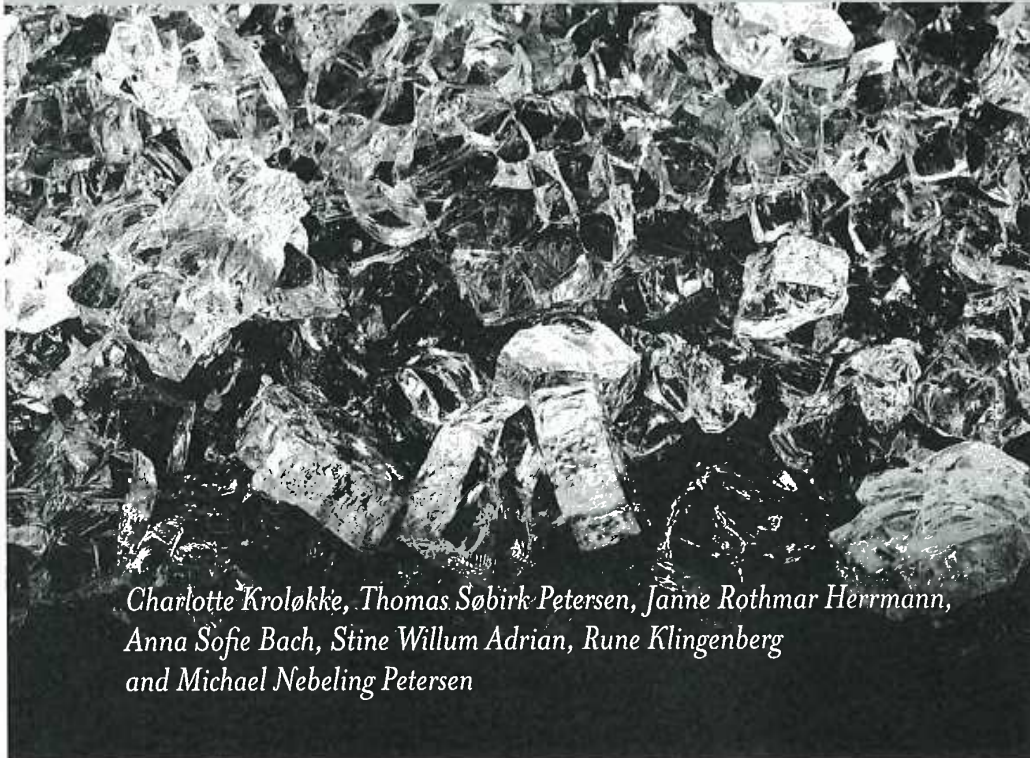


Emerald Studies in Reproduction, Culture and Society

The Cryopolitics of Reproduction on Ice

A New Scandinavian Ice Age



*Charlotte Kroløkke, Thomas Søbirk Petersen, Janne Rothmar Herrmann,
Anna Sofie Bach, Stine Willum Adrian, Rune Klingenberg
and Michael Nebeling Petersen*

**The Cryopolitics of Reproduction
on Ice**

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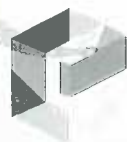
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Introduction

This book is about the Scandinavian ice age of reproduction. The ability to freeze reproductive cells, tissue, and embryos is fundamentally changing our understanding of what it means to be a reproductive citizen and of the ways in which reproductive matter gains mobility and value. This book is concerned with cryotechnologies and what we refer to as the development of a cryogenic reproductive culture, as they come into play in the Scandinavian welfare states. Centering Scandinavia is especially interesting, we argue, because reproductive technologies and welfare state ideologies have historically come together to ensure particular citizens free access to reproductive technologies, all countries are pronatalist and the welfare state support of free health care combined with emerging markets of private fertility care are unique. Of the Scandinavian countries Denmark stands out. Although the country has sought to limit the monetary market in oocytes, Denmark has for years been one of, if not the country in the world, with most children born after the use of assisted reproductive technologies including IVF and sperm donation (De Guyter et al., 2018). Denmark has moreover become the fertility hub of Scandinavia as private sperm banking and private fertility clinics has emerged and developed with comparatively cheap prices, and a strong medical industry on the side.

