to go: it can no longer be our hope for the law in this area."[608] In expecting law to fail, and for failure to be made 'ordinary', their hope is that law will become more workable, as change is a necessary feature in regulating this field.[609] They advance that if we articulate our hopes (as reference points for scenarios and decision-making) for law, and settle conflicts regarding meanings and boundaries (whether potential or actual) in a pragmatic way, then these expressions of emotion can yield to reasonable legal solutions,[610] such as amendments that have a positive impact on family structures.[611] For the authors of this collection, hope, and failure seem to go hand in hand in law, each the flipside of the other. Failure "breaks open a consensus agreement once it is no longer capable of responding to real-world problems in a satisfactory manner."[612] It thus enables us, and particularly stakeholders in policy such as those affected by infertility, to revisit and re-actualise hopes (in terms of what we might want for law) in reaction to this.

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[606] See Fox and Murphy, 'Response to Sarah Franklin' (n319) 510.
[607] Ibid.
[608] Ibid.
[609] Ibid.
[610] Ibid 514.
[611] E.g. the removal of the 'need for a father' from the 'welfare of the child' provision in the original 1990 Act.
[612] Fox and Murphy, 'Response to Sarah Franklin' (n319) 515.

Legal constructions of embryos thus have considerable power to make and break research and family-making practices. I argue, therefore, that we must be receptive to change in its normative characterisations, and not allow them to stagnate as social and scientific understandings change. 'Durability', then, where science and society are changing relatively rapidly in the field the 1990 Act regulates, may be framed as a form of permanent liminality. If we do not hope or intend for permanence of law, however, we need to be cognisant of embryos' regulatory purgatory. To explain my argument further, and a return to Squier's work and her connection between Turner's 'liminality' and Rabinow's 'purgatorial anxiety', allows parallels to be drawn between Rabinow's diagnosis, and the unrevised legal status of embryos today. Rabinow describes this experience of social and biological ambiguity as:

> …a chronic sense that the future is at stake; a leitmotif among scientists, intellectuals, and sectors of the public turning on redeeming past moral errors and avoiding future ones; an awareness of an urgent need to focus on a vast zone of ambiguity and shading in judging actions and actors conduct; a heightened sense of tension between this-worldly activities and (somehow) transcendent states and values; and a pressing need to define a mode of relationship to these issues.[613]

In Squier's elicitation of the intrinsic relationship between possibility and responsibility in contemporary health research,[614] a core feature of embryo regulation is unveiled. To extend this analysis, we have seen this tension in recent debates surrounding embryos on the extension of the 14-day rule; surrounded by the very tensions described above by Rabinow. Yet I argue

[613] Rabinow *French DNA* (n561) 17–18.
[614] Taylor-Alexander et al (n8) 156.

that as we have seen, law's characterisation of this tension often occurs in the fixation of boundaries in order to balance the weights of possibility and responsibility in rapidly advancing fields of technology. I thus posit that this fixedness, when unvisited, becomes purgatorial.

Although there are, quite commendably, regular consultations on certain proposed incremental amendments to the 1990 Act,[615] notwithstanding the small extent to which this is done in consultations, there have been few supplementary opportunities for this fundamental issue to be addressed. Recall that the key issue at hand for this research is that the "special status" of embryos, a core facet of the Act that regulates the use of embryos in the UK in multiple contexts,[616] has been made entirely inflexible by the law. In the years since the law has seen examples such as *Quintavalle*,[617] where potential for new and more *public* input into the regulation of embryos has been blocked. This serves to maintain the rigidity and inflexibility of one of the core focuses of the 1990 Act (as amended), the 'special status' of embryos *in vitro*. Yet, can we move beyond this, out of liminality, applying the positive potential of permanent liminality, above? This thesis explores the answer to this in Part Three.

Jacob and Prainsack end their collection by asking: "If the law's facing of its own failure (and resilience) is more inspiring than disconcerting, could this be because embryos have had an effect on the law as well as being produced by the law?" [618] 'The embryo' in law is just one of many representations of embryos. Indeed, Jacob and Prainsack "…challenge law

[615] For example on mitochondrial replacement therapy in 2014, which resulted in the Human Fertilisation and Embryology (Mitochondrial Donation) Regulations 2015.
[616] Broadly, research and reproduction.
[617] This case raised the question of whether embryos created by cloning fell under the HFE Act. It was held on appeal to the House of Lords that they did, and the Act was subsequently amended to reflect this. See *Quintavalle* [2003] (n234).
[618] Jacob and Prainsack 'Unfreezing Embryos' (n360) 515-516.

as an instrument of order and its reliance on the distinction between persons and things."[619] As discussed in 'Beyond Regulatory Compression,' the 'liminality of things' helps to reveal the fluid and bonded relationship between health research subjects and objects,[620] for example tissue and its donor. It also helps to reveal the nature of entities that might be classed as 'subject-objects' (here, neither subject nor object, yet both) where their states in respect of the latter are fluid and subject to change. While law in this area has continued to be reactionary and piecemeal,[621] it has not necessarily dictated embryos' liminal nature, for liminality is "not easily amenable to direct influence or control."[622] It has, however, facilitated new forms of liminality, each with their own end. If the production, use, and disposal of embryos *in vitro* for reproduction and research are to continue in light of the advancement of scientific techniques in this field, a nuanced legal approach is required in order to take embryos out of regulatory purgatory. This approach, which draws from the analysis made in this Part, shall be explored in Part Three.

6.4 Lessons from a liminal lens

So far, the key lessons from a liminal lens (for this thesis) are as follows:

- The positive potential of 'permanent liminality' with regards to the regulation of emerging technologies and scientific processes;

[619] Ibid.
[620] Taylor-Alexander et al (n8) 162.
[621] See Richard Storrow, 'Quests for conception: fertility tourists, globalization and feminist legal theory' (2005) 57 Hastings LJ 295; Karin Webster, 'Whose embryo is it anyway? A critique of Evans v Amicus Healthcare [2003] EWHC 2161 (Fam)' (2013) 7(3) Journal of International Womens Studies 71.
[622] See Laurie 'Liminality and the Limits of Law' (n15) 61.

- The centrality of relationality and experiences of the regulated embryo[623] as subject-object, and embryonic processes as it travels through legally and scientifically produced 'pathways'
- The liminality of law itself, permanently in a state where it does not renew, or emerge *out* of this state to a new one.

This section of the thesis argues that there are several key parallels to be drawn between liminal literature and hallmarks of the 'gothic'. Both can draw lessons from the other, and the following aims to synthesise these lessons in the context of the regulated embryos *in vitro*. It does so with a view to debunking current legal norms surrounding the singular 'special status' of 'the embryo'.

As we have seen above, scholars such as Squier have already cast embryos as liminal beings, and this thesis does not purport to make a new claim re embryos as liminal. What this thesis does do, however, is make a key, and arguably much needed link between embryos as 'gothic' and embryos as 'liminal.' As discussed in Chapter 5, a gothic framing of embryos *in vitro* enables us to appreciate the way we treat embryos and the reasons for that, but this perspective still leaves the key question of how it may be encompassed in law. As mentioned above, analysing law through a liminal lens may answer this. Yet, why, one might ask, is a gothic framing required at all? I argue that it is important because it reveals essential facets of the law that would be absent from the employment of a liminal lens alone: it reveals both the *nature of* and *why* there is a 'legal gap', as identified in Part One. It thus provides an essential intellectual step between the gap in the law as *is*, and the intellectual closure of this gap; from conceptualisation to realisation.

[623] By persons, e.g. researchers.

Both 'gothic' qualities and the liminal condition commonly include those who are in a state of fluidity and flux; they neither conform to one category, nor any other. Further, there are multiple categories or ways of 'being' for embryos (this is in part facilitated in law); this is discussed further in Part Three. This section therefore draws together some of the distinct, yet currently underexplored links between 'gothic' and liminality literature. Thus far, it identifies three main qualities as sites of interconnection between the two concepts, all concerned with those who fall between normative boundaries: 'in-between', 'becoming', and 'relationality'. There is, however, one glaring disparity between 'gothic', its related literatures, and the liminal literature: marginality.

6.4.1 'Marginal'?

A key feature of the gothic trope is to challenge the marginalisation of, and debunking of conventional narratives surrounding, those who stand in contrast to liberal norms and thus may be perceived as sitting as on the outskirts of 'normal' society. For some, their personal/physical opposition to liberal (legal) norms causes these groups' marginalisation in society.[624]

Marginality, however, is a key divergence between liminality and the 'gothic' that should be addressed here. The Liminal Spaces Project challenges the common conception that 'liminal' can be used as shorthand for 'marginal', and argues instead that in the context of health research regulation liminal spaces are central to every day practice:

[624] Ford (n20) 37.

> …we stress the need to move away from a tendency of some of the liminality literature to employ the word as a synonym for something or someone that occupies a 'marginal' space. When viewed in the context of health research regulation, these liminal spaces do not occupy the periphery. On the contrary, our analysis shows that liminality is central to the everyday research practices and the regulatory mechanisms that surround them.[625]

While other 'gothic' entities may rightly be described as 'marginal', this thesis argues that embryos may not. The gothic literature above does not say that embryos are marginal *per se*, but it does point out that there are parallels between them and 'monstrous bodies', who are often classified as marginal persons. And indeed Ford has argued that we ought to be willing to acknowledge that 'the embryo' can invite abjection responses from the law, and others.[626] Nonetheless, liminality shows us that it is important not to frame embryos as something that is liminal *because* it is marginal. It is important to articulate that while gothic entities are indeed "extra-legal," "unamenable to the rule of law,"[627] and they may sometimes be liminal, one does not necessarily give rise to the other. Liminality is central to the physical transformation of embryos because these entities are subject to perpetual change towards well-defined (legal) ends, and thus this realisation has significant implications for the way in which the law regulates them. To be clear, this thesis draws an important distinction between being placed on the margins (whether in law or society), and *being* marginal (intrinsically). The key point, here, is *not* that embryos are not marginal in any sense, but that liminality cannot be used as a shorthand for marginality, which it seems that 'gothic' sometimes can be. Moreover, a label of 'gothic' is a mere descriptor:

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[625] Taylor-Alexander et al (n8) 154.
[626] Ford (n20).
[627] Punter (n441).

it tells us nothing about law as regulation, nor indeed about law as process. If regulatory objectives are to be met, including those with regard to embryos which will necessarily change status in the pursuit of those objectives, then we require better ways than we have at present of understanding the processes in play.

Liminality, whether experienced by subjects, or experienced by onlookers in relation to subject-object, or indeed (not)experienced by objects, is central to every day social and political life. The law may indeed 'cast out' non-liberal individuals, and as we have seen in Chapter 5, whether by default or by design, embryos *in vitro* have been slowly disappearing from the legal landscape, but this does not imply that they are marginal (either as research objects, or reproductive subjects-to-be). In other words, while the law may have 'cast out' certain individuals or entities, they remain central to scientific, societal and political life. Herein lies one of the key problems for this thesis: the law has placed embryos on the margins, whereas in reality, embryos are liminal, *not* marginal. This is because embryos are central to research and reproductive practices. Yet, what might we do about this? In answer to the legal 'casting out' of embryos, Ford suggests that:

> For a start, instead of *embedding* the notion of the foetus as 'monstrous' or as 'outcast'…or excluding discussion of the embryo/foetus altogether as most postmodernist discourses on corporeality and subjecthood do, we ought to be alive to the parallels between the body of the embryo/foetus and other 'monstrous' bodies. We ought to be willing to acknowledge the possibility that the embryo/ foetus invites responses of abjection – from academic commentators and judges, as well as from ordinary members of the moral community. It would be strange if the embryo/foetus were able

> to *avoid* such responses, given how readily it maps onto concepts of the monstrous and the abhuman. As such, any notion that the incomplete, unstable body of the embryo/foetus can be excluded from serious attempts to critique liberal subjecthood, particularly in the bioethical context, must be regarded as problematic.[628]

A liminal lens does not necessarily stand in contrast to this recommendation, but to add to this, this thesis recommends that while we should be alive to the parallels between embryos and 'monstrousness' or 'Otherness,' their liminal qualities have placed it centrally within the moral community; albeit with mixed responses. This does not negate that the law has had an 'abject' response to 'the embryo', quite the opposite; these abovementioned parallels place 'the embryo' in a particularly unique place in law, where it is there left relatively untouched, yet remains central to moral and scientific knowledge exchanges. Instead of naming this legal response to 'the embryo' as a 'casting out', it might be better to call it a 'regulatory purgatory'. And if this is accepted, then this brings another reason to consider the issue through a liminal lens: liminality, as stated previously, is about leading through and out of a state of stasis. It requires us to ask: what lies beyond legal stasis?

6.4.2 Between boundaries: "A confusion of all the customary categories"[629]

Building upon Freud's abovementioned theory of *das unheimliche,* psychologists have since referred to the 'anxiety' that can be facilitated by

[628] Ford (n20) 44.
[629] Turner *Forest of Symbols* (n484) 97.

the Uncanny.[630] This may be linked to Susan Squier's adoption of Rabinow's 'purgatorial anxiety', also discussed above, and liminality. When we come across the liminal, this sensation is created not only in concern over what we should or should not do, e.g. with regards to biotechnologies, but interestingly adds that "in the ambivalence and ambiguity of our responses to them, we also confront our own in-between state."[631] From what we have seen of accounts of the 'gothic self', one could say that 'gothic' persons, or onlookers upon 'gothic entities', can experience the same kind of anxiety. When encountering the gothic, the sense of familiar-unfamiliarity arguably leaves the onlooker in his or her own emotional purgatory. This thesis argues that the 'gothic' thus invites people to experience their own 'in-between state'. Purgatory, even if it concerns another, is a fearful state of being for many, which has been reflected in classical gothic literatures such as Dante's 'Divine Comedy' ('limbo' or 'purgatory' being the first circle of hell).[632] Embryos' own purgatorial state has put the law, an onlooker, in its own moral, social, and regulatory purgatory. This is an effective explanatory power behind the law's ever more apparent 'step back' from the human embryo over the past 27 years.

Recall that Turner describes liminal beings as "neither here nor there; they are betwixt and between the positions assigned and arrayed in law, custom, convention, and ceremony".[633] There are striking similarities between this, and 'gothic selves' described by literature, who often do not quite belong to one societal group, or another, or fall under a particular category of person that the law prescribes (for example gender.) Being in an "inter-structural

[630] See Gilbert Diatkine, 'Le Séminaire, X: L'angoisse de Jacques Lacan' (2005) 69(3) Revue française de psychanalyse 917.
[631] Squier *Liminal lives* (n24) 9.
[632] Dante Alighieri, *The Divine Comedy* (Vintage Books, 2013).
[633] Turner, *Forest of Symbols* (n484) 95.

situation" involving a concurrence of opposite symbols,[634] a quality of liminality, is equally as important a hallmark for those who are thought to be 'gothic'. Occupants of the liminal, and the gothic, both sit betwixt and between, being neither one nor other, occupying a liminal space between societal taxonomies "…whether social, ethical, biological or economic".[635] Yet those who have been delineated as gothic in nature, in many cases, cannot reach the 'third stage' of liminality; emerging out of the other side and returning to everyday life. These people or entities may therefore be described as 'permanently liminal'.

Human embryos are the epitome of Turner's description of the liminal social condition: "a confusion of all the customary categories."[636] While embryos are not in a 'social' condition *per se* (for that might require personhood), the latter analysis can still apply. It is physically and structurally absent from society; it is in many ways, invisible. According to Turner, liminality is often accompanied by seclusion of those in transition, "since it is a paradox, a scandal, to see what ought not to be there."[637]

One can see how this effect of liminality applies to those who have also been centred in gothic literature, which argues that we should not necessarily see this quality as something that is negative, it is an "inescapable feature of humanity."[638] Those who feel that they do not fall within the normative gender binaries, for example, have certainly experienced (and indeed suffered) responses of abjection, yet some may also be described as liminal ('between genders'). There is an androgynous

[634] Ibid.
[635] Squier *Liminal lives* (n24) 4.
[636] Turner, *The Forest of Symbols* (n484) 97.
[637] Ibid 98.
[638] Ford (n20) 34.

quality to embryos, as are many of those who are in a liminal state.[639] Their sex organs, whether male or female, are not visible via ultrasound until the nine-week stage, and in fact do not even develop before the sixth week. This adds to the paradoxical, ambiguous quality of embryos, qualities that also characterise liminal beings.[640] Dually, gothic and liminal literature helps to frame and reveal these qualities; ever underlying discourse, but never articulated.

Moreover, recall Chapter 4's consideration of embryos in vitro as 'boundary objects', of which there is a degree of 'interpretive flexibility'. This point was made to demonstrate that embryos are on the thresholds of various boundaries that we recognise; for example, they are simultaneously "nothing and not-nothing."[641] This analysis, conjoined with the above, is helpful to a point, for this work, but a further step is required here because are embryos between boundaries, but also *becoming*.

6.4.3 Becoming

Embryos are very much in a state of constant change, ever *becoming* (unless frozen). It should be noted that the notion of *becoming* is much centred within the liminal literature, rather than the gothic literature. While we can see echoes of this notion within some applications of 'the gothic', there is still a significant divergence between the two concepts on this front. Recall Kelly Hurley's description of the abhuman subject: "a not-quite human subject, characterised by its morphic variability, continually in danger of becoming not-itself, *becoming* other."[642] The latter part of this description

[639] Turner, *The Forest of Symbols* (n484) 98.
[640] Ibid 97.
[641] See Ford (n17).
[642] Hurley (n21) 3-4.

very much echoes the liminality literature. Nonetheless, a divergence should be noted, in that becoming 'not itself, becoming other' is a 'danger' here, rather than a rite of passage with the positive connotations of reintegration into society. The 'danger' (if any) in liminality is not sourced from an entity's *becoming*, but that it might stop *becoming*; the possibility that that state might become 'permanent', or subject to mimesis, a trickster, or schismogenesis. To apply this to embryo regulation, as argued above, one could say that the 14-day rule prevents embryos from *becoming*: here, they are stuck in a limbo from which there is no emergence.

Thus, one parallel may be drawn here, however, in that if a liminal being is in 'danger' of these three concepts, it is in danger of becoming 'Other' by virtue of not being able to emerge from liminality. For the purposes of this research, a distinction of Hurley's analysis of the abhuman may thus be made between something's morphic variability and sense of becoming, and its danger of becoming 'Other'. Embryos may thus still be situated as 'abhuman' as per the parallels it has with 'gothic selves', yet it is important that we differentiate between *becoming* as part of liminality, and becoming 'Other' as part of permanent liminality.

It is also worth noting that for those to which 'gothic' literature typically lends its analysis their 'Otherness' is often not a development, but something they have been born with (albeit not always, disability etc. can of course be acquired), and thus often cannot (and do not necessarily want to) 'emerge' out of as per liminal literature. Thus, for those who are 'gothic', there is much more of a sense of negotiating their 'being' as opposed to negotiating 'becoming'.

In the two permanent liminalities described above the law is thus preventing embryos from *becoming*. I posit that permanent liminality, like a gothic

framing, can enable us to begin positive shifts in liberal law's bounded frameworks.

6.4.4 Relationality

Some liminality literature applies the concept to experiential contexts, thus a subject is often described as *experiencing* liminality.[643] Why, then, might we still apply liminality to embryos? To explain (at least in part), by connotations of 'experience' itself, as it is clear that embryos do not yet have the conscience to 'experience' in the normal sense. Notwithstanding, this is not problematic for the use of this lens in an embryonic context for this thesis. Thomassen highlights in his work the multitudes of applications that liminality may have, from moments, to places, to objects.[644] However, he also remarks that experiences of liminality can relate to three types of 'subjecthood' (individuals, social groups, and whole societies).[645] While this might have opened up the possibility of liminality to some extent, as a lens, in some ways it is also rather restrictive. As the Liminal Spaces paper 'Beyond Regulatory Compression' notes: "…this typology is rather limiting, especially when we observe how much of health research regulation focuses on objects- tissue, data, embryos, genes and so on- rather than on the person to whom these objects relate."[646]

We argue that Thomassen's typology arguably does not take account of the network of participants (subject or object) who can be involved in a liminal process or setting. Subjects and objects in these settings can be moulded and defined by their interaction, in other words, their experiences of each

[643] Thomassen (n535) 99.
[644] Ibid.
[645] Ibid 89; Taylor-Alexander et al (n8) 158.
[646] Taylor-Alexander et al (n8) 158.

other. To provide a basic example, when parents christen a baby, he/she is not aware of what is going on or why; the process, in many ways is for the parents. Liminality thus helps to account for the changing relations between people, things, and the world around them. It is not only people who can go through processes, "things" are also capable of transitioning in a manner which leads to new, or renewed understandings of the thing itself, and their connections to people.[647] As demonstrated by the above discussion, it is important to recognise the "fluid but bonded nature of the connection between subject and object."[648] Thus, in order to use liminality's full analytical potential, we cannot only talk about the liminality of things (objects), but of those who experience objects' (or indeed subject-objects') liminality. Policy, and its construction affect the way that people experience the thing being regulated; it is entirely relational. Human embryos are arguably paradigmatic of that, in that their subjectivity and objectivity is fluid depending upon the regulatory path they are put on, (for example research, or reproduction). These pathways shall be discussed in more detail in Part Three. As mentioned above, after all, the 1990 Act does not actually regulate embryos, but persons' actions/inactions regarding embryos.

To tie this analysis into liminality's normative potential (discussed above), it is arguable that we could continue to talk about liminality of things as a standalone category, or, we could argue that the thing itself is going through experience, but this is being experienced by the actors who are implicated in the transformations being done to the thing in question. A multiplicity of actors can affect embryos *in vitro,* from the decisions of their progenitors, intended parents, or the scientists who research upon and dispose of them. These relations can all have different meanings, in different contexts, for example the relation between an embryo and its donor is rather different

[647] Ibid.
[648] Ibid 162.

depending upon whether it is decidedly a 'research' or 'reproductive' embryo.

Herein lies the relational lesson from liminality. Overall, it is arguable that the 1990 Act (as amended) overlooks experience as transformative part of liminal process, although embryos do not 'experience.' In other words, if experience is one revealing component (in that it can inform normative discussions) of the liminal lens (with regards to our regulatory structure), another is the dynamics of process. Yet, if the process is incomplete, and embryos do not reach their telos, then, as we have seen above, we are at risk of 'permanent liminality.'

Further, application of this *relational* framing to a legal context helps forge connections between the law, regulatory subject-objects (embryos are often treated as both simultaneously in law, for example when frozen) and the human subjects from which they were derived.[649] In these situations, law facilitates the modification of the subject-objects' states of affairs, for example 'consent' acts as a mechanism for 'unused' reproductive embryos to be used for research purposes.

6.5 Conclusion: navigating *through* liminality

While law in this area has continued to be reactionary and piecemeal,[650] it has not necessarily dictated embryos' liminal nature, for liminality is not

[649] For example, Isabel Karpin argues law bypasses "constituative role of women's embodiment" in 'The Legal and Relational Identity of the "Not-Yet" Generation' (2012) 4(2) Law, Innovation and Technology, 122, 123.
[650] See Storrow (n621); Webster (n621).

easily amenable to direct influence or control.[651] It has, however, facilitated new forms of limen, each with their own end.

Both 'gothic' qualities, and the liminal condition commonly include those who are in a state of fluidity and flux; they neither conform to one category nor the other. Further, there are multiple categories or ways of 'being' for embryos (as, in part, facilitated in law), which is discussed further in the Part Three. A gothic analysis emphasises embryos' (liminal) placement between 'person' and 'non-person', and provides convincing explanation as to the 'step back' the law has taken from them in the past 27 years. As an aside, this is not to say that the reason for this is not also grounded in policy. Baroness Warnock, for example, recently advocated that we should not alter the 14-day rule, so that embryo research is not opened up for discussion again:

> We should note that every time the law about embryo research has been changed or amended the opposition has rallied its forces, and I think it would do so again if we try to get the 14-day rule extended…The risk is that all the progress we have made since 1990 would be lost. I think we should stick to the 14-day limit.[652]

Whether or not one agrees with this, it is nonetheless grounded in legal (and social) ambivalence towards embryos. This ambivalence would not be there (at least in part) if it were not for the parallels that human embryos have with the 'gothic self'. Yet, how can the law cope with this ambivalence? The Warnock Committee's original answer was, as aforementioned, according

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[651] See Laurie 'Liminality and the Limits of Law' (n15) 60.

[652] Baroness Warnock speaking to the Observer, quoted in, Robin McKie, 'Row over allowing research on 28 –day embryos,' (Guardian Online, 4 December 2016) https://www.theguardian.com/society/2016/dec/04/row-over-allowing-research-on-28-day-embryos accessed 4 February 2018.

'the embryo' a 'special status' and thus attaching limits to its use in research context. Nonetheless, as very recent debate over research time limits has shown,[653] the advance of science has proven problematic for this static form of regulation, placing embryos and law in regulatory purgatory. This is where liminality becomes relevant. Liminality helps to reveal how law might better engage with the liminal, processual treatment of embryos. It emphasises that our regulation of embryos is already somewhat context-based, in that it treats reproductive and research embryos very differently. Moreover, if we want law to embrace that further, there are certain distinctions it can make between certain 'types' of embryos, based on recognising the different processual pathways on which we - and the law – place different categories of embryo.

Yet what has liminality revealed about these pathways? Recall that the 'liminality of things' helps to reveal the fluid and bonded relationship between health research subjects and objects, for example tissue and its donor. It also helps to reveal the nature of entities that might be classed as 'subject-objects', where their states in respect of the latter are fluid and subject to change. "The paradox is that while liminality has failed hitherto to account for things, regulation all too often fails to account for experiences of subject in relation to things..." [654] This, for example, we can see this argument reflected in feminist literatures (discussed above, critiquing the law as having failed to articulate the vital relation between embryo and woman). Further, while embryos do not, of course, subjectively experience liminality (as far as we know), science, and the law turn them into liminal entities in the sense that they are in transition (or stasis) towards diverse ends. These factors necessarily impact on their legal and moral status in

[653] Ibid.
[654] Taylor-Alexander et al (n8)159.

different ways, but the law at present does not recognise this, let alone accommodate it.

It might be the case that law will always be liminal, and this is something we should embrace. Recognising its liminality means we can revisit, and grow, almost in a Hegelian sense. This analytical frame thus suggests that there is a way for law to better capture and navigate process, and enable moving out of law's 'permanent liminality' (previously identified as 'legal stasis') at some point. If we move away from permanent liminality, perhaps the associated negativities of this state can be lost as that state is lost (namely, the lack of a coherent framework). This is not to say that permanent liminality is always a 'bad' thing: on the contrary, here its realisation enables us to move beyond stasis.

To recap, the key combined lessons from Part 2 are as follows:

- A gothic framing articulates research embryos' permanent liminality within law;
- Utilisation of a liminal lens has diagnosed law, too, as permanently liminal. This framing has positive potential, which can enable law to emerge out of its stasis;
- A liminal lens has brought a new facet to a gothic framing of embryos: that being on, or between, boundaries do not and should not denote marginality. Those in between, per this research's analysis of embryos, are central to everyday lives of donors, potential parents, and research practices. However, as Part One has shown, there is a disparity between the reality of these everyday lives and practices, and the law's framing of them;
- Law treats embryos *in vitro* as marginal, because of their gothic

nature, yet as a liminal analysis has shown, this is not the reality in practice. This articulates more deeply, a key facet of Part One's 'legal gap';

- Relationality, and experiences by persons that produce or use regulated embryos are central to their use, as subject-object that travels through legally and scientifically produced pathways, one of the key original contributions of this thesis (to liminality literature); and
- Overall, this conjoined analysis acts to articulate, and navigate, the contours of this gap, where law has seemingly struggled to capture the uncertain, processual nature of embryos *in vitro*.

The next step for this thesis, then, is to identify how Part Two's articulation and navigation might take place in order to lead embryos out of liminality. This work's final question is thus: How can law better reflect the uncertain nature of embryonic processes, and the technologies that create them?

Part Three: Out of Liminality

The lessons from Part Two, as applied here, make evident that there are more ways to define embryos than by an interpretation of biology; everything that happens to them is because of actors along the way. Moreover, these actors relationally define their embryos through their experience of them. Thus, future parents and their IVF clinicians experience embryos differently than the donor couple and the researchers who conduct research on embryos qua research artefacts. A context-based approach, for this thesis, provides a more intellectually robust basis for regulating embryos *in vitro*, especially in light of the ever-changing nature of science, technology, and society.

Part Three addresses these lessons. In order to do so, Chapter 7 explores how an embrace of liminality (as a lens that also allows us to see this as a quality of embryos) reveals the multiplicity of contexts in which embryos are used and created. I argue that if we wish for law to continue to take process seriously (as it has done in the past), and that if liminality teaches us about the permanent liminality of law in this area, then it is this approach that provides a framework to consider the separate contexts that law is leading embryos into, through, and *out* of. Importantly, this thesis does not claim that doing so would change what we have, in terms of the prevailing legal and regulatory framework, in any seismic way, but rather in a nuanced way that allows us to ask questions about how we want to treat embryos, legally.

Building on Chapter 7, Chapter 8 then considers 1) the implications of this approach for the 'legal gap' identified in Part One, and 2) ways in which this lens might help the law to consider contemporary debates on embryos *in vitro*, and the broader implications that those debates may have. Importantly, this chapter is not assessing what we *should* do, but the ways in which this lens helps us to think about what we *could* do. It emphasises that liminality and 'the gothic' can add to legal, ethical, and social discussions on embryos *in vitro*.

7. A Context-Based Approach

7.1 Introduction

Amongst other things, Part Two of this thesis, by way of a twofold analysis, revealed the legally liminal nature of embryos *in vitro*, particularly when it comes to embryos that are to be used for research purposes, and/or disposed of. Yet recall that the liminal process has three stages: "a separation from everyday life, a move into the margin or limen…and finally a return to everyday life, though at a higher level of status, consciousness or social position."[655] The first and second stages of embryos' legal liminality have been examined by Parts One and Two of this thesis, but what of the third? If an essential component to being liminal in nature is 'being led out the other side', then one necessary question that a liminal analysis has made evident is if the law is to embrace the liminal, processual nature of human embryos, then where is it leading embryos *to*?

With a view to answering this question, building on Part Two's gothic framing and liminal, teleological analysis, and Part One's diagnosis of the 1990 Act's 'legal gap', this chapter explores and articulates embryos' 'pathways' through the law. I emphasise, in particular, that there can only ever be two places that law (as it is) can lead embryos: to a woman's womb or to its own destruction and disposal. Ultimately, this chapter has been carried out with a view to answering a question left by Part Two's analysis:

[655] Victor Turner 'Process, system, and symbol: A new anthropological synthesis' (1977) 106(3) Daedalus 34.

how might we use a liminal lens to bring its lessons, and the lessons from Chapter 5's analysis of 'the gothic', from conceptualisation to realisation? It does so in three sections:

- First, it briefly takes stock of the analysis and 'lessons' highlighted by this thesis so far, before going on to synthesise the above, and in doing so consider the ways in which law can lead embryos out of liminality;
- Second, it focuses on the roles of persons in embryonic processes *in vitro*; and
- Finally, it draws out the contours of a context-based approach, including what the approach *is not*.

This chapter concludes by asking what the implications of this approach might be a) for the 'legal gap' identified in Part One, and b) for some of the contemporary debates surrounding the use and production of *embryos in vitro*.

It is important to note that by advocating a context-based approach this work does not intend to imply that different contexts in which embryos can be used are entirely ignored by the law. As discussed in Part One, the 1990 Act (as amended) has arguably recognised these (and thus embryos' processual nature) to some extent with, for example, its separation of 'human' embryos and hybrid embryos.

7.2 Synthesis: leading embryos *into* and *through* liminality

As we have seen from Part One, well before the development of modern science, law has dipped in and out of the special relationship between mother and embryo/foetus. The legal regulation of embryos *in vivo* has been variable, but heavily influenced by common understandings of embryonic process at any given point in time. It is important to begin by reiterating that there is, of course, no such thing as 'the embryo' under law. However, recall that, in the UK, all embryos *in vitro* do fall under one 'special status'. We thus have a multiplicity of embryos implicitly delineated in law, and these arguably vary depending upon the context in which they appear. The following summarises, briefly, these legal contexts, and the extent of the law's involvement in embryonic/foetal processes in each.

To start at the beginning, as it were, the first context in which embryos appears may be described, as (once a woman is pregnant)[656] through 'natural' reproduction.[657] Where the mother intends to take an embryo to full term the law in the UK does not interfere. It does get involved,[658] however:

1. Where a woman wishes to terminate her pregnancy. This (as previously discussed in Chapter 2) is governed by the Abortion Act 1967;

[656] On pre-pregnancy, people may have as many children as they like, with whomsoever they like. There are a few limits on whom: for example, limits such as age of consent to sexual activity, and prohibitions on incest.
[657] Although women can also self-inseminate via 'DIY assisted conception'. See Emily Jackson, 'The law and DIY assisted conception' in Kirsty Horsey (ed*) Revisiting the Regulation of Human Fertilisation and Embryology* (Routledge, 2015).
[658] Directly, although there is a lot of discussion surrounding 'nudging' pregnant women. See for example: Medard Hilhorst, Eric Steegers, and Inez de Beaufort 'Nudge me, help my baby: on other-regarding nudges' (2017) 43(10) Journal of Medical Ethics 702.

2. Where a woman wants to refuse medical treatment that would prevent termination;[659]

3. Where the woman and partner are in conflict over an unborn embryo/foetus, the law has traditionally been very involved. Today, however, the law has (at least relatively speaking) taken a step back. In many cases the interests of the woman trump those of the unborn embryo/foetus,[660] or any other parties involved, including the father. There are some exceptions, such as the *Evans* case[661] where it was ruled that frozen embryos could not be implanted without both parties' permission; and

4. Where the woman wishes to take an unborn embryo/foetus to full term but it is not medically possible (medical futility).[662] This of course existed before the development of modern medicine, but has become more articulated as science, and the ability to intervene in pregnancies, has advanced.

With the growth of modern (technological) science, however, embryos can exist in more contexts. All of the above may be classed as 'reproductive' embryos, however the onto-teleological [663] categorisation of embryos becomes slightly more complicated *in vitro*. The creation and biological

[659] For cases on this, see for example: *Paton v British Pregnancy Advisory Service* [1978] 2 All ER 987, [1979] QBD 276*; Re T (Adult: Refusal of Medical Treatment)* [1992] 411 ER 649; *Re S (Adult: Refusal of Treatment)* [1992] 4 All ER 671; *Burton v Islington Health Authority and De Martell v Merton and Sutton Health Authority* [1992] 3 All ER 833; *MB (an Adult: Medical Treatment), Re* [1997] 38 BMLR 175 CA, [1997] *8* Med LR 217; *St George's* (n485).
[660] See Sheila McLean, 'The moral and legal boundaries of fetal intervention: whose right/whose duty' (1998) 3(4) Seminars in Neonatology 249, 251.
[661] *Evans* [2008] (n247).
[662] See Laurie, Harmon and Porter (n241) 516-542.
[663] Referring to the importance of time in the way we categorise embryos, see Chapter 6.

processes of embryos/foetuses in *vivo* are only touched upon by the law in certain situations, and even then, law can only be called upon after the fact in most situations.[664] In this way, the law relating to reproduction *in vivo* is very much outcome-oriented. Unlike the latter, law is greatly involved in every stage of embryonic processes *in vitro*. It goes beyond getting involved in variable situations, and outcomes for these embryos, created outside of the body, to governing all stages of the process. Yet, as this thesis has argued, while the 1990 Act (as amended) governs all of these stages, it does not encompass them as well as it could.

Traditionally, medical law has dealt with the first three contexts listed above. The result of this is that, in the present day, the interests of the *pregnant* woman often trump those of the unborn embryo/foetus, or the man involved (importantly, not always).[665] The fourth remains a far more complicated area. For the purposes of this research, however, we turn to a fifth context:

5. The fifth context, the one central to this thesis, creation *in vitro*, has multiple sub-contexts that an embryo may go through. These are listed in further detail below. These, as aforementioned, may be either 'reproductive' or 'research' embryos.

An all-encompassing statutory framework governs this context: the 1990 Act (as amended). As summarised in Chapter 3, legal provisions for embryos *in vitro* seem to fall under the Warnock Report's 'special status' in one way or another (the extent and nature of this special status being, in and of itself, quite vague).[666] Yet, in juxtaposition to this *singular* status, within this framework exist a number of legal 'pathways':

[664] E.g. 'wrongful life' and 'wrongful injury' actions.
[665] Particularly when the embryo is not *in utero*, see *Evans* [2008] (n247).
[666] See discussion in Ford (n20).

a) Creation of a 'human' embryo *in vitro*, and subsequent implantation into a woman's womb, intended for reproduction;
b) Creation of a 'human' embryo *in vitro* with a view to implantation in a woman's womb, which is subsequently, but prior to implantation, deemed as surplus or tested upon for genetic disorders (resulting in positive or negative selection). Here the intended use of an embryo is 'reproductive' at the time of testing, but may change to 'research' subject with the permission of its 'parent(s)';
c) Creation of a 'human' embryo *in vitro* for the purposes of research only, researched upon for up to 14 days, then disposed of; and
d) Creation of a hybrid (legally 'non-human') embryo *in vitro*, [667] researched upon for up to 14 days, then disposed of.

It should be made clear that not all of these legal pathways are available (or indeed possible) for every embryo *in vitro*. Some embryos were created in a manner that means they can never legally be used for reproductive purposes, either a) as a hybrid embryo, b) as a cloned embryo, or c) because they were created especially for research purposes with donor gametes. Yet, this work is particularly interested in the regulation of 'human' embryos *in vitro*, for they (unlike admixed embryos, at least at the moment) have multiple possible *teleologies* under the current framework.

As a rule that reflects a 'special status' that applies to all embryos *in vitro*, the 14-day rule places 'research embryos' in permanent liminality, per Chapter 6's analysis. Part of this research's original contribution is the claim that permanent liminality, as it applies to embryos, is not always a negative experience, and in fact can give rise to positive change if realised. This may

[667] 1990 Act (as amended), s4A.

be said to reflect the consequences of schismogenesis, per Chapter 6's liminal analysis[668] that eventually results in permanent liminality. For embryos *in vitro*, per pathways (b) and (c) above, there are several stages within those legal pathways where they sit at a crossroads between potentially becoming being, or becoming 'artefact'. This reflects the 'splitting off' of groups at the re-integration phase of the liminal process.[669] Those which are led down the research route (undoubtedly by relational means, see below/above), as we know, may no longer be implanted into a woman's womb. An embryo on this route or 'pathway' may therefore only ever be treated as research 'artefact'[670] under the 1990 Act's framework. If an embryo is on this route then, from which there is 'no return', as an 'artefact' or (essentially) a legal 'object', then there may be reasons (legally speaking) to treat these embryos as the 'best' object they can be, per a liminal analysis. To use the teleological analysis from Chapter 6, in other words: in asking where law leads embryos to, it becomes evident that at some point, some embryos are split off from others, and essentially become treated as 'objects' under law (although certainly not explicitly, in fact maintaining a 'special status' implies quite the opposite). 'Reproductive' embryos, on the other hand, remain legally liminal (as subject-objects), until they (hopefully) emerge out of legal liminality by being born. Further, there are arguably multiple liminal processes beyond a 'reproductive' embryo in *vitro*'s 'end stage' (i.e. once it is *in vivo*). Two possibilities spring to mind, the first being the implantation process, and second, the process of birth. As this thesis has shown however, through its processual analysis, this end stage, for embryos *in vitro*, is by no means the only stage of importance for law.

[668] See Chapter 6 of this thesis.
[669] Laurie 'Liminality and the Limits of Law' (n15) 58.
[670] Mason *Human Life* (n45).

Further, this is also true for embryos, and liminality might again add insight to this. The overlap of embryonic categories, and its presence betwixt and between thresholds of categories define embryos. The fluid corporeality of embryos has, in a way, defined the law's response to them. However, instead of embracing the former, it has resorted to a version of law that only partially recognises embryos' inherent instability; an instability that the law itself has facilitated:

> By virtue of this process of becoming, it makes little sense to categorize it as a singular entity. Moreover, not only does the ontology of the embryo change as it moves into different time-spaces, the ability to engage with the therapeutic possibilities of the embryo for research is co-produced at the intersection of regulation, biology, and laboratory approaches technologies.[671]

Where embryos are given a 'reproductive path', their treatment as a subject, rather than as an object, could be said to intensify. To be clear, they are not treated as subjects (with personhood) in law, but more as a *subjects-to-be*. For example, the Abortion Act 1967 makes it increasingly difficult, as the foetus develops, for it to be terminated. Liminality, as a lens, makes evident the law's treatment of embryos as subjects-to-be or objects, and, further, the importance of relationality; connections with subjects that already enjoy full personhood, namely the biological (or non-biological) creators of the embryo, "ought not to be too easily or quickly severed."[672] It raises the question: If a particular embryo is a research object, should it be led to be the 'best object it can be', i.e. the 'best possible' research object? The implications of this shall be discussed in Chapter 8.

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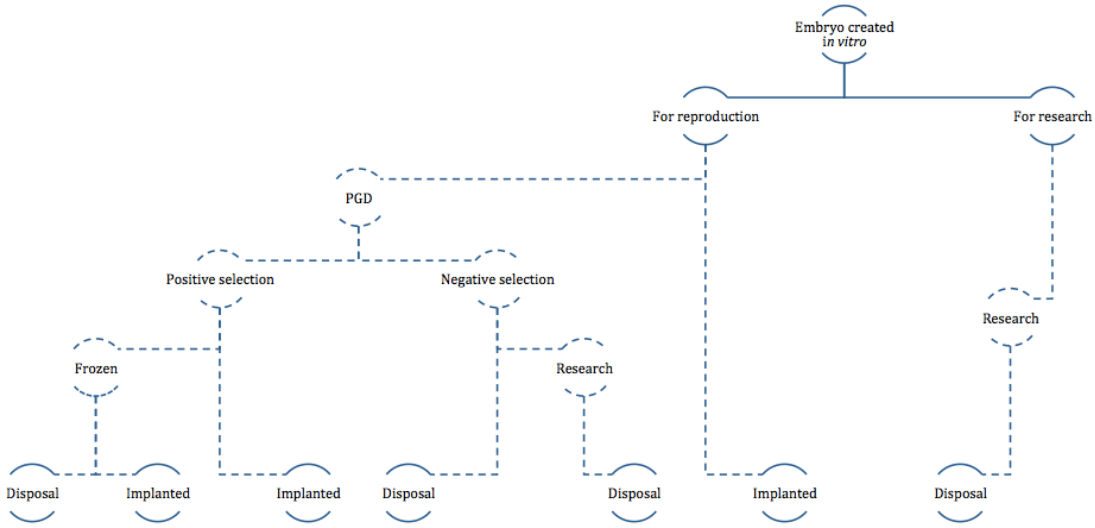
[671] Taylor-Alexander et al (n8) 166.
[672] Ibid.

Overall, teleological liminal analysis allows us to consider embryos' pathways into, through, and *out* of the law. For ease of references, they may be depicted in the following manner:

Figure 1.[673]



From the above, we can see the thresholds in place for embryos in vitro, beyond which they sometimes cannot return (for example, after being created 'for research', or after being implanted). The above flowchart has attempted to show the overlap of embryonic categories, and their onto-teleologies that occur under the 1990 Act. For example, there is an overlap between the 'not-selected' or 'spare' embryo created for reproduction, and embryos created for research. This is not to say, however, that they always overlap, but at key (liminal) moments in legal processes, they certainly do. Yet how, practically speaking, are these changes in path made? They are only determined in law to some extent. If, as Part Two has shown us, relationality is a key aspect of liminal embryonic processes, perhaps it is more pertinent to ask: who creates these changes in embryonic onto-

[673] Figure 1 is also available in larger print in Appendix 1.

teleological pathways? The exploration of the dynamics of these processes, aside from a focus on process itself, also reveals the importance of persons for these processes, i.e. their relationality. After all, it is *people* who place embryos in the womb, gestate, research upon, or dispose of them. This is the subject of the next section.

7.3 *Who* leads embryos into, through, and out of liminality?

If what embryos might *become* is variable, the outcome is largely at the behest of external actors (at least in the context of the 1990 Act).[674] Given that the 1990 Act (as with all statutes) does not regulate embryos, or objects, but the people who produce, use, and come into contact with them, these contexts are made possible through persons. This subsection focuses on the relational aspect of embryonic pathways. It does so because one of the key lessons from Part Two has shown us that a focus on embryos *in vitro* alone, as part of a broader network of actors, would be limiting.

The above flowchart makes this evident for embryos, and accounts for the changing relations between 'persons', 'things', and 'non-things' in the variable pathways that an embryo can take. Depending upon the pathway an embryo takes; a different actor might lead it through its liminal state. A woman, for example, leads it through gestation, or a researcher through the research process. Both are essential to the respective processes; without these actors, the processes could not take place. Relatedly, at the point in time where the progenitors of an embryo make their decision, their intention begins to shape the legal status of any given embryo, thus indicating the

[674] It is notable that in 'natural reproduction', the embryo's different outcomes of embryos may also be affected by biological factors not in control of the mother, or others.

context within which its value (whether reproductive, therapeutic or other) will be determined. These actors are the vehicles that lead embryos through liminality. They are thus key players in embryos' technologically produced biological processes. Moreover, as Squier has pointed out, liminal lives function relationally.[675] In some ways, embryos may function "less as *nouns*- whether subjects of experience or objects of other's actions- than they do as *verbs*, enacting a reciprocal exchange between science and culture."[676] Embryos are a prime example of an entity caught between humanity's sense of "tremendous possibility of the new biomedicine, and our purgatorial anxiety to account responsibility for its implications."[677]

The fluid quality of embryos, and those who lead them into, through, and out of liminality highlight this area of law as transgressing thresholds, boundaries, and time; the 1990 Act (as amended) regulates a space of uncertainty. In other words, there are things that have been (and can be) revealed by the lens of liminality that the law has yet to embrace fully. Yet why should the law do so? Ingram Waters points out that evolving scientific knowledge has come paired with an increased scientific awareness of the multiple 'uses' that embryos now have:

> Human embryos are no longer defined only as those things that become human; now, human embryos have the potential to become other things, such as research subjects, stem cell repositories, and facilitators of therapeutic cloning research. Their value is increased by their enhanced utility. For Squier, biotechnical innovations and their accompanying discursive constructions alter the liminal space in which science and human bodies interact. The liminal space can be

[675] Squier *Liminal lives* (n24) 9.
[676] Ibid 10.
[677] Ibid.

> seen as a field of knowledge production where the contestation of claims happens in numerous ways ...[678]

Embryos are paradigmatic of the scrutiny that the ontological status of novel entities undergo, in which "the near future and recent past"[679] is a central feature.[680] Here there is an inherent relation between our knowledge of embryos, their process of *becoming*, and the rules that society and the law applies to them. Liminality thus helps reveal the network of actors at play in the regulation of embryos, both in health research and in artificial reproduction. Embryos are a site of cross over for epistemology[681] and ontology [682] (*episteme* and *ontos*), [683] where knowledge and existence intertwine. This framing further highlights that the outcome of these actors, interactions, exchanges, all facilitated in law, is that embryos *in vitro* now have the potential to be led through a number of paths, each variable in itself. On most paths, an embryo will reach some sort of end or *telos*, but they may also be frozen for periods. There is thus a distinction between: a) an embryo that is likely to emerge out of liminality, and b) an embryo that is 'permanently liminal'. While ultimately embryos may only ever be used for reproductive purposes or researched upon (and then disposed of), the liminal lens highlights a key aspect of embryonic ontology that the law does not articulate: their relationality.

There are strong links between Quigley and Ayihongbe's abovementioned analysis of law and the 'everyday cyborg', and law and embryos *in vitro*. As

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[678] Mary Ingram-Waters *Unnatural Babies: Cultural Conceptions of Deviant Procreations* (ProQuest, 2008) 75.
[679] Paul Rabinow, *Anthropos Today: Reflections on Modern Equipment* (Princeton University Press, 2003) 55.
[680] Ibid; Taylor-Alexander et al (n8) 156.
[681] Simply put, theories of knowledge.
[682] Simply put, theories of the nature of being.
[683] Taylor-Alexander et al (n8) 156.

they point out, while not all STS scholars agree,[684] for some materiality is "relational, about the interrelationship between the material and the social."[685] Using this understanding of materiality, Quigley and Ayihongbe draw attention to relationality and process in their analysis of the interaction between 'everyday cyborgs' and law.[686] They go on to comment:[687]

> …when we say that challenges arise because of the linking of the biological with synthetic materialities, we do so to highlight not only that materials (i.e. biological or synthetic) matter for law and law's approach, but this mattering occurs as part of particular contexts, processes, and relations. For everyday cyborg technologies, and indeed everyday cyborgs themselves, the interrelationship is not only between the materials and the social, but also the legal, the conceptual, and the normative.[688]

As previously discussed, the law's boundary work is clear when it comes to most of the things it regulates, yet when it regulates embryos *in vitro*, not only are these boundaries unclear, but they come under immense pressure. To draw from the analysis above, this is arguably because of embryos' changing materiality as they travel through legal processes, but these processes are all made (and broken) by their relations to persons, just as it is with implanted devices, per the analysis quoted above.

Yet embryos pose further questions for law, not only whether or not they are 'matter', but also, to use the word in another sense, *how much* they

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[684] For discussion on this see Quigley and Ayohingbe (n395). Also see Estrid Sørensen 'The time of materiality' (2007) 8(1) Forum: Qualitative Social Research, Art 2; Latour (n326).
[685] See Quigley and Ayohingbe (n395) 31; Sørensen (n684) 3.
[686] Ibid.
[687] Noting that they do not adhere to any strict definition of materiality, as one does not exist within STS, see Quigley and Ayihongbe (n395) 31-2, fn186; Sørensen (n684) 3.
[688] See Quigley and Ayohingbe (n395) 31-2.

matter.[689] This, as discussed in Chapter 3, was answered through the 1990 Act's (as amended) instantiation of a 'special status' for embryos. Of course, the answer to this question is not distinct from the above. It seems that for law, how much something matters has everything to do with the type of matter it is:

> For the law, the question of what matters and how when it comes to technologies is one which traditionally delineates persons from things along multiple dimensions (subject-object, internal-external, biological-synthetic).[690]

To explore this further, one can see which of each of these binaries has been deemed to matter more to the law. For example, harsh sanctions have been imposed against bodily harm (all subject, internal, biological), yet less (generally speaking) per damage to personal property (object, and often synthetic and external).

Yet what of embryos *in vitro?* It is clear it does not fit clearly within any of the three binaries Quigley and Ayihongbe mention in the above quote. This material binary, as this thesis has argued, is not necessarily problematic in and of itself,[691] but is nonetheless a key component of the intellectual gap between the intellectual set up, and the 'real effect' of the 1900 Act, as discussed in Chapter 3. Further, as discussed in Chapters 5 and 6, embryos' legal straddling of the subject-object binary (and indeed other legal binaries) may be explained through their rapidly changing, processual nature and their gothic associations therein. Embryos' gothic, uncanny nature have challenged law's normative boundary-works, and placed them (as a liminal

[689] And to whom.
[690] See Quigley and Ayohingbe (n408) 32; Sørensen (n684).
[691] Again, the question of how we should treat embryos morally is not within this thesis' ambit.

entity), in a legally liminal space. Thus, to add to Quigley and Ayohingbe's analysis, the law's non-articulation of the multiple processes is unsatisfactory: it ignores either subject- or object- focused concerns, depending on the legal pathway an embryo is on. This is not to say that embryos should be viewed as one, or the other, within this binary, quite the opposite. This may be a way of navigating embryos' in-between quality, recognising the processual as a key element of embryonic and legal processes here. Therefore, viewing embryos relationally helps reveal the way these pathways evolve and take place; after all law does not actually regulate embryos, but the people who produce and come into contact with them. These actors are thus, in some sense, the ones who lead embryos through liminality. Nonetheless, they do not get to determine completely what happens, as the state has an overarching protective role here, through the 1990 Act (as amended).

7.4 A Context-based Approach

7.4.1 Introduction

The above analysis, and diagram, gives rise to at least two questions: (1) If these contexts are already available under the current framework, how does drawing them out add to contemporary literature and debate? and (2) What would the contours of a context-based approach be? Parts One and Two of this thesis have already answered the first in the following ways:

- The intellectual basis of our framework is arguably not robust as there is a 'gap' between the intellectual set-up of the 1990 Act (as amended), under a singular 'special status', and the realities of the pathways embryos are led through under this framework;

- This gap may be understood more deeply by better understanding the processes that are regulated, the dynamics of which (explored by gothic framing/liminal analysis) are not adequately recognised in law; therefore
- An approach based on the findings of Chapters 2-6 could inform regulatory reform, if it were thought to be desirable, in a manner that reflects the above (again if thought to be desirable).

The explorations in this section are made with a view to answering the second question, above.

I argue that a context-based approach to regulation is required in order to move the lessons from Part Two from concept to 'reality',[692] and to better fill the legal gap identified in Part One. This approach thus draws on the lessons from this work so far. While it does not claim to answer all perceived flaws with the 1990 Act (as amended) regulation of embryos *in vitro*, it is argued that it is more appropriate[693] than the basis for our current framework because it addresses the above identified 'legal gap', and embraces processuality therein.

In order to mark out the dimensions of this approach, this section first provides some background to this approach, briefly reiterating why I advocate that this approach. The next subsection then draws out the exact contours of a context-based approach, which emphasises embryonic processes through 'pathways' (5(a)-(d), and in the flowchart, both above). Finally, I respond to two possible criticisms of this approach: that it is an

[692] By 'reality', I do not mean to comment on what this might actually look like in statute, rather, providing framework for moving these concepts closer to being useable in contemporary legal discussions.
[693] As above, appropriate meaning apt for the embryonic pathways.

approach based on intent; and that redefining 'the embryo' would serve the same purpose: notably, that this analysis does not go as far as to map out the practical application of this approach within statute (or guidelines). In sum, my contention is that this is not necessary for the purposes of the current exercise, the original contribution having been made in exposing the limits of law and thinking to date.

7.4.2 Background

The legal boundedness of 'the embryo' is contestable. It is important, at this stage, to recall that there has already been a call to analyse embryos on a contextual basis. Yet, also recall that these analyses are missing grounding, beyond the conceptual.

Jacob and Prainsack describe the outcomes of the workshop entitled 'Embryonic Hopes' (discussed in Chapter 6):

> In the interactions at our workshop…we found an unanticipated level of agreement across disciplines on the unbounded character of the concept of the embryo, on the need to analyse embryos in the context of networks of social and biological relations that they are embedded in, and even on which methods yielded the most meaningful insights into understanding the ways that embryos are enacted in social realities. At the same time, and despite this explicit reference to embryos-in-practice (to paraphrase Timmermans and Berg's (2003) concept of technology-in-practice), the agreement remained at a conceptual level...In other words, when discussing definitions, definability, and even the possibility of the un-definability of concepts such as the embryo, agreement was easily achieved across disciplines. However, as soon as the discussions moved to

> how concepts could be mobilized towards something else – action, further analysis, etc. – mutual understanding proved more challenging.[694]

This thesis does not (and, I would suggest, cannot) aim to provide a framework on which there might be mutual consensus. Instead, the aim is to provide a framework for discussion, underpinned by a robust intellectual framework that could potentially mobilise previous calls for a more context-based approach.[695]

As we also saw in Chapter 2, and built upon further in Chapter 5, embryos *in vitro* may be subject to two outcomes only: reproduction and research. Indeed, Sarah Devaney refers to the 'dual reproductive identity' of 'the embryo':

> Thus, at the point embryo progenitors make their decision; their intention helps to shape the embryo's legal status, indicating the context within which its value (whether reproductive, therapeutic or other) should be determined. This has been termed the 'dual reproductive identity' of embryos consisting of past attempts to conceive a child and the future 'capacity of science to transform the vital power of individual cells into colonies of regenerative cells.[696]

There are thus currently two broad onto-teleological[697] options for an embryo: will it become a 'research artefact',[698] or a (potential) 'person'? This

[694] Jacob and Prainsack (n35) c497-8.
[695] A common thread between which being law's inability, as it stands, to fully cope with embryonic uncertainty, discussed in Chapter 4.
[696] Devaney (n145) 15-16.
[697] I use this term to emphasise that how we categorise this entity is very much dependent on our intentions for its future (of course, not *always*, natural termination can occur at any stage).

thesis argues, that emphasising this questions, and its answer(s) undoubtedly acts to further situate embryos within the technological, relational aspect of their existence.

To explain further, the 'reintegration', or third stage of liminality, that we want (or at least expect, as the outcome we intend does not always come into fruition) for embryos impacts upon the ways in which we consider/use and/or store them at present. Each possible course is led by people, and to some extent, their intent towards a pre-defined endpoint.[699] These intentions can of course change - for example, if an embryo is rejected for implantation but consented for research use - but then so does our present treatment of them in accordance with the new target that we have for its future use. The key point here, however, is that while it is indeed important to situate embryos *in vitro* as technologically and relationally produced beings, we must move beyond thinking about them in terms of how they are *produced* or what they *are* as separate considerations (which the 1990 Act is rather focused on, particularly the latter). Instead, the intellectual set up of the 1990 Act (as amended) must be brought beyond the ambit of production, through to how they are used, and what the legal results of that use will be. In this way, embryos' technological and relational qualities would be more fully encompassed. In doing so, it does not necessarily take away from the original objective of attributing some sort of 'respect' for 'the embryo' as per the Warnock report. Instead, and in accordance with a later comment by Warnock herself (that you cannot 'respect' something that you end up throwing away), it better reflects and articulates not only current understandings of biological processes, but the ways in which the law has, and can continue to engage with them. I thus advocate a 'context-based approach' to human embryos *in vitro*.

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[698] Mason, *Human Life* (n45).
[699] This is of course limited by several factors, including other persons and law.

7.4.3 The dimensions of a context-based approach

This subsection draws out the exact contours of a context-based approach, which are based on the lessons from Part Two, and 5.2-3 above. This is done in order to show that there is a way law can navigate embryonic processes in a way that closes the gap between the intellectual set-up of Act and the 'reality' of the 1990 Act (as amended). With all of the above taken into account, the dimensions of this context-based approach may be summarised as recognising the following:

- Our response to embryos *in vitro* has thus far been *uncertainty,* and not necessarily wrongly so. This uncertainty may be explained by the gothic origins, associations, and technological placement of embryos *in vitro*;
- With this in mind, it is thus important to recognise the context from which embryos *in vitro* come into being, and the effects that they have on how we treat them; namely
- The multiplicity of pathways law leads embryos through (see flowchart in 5.2 above);
- At the end of these paths, there are only two possibilities: birth or destruction;
- Importantly, there are several thresholds that embryos can cross in order to reach those pathways; therefore
- If deemed a research 'artefact', there is only one *telos*, destruction; and
- If on a 'reproductive' pathway, much has to happen for the original telos of that pathway (birth) to occur; and finally
- These pathways are greatly affected by actors/persons, and are thus relational.

Notably, this approach is not about giving embryos unitary symbolic status in law; indeed, depending on their path, their telos is going to be different, morally socially, and legally. In turn, the actors influencing their process towards their telos will also change. One might ask, then, if the contexts are there within law, why draw them out in this fashion? But the point being made is not to make the telos (more) explicit, *per se*, but rather to provide a way of thinking about embryos *in vitro* that focuses on process.[700]

Overall, this has been proposed because analysis from Parts One and Two has shown that it is important to regulate embryos *in vitro* in a way that recognises their processes of *becoming,* (as opposed to regulating them based on what they could be).[701] In this way, a regulatory framework could be constructed in a manner that recognises their relational properties, a key facet of making the 'becoming' happen. One might confuse this mode of thinking to mean: what matters are the intentions of the person(s) who created, or use an embryo. This is not the case. Intent is an important part of this approach, because actors' intent affects embryonic telos, but is not the only part. To explain, the intent of people who put embryos on various pathways, whoever they are, shapes their travelling from the first stage of liminality, to the last. This approach arguably allows us to account for the flexibility, and changeability of intent (not consent, which is important, but outwith the ambit of this work). Intention alone is not sufficient as an intellectual basis for regulating embryos. This is the subject of the next subsection.

[700] See Chapter 1, section 4.3's discussion of the normative element(s) of process, for this thesis.
[701] i.e. potentiality.

7.4.4 More than intent

It is important to clarify that the proposed approach (the contours of which are drawn out below), in its utilisation of telos, intends to better capture the entirety of embryonic processes, rather than focus on the proposed end point, which would be purely based on intent.

Context here should not necessarily mean the given (static) state that an embryo is 'in' (i.e. 'what it is' and/or '*where* it is'), but rather a combination of these, and intention:

> …embryos are not fixed, universal biological entities but are defined by, and acted upon in relation to, their social context, that is, by their location in time and space.[702]

As aforementioned, their intended destiny alone is insufficient to demarcate the status of embryos under law. This, again, is why context is so important, within which intention may be included as a consideration. This type of reasoning accepts that a process is yet to happen; whereas looking at intention alone almost skips the importance of biological process (and the mother) entirely and looks at the 'end goal' (a baby).[703] An implanted embryo could thus be said to be different from a non-implanted embryo (although not necessarily in terms of legal definition, see below).

[702] Erica Haimes et al, ' "So, What Is an Embryo?'" A Comparative Study of the Views of Those Asked to Donate Embryos for hESC Research in the UK and Switzerland' (2008) 27(2) New Genetics and Society 113, 124.
[703] Arguably in a similar way to potentiality, although these two concepts are still different.

The extent to which intent is problematic as a basis for treating something a certain way aside, legally speaking, it is important to clarify why intent is not practical; this, in turn, means that it is not the only consideration in this context-based approach.

a) Intent does not account for the entirety of embryonic processes biologically and legally available (as revealed by a liminal analysis); This is because:
b) It does not account for factors that influence reaching that intent; further,
c) Basing an approach on intent raises the question of 'whose intent?'; and
d) Depending on the answer to (c), intent may also change throughout the process.

Intent alone is thus not a starting point, for this thesis, because it is changeable.

Overall, this highlights that intention alone does not provide a robust basis for a framework. For example, one can intend for an embryo (or group of embryos) to be successfully researched upon and yield useful results, but there are multiple things that have to take place between the creation of that embryo to become a useful, successful 'research artefact,' including (to name a few): people, time, the correct scientific conditions, and an element of luck. Ultimately, intention alone would ignore the various processes that need to take place, which are important.

A context-based approach incorporates intent, by accounting for embryonic processes (of which intent nonetheless is a vital part) but also looks more holistically at the legal pathways available under the 1990 Act (as amended),

which are changeable up to a point. The direction of these pathways will, as discussed above, depend on what it is, but there are still multiple possibilities beyond that.

7.4.5 More than definition

Another possible contention is that simply by redefining embryos we might solve the problem at the heart of this thesis. This has been partially disproved in Chapter 4,[704] but it deserves further consideration here. While embryos in the UK are generally defined by what they are,[705] this only affects potential embryonic processes in part. To explain, being 'human', 'alive', and 'not admixed', is a necessary ontological threshold for the law that embryos must pass in order to go through certain processes (e.g. implantation). In other words, in any particular situation what an embryo *is*, if it is human, does not tell us much more than whether or not it can legally be placed inside a woman's womb. If an embryo is not purely 'human', then, of course, there is only one legislative option for it: research and eventual disposal.

An analysis of law based on embryonic definition leaves elements of embryonic biological-legal processes unarticulated. The central concern of this thesis is not with defining, or redefining, embryos under the 1990 Act (as amended). Defining embryos, or categorising them, arguably does not account for the multiplicity of biological possibilities and pathways that are available under the 1990 Act (as amended). It is thus an important *threshold* for certain pathways (as the flowchart above demonstrates), but once that is met much more (in terms of actors, scientific processes, biological

[704] Section 4.3.
[705] See Françoise Baylis and Timothy Krahn, 'The Trouble With Embryos' (2009) 22(2) Science and Technology Studies 31.

processes, etc.) has to occur in order to be able to see the process an embryo has/will go through as a whole. One could change embryonic definitions under the 1990 Act (as amended), or perhaps in a future Act, to account for the purpose for which embryos are created; but this would neglect the utility of 'spare' embryos originally created for fertility treatment services, the most common source of 'research' embryos. Indeed the latter could possibly be accommodated by a new doctrine, but if that is to be the case, a robust analytical framework should be behind any such definition. Further, definition and 'legal status' (admittedly both very loaded terms) are of course rather different. Regarding the latter, the predominant legislative attitude toward embryos in the UK may be described as recognising 'the embryo's' potential, yet not treating this fact as sufficient to merit legal protection from research on, and destruction of, embryos (at least before the primitive streak). Further, definitions afforded under the 1990 Act (as amended) do not affect the 'special status' of regulated embryos. Limits that famously reflect this 'status' are the same for all 'kinds' of embryos, for example the 14-day rule. Legally defining, or redefining embryos, is thus not this thesis' aim.

7.5 Conclusions

It is possible that failing to place liminality and uncertainty as central to the legal framework behind research and reproductive practice, the law is perpetuating a myth per the single 'status' of the human embryo *in vitro.* Thus, the variable, relational liminal states of embryos are important for the future of artificial reproduction and embryo research. Overall, this chapter's analysis and approach is arguably problematic for *the* status of 'the embryo' under UK law. The above has thus attempted to demonstrate that it is flawed to conceive of 'the embryo' as a unitary entity. The disruptive

potential of liminality has helped highlight the somewhat static scientific and ethical assumptions that the law has crystallised within the 1990 Act (as amended):

> Liminality forces us to recognize the differences in status that the embryo may experience depending on the paths upon which it is put. With changeable contexts come fluid boundaries. In particular, liminal boundaries are fluid because contexts can change.[706]

We have seen, for example, that an embryo used in pre-implantation genetic diagnosis may end up following one of several paths ending in reproduction or research and/or termination. The variable contexts that we apply to stages of embryonic process, whether in the lab or in the womb, are thus open to change. The term 'embryo' itself is a temporally based definition;[707] it denotes a particular demarcated point in early human development.

Yet, how might the above affect our current framework? This, and other questions that a contextual approach raises, is the subject of the next, and final chapter of this thesis.

[706] Taylor-Alexander et al (n8) 168.
[707] Ibid.

8. Looking Forward: Potential Implications of a Context-based Approach

8.1 Introduction

This final Chapter discusses the potential implications for law of embracing a context-based approach, as drawn out in the previous Chapter. It considers ways in which this approach, based on a liminal lens, can help us to consider[708] contemporary discussion surrounding embryos *in vitro*.

The discussions in previous chapters have concluded that there are ways in which the law might better regulate for uncertainty in the context of embryos *in vitro*. Yet, how does a context-based approach do so? I posit that regulating for uncertainty does not entail a commitment to eradicating uncertainty, but rather to navigating it in a manner that addresses the multi-faceted, uncertain, and potentially ever-changing nature of these regulated entities: there is no such thing as the bounded and fixed 'embryo' in law. Once law identifies and embraces the fact that what it is regulating is uncertain, it can be (re)formulated in a reflexive manner that also reflects the processes within.

[708] To be explicit, this Chapter (nor this thesis) is not discussing what we *ought* to do.

At this point, it seems pertinent to return to one of the first points made in this thesis. In the Introduction, it was stated that the regulation of embryos *in vitro* affects at least three strands:

1. Embryos *in vitro* themselves;
2. Science (persons and practices e.g. research practices and researchers); and
3. The family (in the broadest sense e.g. donors, potential parents, hypothetical mothers, and hypothetical children).

This thesis primarily focused on the first, but thus far, we have seen that the effects that it can have on (2) and (3) are not irrelevant, for example, gothic literature's discussion of embryos' female origins and associations. This thesis' enquiry shall remain with (1) for this last chapter, but notably its case study - the 14-day rule - also relates to (2). The second and third strands, science and family, are thus identified as future areas of enquiry (based on this research) in the conclusion to this thesis.

The first section, below, discusses the potential effects of a context-based approach for the issues (i.e. the contours of the 'legal gap') discussed in Part One of this thesis (listed in 8.2.1 below). It suggests that a context-based approach has the potential to justify affording embryos *in vitro* different 'statuses' depending on the relationally guided and defined pathway on which it is, or onto which it is put.

The second section of this chapter goes on to discuss the effect of this change on research and science as a case study: the 14-day rule. This study has been selected, as it is perhaps the prime example of law's reflection of 'special status', and because it reflects legal attempts to deal with embryonic processes, per Chapters 1-2s' analyses. The discussion

does not make any normative claims about what should be done with the rule itself. Rather, this example is used to examine what the context-based approach in this thesis could bring to debate and the nature of such a rule (and its retention or otherwise), and how it helps us to deepen and enrich our understanding of what this legislative attempt to engage with process might mean.

Accordingly, this Chapter concludes that while a context-based approach does not necessarily provide a mode of *ethical* deliberation regarding embryos *in vitro*, it does provide the law with the tools to better embrace the processual, uncertain nature of embryos. It does so within a framework that can inform contemporary debates on what processual law *could* look like.

8.2 Closing the gap

8.2.1 Introduction

This section argues that Chapter 7's context-based approach may be used to close the 'legal gap' between the intellectual basis of the 1990 Act (as amended), and the realities of the pathways it has facilitated.

As a reminder, the key facets of the 'gap' within the 1990 Act (as amended), as initially identified by Part One, and the nature of which explored more deeply in Part Two, are as follows:

- Uncertainty surrounding embryos (*in vitro* and *in vivo*), for example with regards to a) how we feel about them and b) how we should treat them;

- The 1990 Act's 'legal stasis'; in other words, the ossification of its legal development.

A gothic framing, and liminal analysis in Part Two, revealed the nature of this gap even further:

- These uncertainties derive from the contexts from which embryos are borne, are associated, and exist in (technology);
- The relational nature of embryos affect (a) the way in which we view them, and (b) the pathways they are led along through law;
- The above uncertainty, i.e. the gothic nature of embryos *in vitro*, has contributed to this 'legal stasis', discouraging revisitation;

Building on the lessons from Part Two (see section 6.4 of this thesis), Chapter 7 advocated a context-based approach, which recognises:

- The multiplicity of pathways law leads embryos along (see flowchart in 7.2 above);
- At the end of these paths, there are only two possibilities: birth or termination. Importantly, there are lots of ways that embryos can reach those possibilities; therefore
- *If* deemed a research 'artefact', there is only one *telos*, termination.
- *If* on a 'reproductive' pathway, much has to happen for the original telos of that pathway (birth) to occur; and finally
- These pathways are affected by actors, and are thus relational.

In these ways, these parts/chapters have each respectively answered the four questions set in the Introduction of this work, namely:

1. Part One: In what ways does UK law engage with embryonic processes, if at all?
2. Part Two: How can we understand legal process, and legal regulation more deeply?
3. Part Three: How can law better reflect the uncertain nature of embryonic processes, and the technologies that create them?
4. Overall, does law reflect and embody processual regulation, if so, what does this look like?; and if not, what form could it take if reform were thought to be desirable?

Yet in answering these questions, this work has left us with one final question: does all of this 'bridge the gap' between the intellectual basis of the law, and the realities of the processes it regulates?

8.2.2 Does it close the gap?

A context-based approach raises questions, regarding the extent to which it accounts for facets of the 'legal gap' articulated above. These facets are found within apparent special status of the unitary entity of 'the embryo' that is currently constructed in law. The below attempts to address some of these questions, which relate to the facets cited above, in brief.

1. Does the approach of this thesis create more legal and/or moral certainty? If not, how does it embrace uncertainty?
As a reminder, 'uncertainty', for this thesis pertains to two things: moral ambiguity and plurality towards embryos, and, relatedly, how to treat them (in law).

Importantly, a context-based approach does not purport to dissolve uncertainty, nor provide certainty. As we have seen in in this thesis'

discussions, especially in Chapter 5, we may always have a degree of ambivalence when regarding embryos, in a morally pluralistic society. Relatedly, certainty does not necessarily 'fit' well with this thesis' argument that we should be alive to the permanent liminality of law in this field. To borrow from Fox and Murphy, we might consider whether we should "ditch durability."[709] Thus, if we accept that as a society that we might always feel some degree of uncertainty regarding how we feel about, or how we should treat embryos,[710] arguably what we need is a transparent, coherent and robust framework that is open to revisitation and which, to a large extent, embraces this ambiguity. In other words, to answer the above question, the aim of Chapter 7's approach was to provide a framework for *navigating* (not dissolving) that uncertainty which, as Chapter 5 has argued, we should accept if we want to provide a sound intellectual basis for our legal framework.

But, relatedly, what does it mean to embrace uncertainty, and how can law do so in a new way? Without repeating the above (8.2.1), this approach accounts for parallels revealed through gothic framing, lessons from which show an innate sense of transformation and becoming.[711] Further, it highlights the relational aspects of embryonic development, which are arguably a key aspect of navigating these uncertainties. This has been shown, for example, in the debates surrounding abortion, where embryonic/foetal existence is entirely relational to the gestational mother.

What has this thesis concretely added to our knowledge and understanding, here? Overall, this approach thus recognises that there is uncertainty here and accepts that embryo regulation has an inherent, prevalent element of

[709] Fox and Murphy, 'Response to Sarah Franklin' (n319) 510.
[710] Also see Ford (n20).
[711] van Gennep (n17).

uncertainty. This work thus enquired how we might navigate that. Moreover, it has considered what it means to take a processual approach to regulation, which has revealed the importance of changing contexts over time (e.g. from being created as a 'reproductive' embryo, but moved to a research 'path'). That analysis requires us to ask: 1) which processes and telos(es) are at play in these contexts, and relatedly 2) how are these affected by what embryos are *becoming*?

This has led this work to consider the mismatch between the language of the singular, all-encompassing 'special status' of 'the embryo' (which in some sense suggests something fixed and immutable), which sits in opposition to the sense of becoming and processes within the inexplicit pathways this the 1990 Act (as amended) regulates. Moreover, as this work has made clear, it is not that our values are necessarily any different, but that our frame of reference has. If we accept the latter, then this work's analysis inherently disrupts the 'special status' of 'the embryo.'

2. Would this approach affect the singularity of the 'special status' underlying our current framework?

This approach has the potential to disrupt the singular 'special status' of 'the embryo', in favour of an approach that more accurately reflects the multiplicity of processes (and thus inexplicit 'statuses') embryos are led *into, through and out of.* This work does not purport to envision every possibility, but to give some examples, but, if we accept that it dissolves the singularity of embryonic 'specialness' under law, then a context-based approach has the *potential* to capture the following:

- A recognition of the multiplicity, and overlap of embryonic pathways through law;

- This may justify affording embryos *in vitro* more than one 'status' depending on the pathway(s) they are on; rather than the singular, all-encompassing 'special status' that (as we have seen) has come under much critique;[712]
- 'Reproductive embryos', once implanted, may only ever be used for reproductive purposes (and this would hold true whether or not gestation was or was not ultimately successful); and
- Embryos that have no distinct pathway as of yet (i.e. they are frozen, or undergoing the process of PGD) are neither, but may be treated as reproductive embryos (if that is the goal of their creation) until that path is evidently not an option anymore; and further that
- 'Research embryos' may be either created specifically for research, or become so through becoming 'spare' when the reproductive pathway is no longer an option (and per appropriate parental consent).

Equally, it does not necessarily follow that 'research embryos' are no longer subject to our moral value framework nor that regulatory *carte blanche* would apply to them. There remain very good reasons for considering what is at stake and permissible with research on the 'research embryo', but this context-based approach more overtly brings into the discussions the end points that are envisioned, as well as the fact of 'use' of the entity in question towards those ends. These value preferences become a separate consideration, and highlighted in the answer to the next question.

3. If a 'special status' has meant that embryos do not fit into law's normative subject-object, person-property binaries, etcetera, does this thesis' approach affect these binaries?

[712] See Chapter 5.

A context-based approach does not dissolve this binary, and this thesis is not necessarily arguing for or against such dissolution. Nonetheless, it does have the potential to disrupt the binary approach. For example, it may be decided that research embryos, as 'artefacts,' become clear objects, even though they are "not nothing"[713] in moral and legal terms. Indeed, many legal objects and 'artefacts' have engendered considerable amounts of legal protection that reflects the ways in which we 'value' them, for example celebrated works of art. This is not to compare embryos to an object in the traditional sense of the word (as a mere thing, *res* or indeed property); rather it is to suggest that recognition of object-hood does not render embryo as 'nothing', especially if it is deemed inappropriate to do so.

Alternatively, this work's analysis might raise discussions around the status of reproductive embryos as subject-objects. As discussed above, and touched upon below, this has the potential to provide a framework to embrace the relationality of embryos *in vitro*, per their telos of being placed *in vitro*. In other words, this thesis' framework might help us to move away from the (much critiqued) notion of the 'free floating embryo' in law, towards embryos being reliant upon, and having an innately special and interconnected relationship with their intended and/or gestational mother(s).

Yet, for this thesis, the importance of this framework does not lie in attempting to reach any of these ends *per se*, but informing our decisions about them in a manner that is coherent and transparent. Indeed, the relational focus of this thesis might also serve to highlight the importance of this with research embryos also. For example, donor couples might have more of a say in what kinds of research are done with their embryos and/or might have a stronger claim to know about the social value or other benefits

[713] *St George's* (n279).

that came of donating their embryos for research. This is a possible consequence of a frame of analysis that focuses on the value of the telos and the interests that parties have in the achievement of that telos. We return to the feature of this point below.

Whether we want to continue having what we have, or change it, can be informed by this approach, but the approach herein does not give any normative answers in that respect. To reiterate, the normative part of this thesis is that spaces in-between, and processes therein, need to be navigated by robust, coherent, defensible, and justifiable law.

4. Would accounting for relationality actually have any practical effects?

A context-based approach may have implications for actors on multiple levels, including donors, embryos, and parents, to name a few. For example, the liminal quality of embryos has the potential to greatly influence scientific researchers. A study by Svendsen and Koch challenges the idea that 'spare' embryos are a biological fact. They suggested, instead, that embryos are constituted by the decision making of researchers; this 'ongoing fact-making' reveals a network of relationships and conflicts in which researchers are involved. [714] Further, this is not a thesis rooted in feminist theory (in the strict sense), but a context-based approach supports the growing argument in feminist literature that women are marginalised within our present frameworks. This is because this approach helps us to emphasise that actors, however involved in embryonic processes, have *different* relations with this entity. It might enable us to say, for example, that the prospective mother (and father) should have much more say in what happens than if an embryo was to be used for research purposes, as indicated above.

[714] Mette Svendsen and Lene Koch, 'Unpacking the "Spare Embryo": Facilitating Stem Cell Research in a Moral Landscape' (2008) 38(1) Social Studies of Science 93.

Further, this approach might also have implications in information disclosure practices regarding the (consented) use of 'spare' embryos for research. As Jonlin comments, there are some donors who:

> …firmly reject the option of donating their excess embryos to other infertile couples because they do not want 'someone else raising our child' and do not want their current children to have one or more siblings 'out there'. Therefore, destruction is the only remaining option, and destroying them for research purposes is preferable to throwing them away.[715]

Therefore, she adds, many of those who decide to donate:

> …hope that their embryos will do some good, and are relieved and even thankful there is a use for them. Some donors feel it is incumbent upon them to give back to research because research enabled them to have a family. Many donors ask scientific questions about stem cell research, including how tissues are made from pluripotent stem cells. Some want to know about the political climate for funding stem cell research. Occasionally, donors need assurance that their identities will not be made public. Although some donors seem to convey a sense of resignation, and comment on the finality of the decision to donate, others express their enthusiastic support for stem cell research and for science in general.[716]

Given that this approach encourages transparency and coherency, including

[715] Erica Jonlin, 'The voices of the embryo donors' (2015) 21(2) Trends in molecular medicine 55, 56.
[716] Ibid.

regard for relationality and feedback loops,[717] it might give reason to provide a framework that allows us to tell donors more accurately and clearly what will happen to their donated embryos. Some have described the voices of donors as having been 'marginalised' in the research process.[718] Indeed, donors themselves could arguably be described as experiencing their own liminality. Yet, as abovementioned, liminality is not, and should not be used as a shorthand for marginality in the context of health research regulation. Here, the actions and decisions of donors are central to research practices, given that their donated embryos are the primary source of 'research' embryos in the UK. With a liminal framing in mind, a context-based approach could thus give donors more options for additional engagement in the research process, if they so wished, and might entitle them to find out more about the benefits and/or results from research carried out on their 'spare' embryos.

Ultimately, this might allow us to consider, more deeply, who has a say in embryonic processes, depending on what these processes are. Indeed, if an option for further donor involvement in research were deemed desirable, it might enable us to address, more fully, the critique that donors can feel as if they are on the side-lines, when it comes to research.[719] In other words, perhaps it might enable some donors to 'emerge' out of their own experience of permanent liminality, with regards to their donated embryos.

5. Does this context-based approach address the permanent liminality of law, identified in Chapter 6?

As discussed in the conclusion to Chapter 5 (section 5.5), this analysis enables us to think about how we might move past our present legal

[717] Outputs of a regulatory system routed back as inputs to the various actors implicated in an enterprise; see Taylor-Alexander et al (n8) 164.
[718] Parry (n575).
[719] Ibid.

framework, if we decide that revisitation and/or renewal is something we want to do. It therefore enables us to move out of our unreflexive iteration of a singular 'special' (yet practically not special) status. Further, an acknowledgement of the permanent liminality of law, and indeed of some embryos in law, allows us to ask questions surrounding where they are/could be led after emerging out of that liminality: what is/are the telos(es) of embryos *in vitro*?

6. What is the effect of the teleological aspect of the context-based approach?

From this, three interrelated sub-questions arise:

(a) When taking a teleological approach, is there a normative imperative to achieve best outcome possible?

This question is for others to decide, but, for example, if the answer is yes, it might give us reason to revisit the 14-day rule. The questions arising from this particular example are discussed in the next section. A teleological approach, seen through a liminal lens, arguably encourages consideration of the *full* process. It helps us consider, not only that embryos are becoming, but what they are becoming, and asks us to contemplate whether we want to attach importance to that and who is implicated in the diverse processes of becoming.

(b) If we decide that a particular embryo is bound for a reproductive pathway, what does that mean per its teleology?

One might take a teleological approach to mean that I am arguing that we must follow that teleology's imperative to the letter, i.e. that all 'reproductive' embryos should be implanted in a woman. This is not the case. As the flowchart in Chapter 5 has shown, an important part of a context-based approach is recognising that these pathways are not straightforward, and can overlap. To focus on ends alone would ignore importance of process, which is the central focus (and normative claim) of this work; arguably a

focus on ends alone masks how we get there. Again, the utility of a liminal lens is that it does not give us any particular normative imperative, but also allows us to consider, more deeply, the dynamics of the variant transformations that embryos can go through.

The above questions also give rise to another, similar question: If 'research' embryos might be subject to an argument that they should be the 'best' research embryos they can be, does this suggest that a 28, 60, or even 180 –day rule could be defended? In short, this thesis' answer is that this is not necessarily the case. The reasons for this answer are discussed in more detail in section 8.3, below.

8.2.3 An approach that can inform contemporary ethico-legal debate

A context-based approach, as described above, encourages thinking about processual nature of embryonic development, but arguably still allows us to 'value'[720] embryos in a way that recognises the multiplicity of factors necessary for that process to take place (e.g. the mother, time, biology) for embryos to eventually become persons, or not.

This is not necessarily the only potential outcome of a context-based approach, but it is one that would arguably address Part One's 'legal gap', as it considers embryos *in vitro* more processually, and moves us beyond the incoherent framework we have at the moment.

[720] If we deem it appropriate to do so, in the name of moral pluralism.

8.3 The Potential Implications of a Context-based Approach for the Future of Embryo Regulation: A Case Study

8.3.1 Background

This section considers some of the questions raised by a context-based approach for the 14-day rule. It has been used here, because the rule is arguably one of the most recent/contemporary examples to which this approach might apply, as a debate that has the potential to open up discussions about the 1990 Act (as amended) more generally. Further, the 14-day rule is also the key embodiment of the 'special status', and the attribution of legal boundaries at the early stages of human life, discussed throughout thesis.

Recall that the 14-day time limit on embryo research, first recommended in the UK by the Warnock Committee[721] is based upon the premise that around this stage in development, the 'primitive streak' tends to develop.[722] It is also the approximate stage at which the embryonic cells can no longer split (and thus, produce twins, or triplets etcetera).[723] Nonetheless, for 27 years this limit was 'largely theoretical';[724] up until very recently no researcher has been able to culture an embryo up to this limit.[725] In early 2016, for the first time, research published in *Nature*[726] and *Nature Cell Biology*[727] has reported the

[721] See Chapter 4 of this thesis.
[722] Warnock (n25).
[723] Patrick Monahan, 'Human embryo research confronts ethical 'rule"'(2016) 352(6286) Science 640.
[724] Sarah Chan 'How to Rethink the Fourteen-Day Rule' (2017) 47(3) Hastings Center Report 5.
[725] Monahan (n723).
[726] Deglincerti et al (n209).

successful culturing of embryos *in vitro* for 13 days. With the possibility of finding out more about the early stages of human life, beyond this two-week stage, calls have been made to revisit the 14-day rule.[728]

It is important to note that this time limit was not intended to be "set in stone" at its inception.[729] Indeed, almost no law in today's society is intended to truly stand any test of time. All law should be open to discussion, if not revision, if it is to progress with society and societal interests. On the other hand, where an issue is controversial, as embryo research certainly is, "we still must consider whether shifting a limit in policy is an appropriate adjustment or instead implies a slip down the slope or the abandonment of moral principle."[730]

So why consider revisiting it all? Aside from the arguments made in Part Two about permanently liminal law, it is also worth noting that arguing for revisiting does not imply arguing for change. The normative aspect of arguing for revisitation lies in the argument that law in this field should not be left untouched for extended periods. As Hyun et al comment:

> Revisiting the 14-day rule might tempt people to try to rationalize or attack the philosophical coherence of the limit as an ethical tenet grounded in biological facts. This misconstrues the restriction. The 14-day rule was never intended to be a bright line denoting the onset of moral status in human embryos. Rather, it is a public policy tool designed to carve out a space for scientific inquiry and simultaneously show respect for the diverse views on human embryo

[727] Shahbazi et al (n210).
[728] Insoo Hyun, Amy Wilkerson, and Josephine Johnston, 'Embryology Policy: Revisit the 14 day rule' 2016) 533(7602) Nature 169
[729] Chan (n724).
[730] Ibid.

> research…The alternatives at each extreme — banning embryo research altogether or imposing no restrictions on embryo use — would not have made for good public policy in a pluralistic society.[731]

There has been much commentary since the possibility of revisiting the rule arose, with a range of responses.[732] This rule was of course a reflection of the Warnock Committee's emphasis on 'compromise', in the name of moral pluralism. In other words, it emerged as the Warnock Committee's way of navigating the uncertainty/ambivalence surrounding how to treat embryos *in vitro,* legally. This thesis does not claim that the poles of opinion between which this compromise was set have changed.[733] The rule, a reflection of this 'compromise' was, in many ways, a new boundary, and threshold akin to its historical counterparts (such as quickening). Yet if we decide that it is worth considering this boundary, and whether we want to change it, what might this thesis bring to the debate? As we have seen in Chapter 6, thresholds are a key feature of the liminal process,[734] and the section below briefly considers what a focus on these key points in transition might bring to contemporary debates.

8.3.2 How to revisit the 14-day rule: the importance of *thresholds*

Attention to thresholds, per this thesis' analysis, has highlighted the following thresholds in the framework we currently have:[735]

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[731] Hyun, Wilkerson and Johnston (n728) 170.
[732] For summaries see Giulia Cavaliere, 'A 14-day limit for bioethics: the debate over human embryo research' (2017) 18(1) BMC medical ethics 38; Sam Wong 'The Limits to Growth' (2016) 232(3101) New Scientist 18; and Martin Pera, 'Human embryo research and the 14-day rule' (2017) 144(11) Development 1923.
[733] i.e. embryos are 'persons' versus the notion that we can/should do whatever we like with embryos.
[734]See van Gennep (n17)189-90.
[735] See Chapter 7, section 2.

- Once an embryo created *in vitro* passes the threshold[736] of being, determinedly, a 'research' embryo, it cannot (legally) be led back past the said threshold, and it can only come out this process as something to be disposed of after being utilised;
- In contrast, there are lots of thresholds that embryos are led through for a 'reproductive' path, for example: (non)selection after PGD, implantation, freezing, and unfreezing, implantation, gestation etcetera – indeed, this includes the possibility of crossing the threshold from 'reproduction' to 'research' if, say, PGD tests suggest non-suitability for reproduction; and
- Similarly, per the relational analysis above, when the progenitors of embryos are making decisions regarding what to do with their surplus embryos, they may cross various thresholds themselves.

As we know, considerations for the actors around embryos can be different for each threshold, i.e. we may consider different sets of factors depending on which threshold any particular embryo is at. For example, at the third threshold above, many factors come into consideration for donors, including their attitudes towards research, and their feelings about and towards their surplus embryos and their future (non)uses.[737]

When considering whether to alter the rule, multiple thresholds come into consideration.[738] As we have seen, the Warnock Committee used ethical deliberation, and evidence available at the time to suggest this boundary, beyond which research could not pass. A key part of this deliberation, although not referred to in terms of 'thresholds' *per se*, were particular

[736] See Appendix 1.
[737] See Jonlin (n715); Parry (n575).
[738] This is not to suggest that we could cross boundaries between research and reproduction, however.

(perceived) biological thresholds, such as the threshold for experiencing pain (which they associated with the start of the primitive streak), and thresholds for being able to cause harm therein. One might say then, that if the 14-day rule is a limit, or a boundary, then something that we may want to consider (if we deem it appropriate to revisit this rule) is the presence of thresholds therein, and the importance that we want to attribute to those thresholds. For example, if we decide it is appropriate to *consider* extending the rule, these types of thresholds (i.e. harm, or sentience, etcetera) may very well come into play again, for example if a '28-day rule' is proposed. Further, talks around extending it have already given rise to discussion surrounding another kind of threshold: would extending the rule be of adequate benefit to science? Some argue that there is much more that we can learn from extending the limit.[739] Yet, what amount of benefit is enough benefit to justify extension, therein lies the threshold, a threshold of the reasonable prospect of sufficient scientific 'benefit'.

Yet there are even more thresholds at play here. These are not only biological or scientific thresholds, but also the thresholds that we (or law-makers) have created for the law. To explain, as we have seen, our current framework may be described as permanently liminal, i.e. remaining on a threshold in many respects (see Chapter 6). The inexplicit construction of embryos in law as subject-objects has been a result of attempting to regulate an uncertain space. To illustrate my point: if we decide that we want to treat research embryos as objects, and law-makers decide to take the law on one route or another, with respect to the above, they are also taking the law across a threshold from one iteration, to another. This is not to say that everything under law's ambit has to be either subject or object,

[739] E.g. Wong (n732).

perhaps the 'in-betweenness' of the embryos in the current framework will remain.

Thresholds (or indeed boundaries) are not necessarily 'bad' here, per this work's analysis. Indeed, both moral and legal thresholds are of crucial importance. Rather, I suggest that we should be alive to their presence and their place amongst the broader network (of actors, or silos, etcetera) in order to ask questions about the conditions we want in order to cross those thresholds.

Considering the multiplicity, variability, and in many ways, subjectivity of these thresholds might enable us to regulate in a more flexible and context-specific way that allows us to recognise the multiplicity of processes occurring within the framework of the 1990 Act. Neither a liminal lens, nor this thesis, can necessarily say how any revisitation might turn out if a context-based framework were used. However, the contributions herein help our thinking about all of the above, by highlighting the following question: what are the conditions for crossing each of these thresholds, and what are the ultimately endpoints that we consider it desirable to reach?

8.3.3 Summary

The above is not challenging the pros and cons of the 14-day rule, or research and reproductive practices *in vitro* more generally *per se*, but rather exploring the ways in which law could engage with embryonic (and legal) processes through attention to thresholds (as a key facet of these processes).

Overall, this framing has the *potential* to justify extension, but not without proper public deliberation, and subject to sound scientific objections, and

perhaps most importantly, subject to a prevalent moral concern that we would not be harming a sentient being if we were to conduct research at later stages of development. The *deliberation* and *revisitation* (not necessarily the revision) of the law is the key part to this liminal analysis.

8.4 The added value of a context-based approach

Overall, if one accepts that the UK's approach is processual and morally relative, this thesis has argued that there are ways in which might better do so, and has thus offered a context-based approach. This approach, as I have argued, has the potential to inform the provision of a more robust intellectual basis, and suggested framework to inform contemporary debates on what processual law *could* look like.

With the above in mind, the following highlights *some* of the possible questions that a context-based approach (rooted in the analytical framework laid out in Part Two) might raise:

- If there are thresholds within reproductive and/or research processes beyond which embryos cannot be returned (to another pathway), should we more explicitly delineate 'research' embryos from 'reproductive' embryos in law? If so, how might this be done?;
- Relatedly, if 'research embryos' are only ever going to be as such once given that label, as the previous chapter has argued, then law can only ever lead them to disposal.[740] Does this mean that they should be given a different status from reproductive embryos? If so, would this support extending the rule, and if so, to what extent?

[740] This research is not challenging the rule that research embryos should not be implanted in a woman.

- Further, would it support treating research embryos (once on that pathway) as 'objects'? If so, what would that entail? Would it necessarily mean abandonment of the moral meaning attached to 'research embryos'? A relational view of this liminal entity would suggest not.
- If we deem it appropriate to bring research embryos out of liminality, is there an imperative to assiduously pursue something valuable for scientific reasons? Should law lead embryos out of liminality as 'valuable' research objects in themselves?
- What conditions do we consider important enough to cross (or not cross) a particular legal, biological, and moral threshold, e.g. the 14-day rule?
- All of the above of course leaves another key question, which is perhaps objectively unanswerable: when exactly is the right time to re-open this debate?

The ways in which these questions were framed was not intended to indicate any particular answer; the point of this thesis is not to affirm or deny these questions, yet these questions, amongst many others that this analysis might raise, have the potential to act as the basis for my future research (see the Conclusion to this thesis).

A context-based approach allows us to consider how we can embrace the potential for legal change through explicitly distinguishing between embryos that are to be used for reproduction, and embryos that are to be used for research. If we want law to reflect process and change, in a way that continues to be morally relative, then we cannot expect or want law to be durable in its embodiment of a set of rules that fail to reflect the processual and practical realities of what currently happens with and to human

embryos.[741] This approach embraces the potential for change by introducing a nuanced, yet important demarcation between 'types' of embryo that the law has already created and facilitated. *In vitro* embryos are quintessentially liminal beings. This thesis has explored and unpacked the truism coined by Thomassen that "liminality is"[742] and what this means for embryos that are subject to the legal architecture that is the 1990 Act (as amended). It has suggested that the reality of liminality still has much to say about the way we regulate *in vitro* embryos. The overarching contribution is to provide the reader with ways to think way, about and through liminality that brings greater insights into the sensitive enterprise of regulating for uncertainty when our focus of attention is an entity as fluid and remarkable as the human embryo.

[741] See Jacob and Prainsack, 'Embryonic Hopes' (n35).
[742] See Laurie, 'Liminality and the Limits of Law' (n15) 57; Thomassen (n535).

9. Conclusion

The conclusion to this thesis does the following:

1. Recaps and draws together the main conclusions from each part;
2. Lays out the original contribution of this thesis; and
3. Considers future directions for research, based on this thesis' findings.

9.1 Thesis Summary

This thesis, which was concerned with the regulation of human embryos *in vitro,* and their use for reproduction and research, has explored the ways in which law does, and can regulate processually. As we have seen, the 1990 Act (as amended) is static and unchanging with respect to the moral status of 'the embryo', yet our societal understandings and perceptions of *embryos* are not. The 1990 Act (as amended) is, as we have seen, permanently liminal.[743] A 'gothic' framing of embryos and the use of a liminal lens have each revealed a key facet of embryo regulation. All of the practices that law currently allows, are, in essence, regulating for: uncertainty, process, and change. The area of enquiry, for the first part of this thesis was, therefore: In what ways does UK law engage with embryonic processes, if at all?

[743] See Chapter 7 of this thesis. This is not to say that the Act has not been amended, additions have certainly been made where science has discovered new technologies that have been deemed desirable, for example mitochondrial replacement therapy.

9.1.1 Part One

Part One of this thesis explored the extent to which law governing the early stages of human life (which for a long time, could only be *in vivo*) accounted for the processual nature of these stages.

Chapter 2 provided an analysis of historical developments in the regulation of the early stages of human life, in order to firmly emphasise the importance of process for regulations up to (and later, including) the 1990 Act's regime. Key elements emerge from law's evolution in this field, including the moving of legal-ontological boundaries surrounding when life begins to matter (for law) These elements are reflected, to some extent, in the regime that we have today. Ultimately, this chapter showed that process has been historically important for the regulation of embryos/foetuses. This historical appreciation of process is not, of course, determinative going forward. However, to the extent that this is a positive facet of law making in this area, which enables the symbiotic relationship between law, science, and society, then this thesis suggests that appreciation of the role of process is to be encouraged.

Chapters 3 then traced some of the key contours of the regulatory framework that we have today, before going on to explore the ways in which literature has responded to this in Chapter 4, particularly relating to embryonic process (although not always explicitly mentioned). This chapter found that the intellectual basis of the law treats embryos singularly as 'the embryo', by virtue of according one 'special status.' In reality, the 1990 Act (as amended) creates multiple categories of embryos with seemingly multiple statuses. Importantly, this chapter did not claim that there is a disjunct between the 1990 Act (as amended) and the historical development of the early stages of human life. Instead, the analysis from both chapters

showed that there is cause to embody process within law, and move beyond its original iteration, as law has done in the past. On this basis, this chapter finished by identifying a 'legal gap' between a key facet of the intellectual basis for this framework, 'the embryo's' 'special status', and the practical realities of the processes it regulates.

Overall, this Part acted to set up the 'problem' for this thesis, namely the existence of a 'legal gap'. Yet, if this gap is caused by inadequate reflection of process (as the above argued), then it finished by asking: How can we understand legal process, and legal regulation more deeply?

9.1.2 Part Two

Part Two of this research provided a frame of analysis that explored the nature of the previously articulated gap between the intellectual aims of the 1990 Act (as amended) and the reality of the processes it leads embryos *into, through* and *out* of.[744]

Chapter 5 argued that drawing parallels between regulated embryos *in vitro* and gothic literature helps to reveal the law's inadequate engagement with this uncertainty. In other words, analysis from a gothic perspective reveals the nature of law's response to embryos, as such transformative, and processual entities. We have seen that in regulating for uncertainty (with regards to how we ought to legally treat embryos) in a static, unmoving manner the law has produced uncertainty surrounding the law itself. To explain: while we (mostly)[745] know what the law is and what it restricts (the

[744] The purpose of this research is not to challenge the Act's original aims themselves, but to provide a frame of analysis that permits the law to evolve in an intellectually defensible manner.
[745] Although advances bring exceptions, see *Quintavalle* [2003] (n234).

1990 Act (as amended) is very clear on this in many respects), the law's fit and place in science and society today is increasingly uncertain with respect to how we should treat embryos within law, and to some extent where they fit within law.[746] Overall, I argued there are parallels between gothic literature, and embryos *in vitro* (as regulated in law), namely that embryonic ontologies provide a challenge to conventional legal subjecthood. In turn, these analyses promoted a deeper understanding of Part One's 'legal gap.' This challenge is made all the more acute by the gap between the intellectual basis of the 1990 Act (as amended), and the practical implications of its framework. Using 'the gothic' as a frame of analysis, it revealed the nature of and reasons for this 'gap'. Nonetheless, I also concluded that a gothic analysis alone does not provide an answer as to how law should navigate this gap.

If a gothic analysis helps us to identify the nature of and the reasons for the 'problem' *per se*, then what helps us identify the solution? In Chapter 6, it was argued that in regulating the liminal, we are also regulating processual, ever-changing entities that are very much *in between*. This begs the obvious question of 'in between *what?,'* that is it leads us to ask what are the beginning and end points of any (regulatory) process of which embryos are a central part. Also, recall that being in this stage does not imply the marginality of that person, object, or entity- in fact, the opposite. Liminality is central to the regulation of reproduction and research practices. Embryos are central to the law, central to the mother who guides an embryo through reproductive process, central to the research practices carried out in laboratories, and central to medicine and society more generally, which

[746] As for particular elements of the law itself, we have also seen , for example, that: It is uncertain in that it places the embryo in between the legal binary of subject and object (Marie Fox); That the embryo's 'special status' is unclear in nature, source and extent' (Mary Ford); and

benefits from therapeutic advances made possible by the embryo. Chapter 6 has also shown, through their discussion of liminality, that a distinct feature of process is that, more often than not, that process has more than one potential end (even if one particular end is likely). Liminality, in its application as an analytical lens, makes evident that process is central to everyday life, as is change and uncertainty, albeit in varying degrees.

Overall, this conjoined analysis in Part Two articulated, and navigated the contours of this gap, as drawn out in Part One, where law has struggled to capture the uncertain, processual nature of embryos *in vitro*. The next step for this thesis was to ask, therefore: How can law better reflect the uncertain nature of embryonic processes, and the technologies that create them?

9.1.3 Part Three

To paraphrase the question above, Part Two left us asking: how might Part Two's articulation and navigation take place in order to lead embryos out of liminality? In answer to this, Chapter 7 advocated a context-based approach to embryo regulation, which embraced the nuanced differences between embryonic 'pathways' through the law. The contours of the approach may be summarised as follows:

- There are a multiplicity of pathways that law leads embryos through (see flowchart in 7.2 above);
- At the end of these paths, there are only two possibilities: birth or termination. Importantly, there are lots of ways that embryos can reach those pathways; therefore
- If deemed a research 'artefact', there is only one *telos*, termination.

- If on a 'reproductive' pathway, much has to happen for the original telos of that pathway (birth) to occur; and finally
- These pathways are affected by actors, and are thus relational.

If we take a context-based approach, separating reproductive and research embryos out as separate regulatory subject/objects, what practical legal implications might this have? Chapter 8 explored the possible answers to this question by a) considering whether this approach adequately addresses the contours of the above identified 'legal gap'; and b) briefly discussing a current example, contemporary debates surrounding the 14-day rule. One of the key implications of this approach, as Chapter 8 discussed, is that it implies a plurality of pathways through the law, and therefore a plurality of 'embryos.' Notably this chapter did not intend to identify *all* potential future implications, but merely discuss some key implications that relate to the problems drawn out by this thesis in Part One.

9.2 Key Aspects of this Thesis' Original Contribution

The original contribution of this thesis is determinedly *not* to make any particular normative claim about embryos. Rather, its original contribution lies in its claim to provide a deeper understanding of law and society's relationship with embryos *in vitro*, set against historical legal developments, and a greater appreciation of the processes to which embryos are subjected, both biologically as well as relationally. Thus, the claim in this thesis is not to prefer any particular telos over any another – that is a value judgment for others to make – rather, it is to suggest that the telos of this human entity known as "embryo" is crucial and indivisible from how we see it, and therefore from how we justify our treatment of it. If there is any normative

claim, it is that our treatment of embryos must recognise this, and our law ought to reflect this in practice.

The bullet points below briefly draw out and explain this thesis' original contributions to the literature on law, embryos, and liminality:

- A consideration of the extent to which historically, and presently, the regulation of embryos (especially embryos *in vitro*) is a regulation of *process*;
- The linking of parallels between the 'gothic self', as a frame of analysis, and the literature on liminality, of which there are at least two: a sense of being between boundaries, and a sense of becoming;
- The positive potential of 'permanent liminality' with regards to the regulation of emerging technologies and scientific processes;
- The centrality of relationality and experiences of regulated embryos (by persons) as subject-object, and embryonic processes as the embryo travels through legally and scientifically produced 'pathways';
- The liminality of law itself, permanently in a state where it does not renew, or emerge *out* of this state to a new one; and given all of the above
- A consideration, and answer (in the form of a context-based approach) to what form(s) processual regulation can take, and the consequences therein.

9.3 Future Directions for Research

Now that this research's findings and contribution have been summarised, the last step for this chapter is to consider the potential future directions for this research. Given the far-reaching effects of the 1990 Act (as amended)

highlighted in the Introduction to this thesis (namely on embryos *in vitro*, science, and the family) there are many possible areas of future enquiry. I believe that this work's next logical step would be to return to the three strands identified in introduction, and explore each, particularly (2) and (3), more deeply:

- With regards to the second, this work could explore the capturing of process of family within structures, gender, and other things outside of, but greatly affected by, the regulation of reproduction. For example, the notion of becoming a family, introducing a child, or becoming a donor in of itself are all processual in their own right; further
- The extent to which feminist literature, especially feminist legal theory, maps on to the above analysis, with regards to the portrayal of women in law, and its portrayal of their social roles; and
- As for the third, 'science', one field of enquiry could be a further exploration of how the above analysis and approach can inform current debates about the 14-day rule, or ectogenesis.

Of course, future areas of enquiry are not limited to the above. The processual, changing and uncertain nature of the first strand, as the subject of this thesis, is perhaps most obvious. These themes are evident in the second strand, too. Science contains a juxtaposition of certainty and uncertainty. On one hand, it provides us with explanations for almost everything; it organises our knowledge through research and evidence that assures us of how our world was, how it is, and in some cases how it might be in the future. The future is uncertain, however, as is the 'true'/objective

nature of how things are, and our knowledge of how things once were.[747] Public wants and needs from science are not always unified, and furthermore, these wants are also evolving, changing, pluralistic, and often uncertain too.

Overall, the above conceptualisations of embryos in law have the potential to inform reform. The law has fixed the embryos in time, and in some ways in substance. All embryos *in vitro* fall under the Warnock Report's 'special status'; they are thus conceptually severed from the multiplicity of futures that the law has regulated for. Conceptually disconnecting them from these possible, legally provided destinies[748] is not only confusing, but also intellectually indefensible. Notwithstanding the intellectual disconnect between legal concept and reality, fixing embryonic status in such a way does indeed rule out, in essence, potential legal futures or legal approaches that might benefit from the placement of the embryo in the realm of object. This would not necessarily require huge moral overhaul, or require 'Frankenstein'-esque research on the early stages of human life; to reiterate, practically speaking (*not* conceptually speaking) the law already treats research embryos as objects.

New ontological boundaries (not only scientific, but social and moral) require the law to re-orient itself. The embryo *in vitro* thus required significant reconfiguration of the law. Not only did it have to provide a framework for the use of embryos for reproduction and/or research, but construct it in a manner that was morally, intellectually, and legally defensible. As this thesis

[747] Science as 'fact' is contested. Latour, for example, has famously questioned the reliability and authority of scientific knowledge. See for example Bruno Latour, *Science in action: How to follow scientists and engineers through society* (Harvard university press, 1987); and Bruno Latour, *Pandora's hope: essays on the reality of science studies* (Harvard university press, 1999).

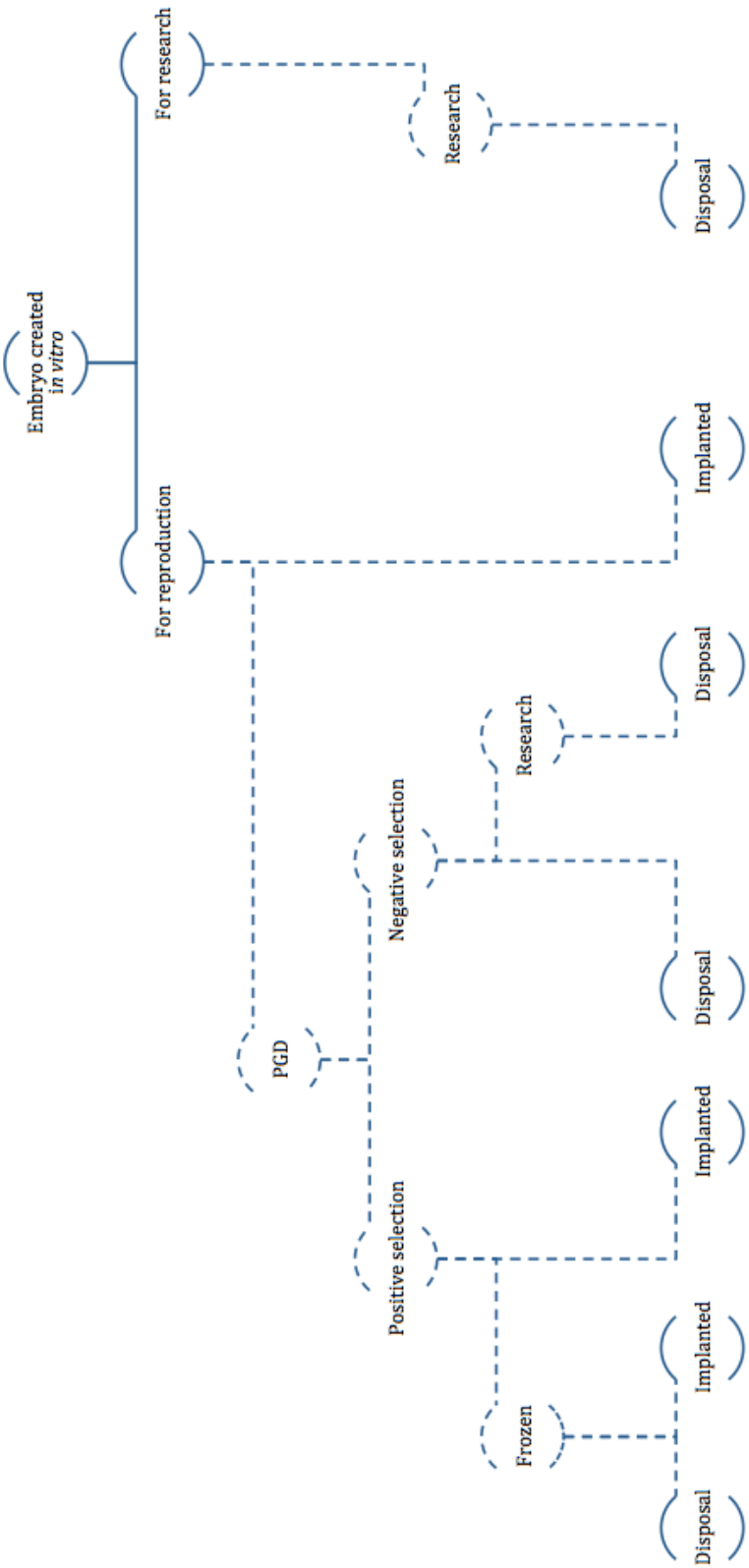
[748] For discussion of this in context of implanted devices, and blurring subject-object boundaries see Quigley and Ayihongbe (n395).

has argued, embryos *in vitro* are thus disruptive for the law's normative boundaries "not only to the practical approach of the law, but with respect to its conceptual and normative underpinnings."[749] If the law is to adequately and justifiably "deal with the challenges wrought by advancing technology generally,"[750] it must evolve in order to cope with the normative and conceptual challenges that transgressive entities such as embryos *in vitro*, (or indeed 'everyday cyborgs') pose for it. Contrary to the legal climate of the past 10 years or so, the law must directly confront embryos *in vitro*, rather than "tinker at the margins"[751] in order to better understand the challenges that they provide, and consider legal futures that can navigate these new boundaries. This is important, for not only the improvement of human health as it relates to embryos *in vitro* or embryos more generally, but for the multiplicity of legally liminal persons, objects, and subject-objects in the field of health research as a whole.

[749] Quote in reference to 'everyday cyborgs', but as discussed in previous chapters, analysis has a lot of paralells as a disruptive, liminal legal subject-object, Quigley and Ayihongbe (395); see also Roger Brownsword, Eloise Scotford, and Karen Yeung, 'Law, regulation, and technology: The field, frame, and focal questions' in Roger Brownsword, Eloise Scotford, and Karen Yeung (eds) *Oxford Handbook of the Law and Regulation of Technology* (Oxford: Oxford University Press, 2017), 3-38.
[750] Quigley and Ayihongbe (n395) 33.
[751] Fox, 'Tinkering at the Margins' (n259).

Appendices and Bibliography

Appendix 1: Figure 1



Appendix 2: Table of Abbreviations

ART……..	Assisted reproductive technology
CNR……...	Cell nuclear replacement
ECHR……	European Convention on Human Rights
ECtHR……...	European Court of Human Rights
ECJ……...	European Court of Justice
HCSTC……..	House of Commons Science and Technology Committee
HFEA…….	Human Fertilisation and Embryology Authority
HRC Act……	Human Reproductive Cloning Act 2001
ILP Act……..	Infant Life Preservation Act 1929
IVF…….	*In vitro* fertilisation
MRT……..	Mitochondrial replacement therapy
OAP Act……	Offences Against the Person Act (year as indicated)
PGD……...	Preimplantation genetic diagnosis
SCR……...	Stem cell research
UCP Bill……	Unborn Child Protection Bill 1985
1803 Act……	Lord Ellenborough's Act 1803
1967 Act……	Abortion Act 1967
1967 Act (as amended)……	Abortion Act 1967 (as amended by the Human Fertilisation and Embryology Act 2008)
1990 Act……	Human Fertilisation and Embryology Act 1990
1990 Act (as amended)……	Human Fertilisation and Embryology Act 1990 (as amended by the Human Fertilisation and Embryology Act 2008)
2008 Act……	Human Fertilisation and Embryology Act 2008

Appendix 3: Table of Cases

Appendix 4: Table of Legislation

Abortion Act 1967.

Human Fertilisation and Embryology (Mitochondrial Donation) Regulations 2015 (SI 2015 No 572).

Human Fertilisation and Embryology (Research Purposes) Regulations 2001 (SI 2001 No 188).

Human Fertilisation and Embryology Act 1990.

Human Fertilisation and Embryology Act 2008.

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