Because understanding the cryopolitics of reproduction demands a collaborative approach, in this book, we cut across the arenas of bioethics/law, practices/experiences, and culture/commerce. We engage in interdisciplinary scholarship in an attempt to answer questions such as: How does cryo, in the welfare state, help mobilize particular understandings of reproductive time, reproductive rights, and reproductive well-being? What values are embedded within Scandinavian laws that seek to regulate cryotechnologies? What are the moral arguments for or against certain freezing technologies and the many possible ways in which they can be used to create new offspring? What is the moral and legal status of frozen tissue that once was living elsewhere but is now in cryotanks? How is cryo enacted in clinical settings and how do the women and men who freeze experience the preservation of reproductive parts? What cultural configurations and imaginaries of cryo appear in popular culture and how are frozen cells and tissue, in interviews with freezers, transformed into frozen assets? In this book, we seek to make a significant academic contribution to interdisciplinary scholarship, engaging a

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wide range of empirical data as well as enabling scholarly public policies, ethical debates, and law on preservation.

In responding to these questions, we build upon the existing research within reproductive medicine, law, ethics, sociology, and cultural studies in order to develop an interdisciplinary lens with a view to conducting integrated analyses of empirical materials that normally pertain to discreet scientific fields of reproductive studies. For example, while some bioethicists have pointed to concerns related to reproductive autonomy and the potential harm to the resulting child (Harwood, 2009), others have argued that the possibility of cryopreservation can increase reproductive autonomy and equality between the sexes (Goold & Savulescu, 2009). Sociology scholars have shown that preservation, in the case of women's eggs, enables women to reconcile their reproductive desire with their careers, relationships and health (Waldby, 2014, 2019) and, in the case of reproduction after death, blurs boundaries between life and death (Kroløkke & Adrian, 2013), potentially affecting inheritance and bringing family law into play (Simpson, 2001). As echoed in Waldby's (2019) latest book, the cryopreservation of women's oocytes ensures that reproductive material does not "go to waste" (p. 127) enabling women's reproductive cells instead to enter what Waldby (2019) refers to as the "global oocyte market" (p. 73). Anthropology scholars have noted how freezing technologies assist in making reproductive fluids transcend national borders, yet they also remind us that these technological developments must be situated in particular localized contexts (Melhuus, 2012). Meanwhile, and from the perspective of cultural studies, the ability to postpone or synchronize biological matter draws upon normative understandings of ageing as an individualized yet also, rhetorically at least, reversible and manageable process (Carroll & Kroløkke, 2017). In combination, these scholars suggest that the attraction of freezing lies precisely in its promise to re-animate and re-entangle biological matter, turning (old) aging bodies into enhanced (younger) bodies while also constituting interesting entanglements between reproductive medicine, transplant surgery, regenerative medicine, and business opportunities.

Whereas the existing scholarship has made crucial analytical and theoretical incisions in the ways that cryopreservation changes our understanding of reproduction and the making of kin, in this book, we extend this work in several ways. Going beyond the cryopreservation of reproductive cells, we theorize and empirically investigate the preservation of both reproductive cells (sperm and eggs) as well as that of ovarian and testicular tissue. Moreover, we employ the notion of sociotechnical imaginaries to engage in an interdisciplinary quest drawing upon different cryo-relevant empirical material including ethical guidelines, legal documents, interview and observational studies, a survey study as well as popular accounts and clinical marketing material (see the Appendix). Also, in situating our empirical material in light of the term "cryopolitics" (Radin & Kowal, 2017), we explicitly interrogate how cryo-technologies come together with cultural concerns related to the reproduction of new Scandinavian children/citizens as well as contributing to academic discussions on the state of the Scandinavian repro-cryopolitics. In this introduction, therefore, we first turn to a discussion of cryopolitics as the general theoretical framework for the book, situating it in

the Scandinavian welfare state, and we outline some methodological reflections/ points of departure for interdisciplinary analyses in the subsequent chapters.

1. Scandinavian Legal Cryo Landscapes

Scandinavia is, in many ways, a homogenous region. During the period from 1397 to 1523, Denmark, Norway, and Sweden (including the territories of Finland, Greenland, the Faroe Islands, the German state of Schleswig-Holstein, Orkney Islands, Shetland Islands and Iceland) formed the Kalmar Union headed by a single monarch. Not long after Sweden left the Union in 1523, Norway remained under the Danish Crown until 1814 when Norway was ceded to the Swedish crown due to its defeat in the Napoleonic Wars. A failed attempt at independence subsequently forced Norway into a Union with Sweden before it gained independence in 1905. Thus, a common history and culture has existed for centuries. In the 1800s, the ideological movement “Scandinavia-ism” supported the idea of a unified region based on a common language, culture, and heritage. A modern form of “Scandinavia-ism” reemerged decades later in a number of guises, for example, through formalized legal collaboration in private law in the early 1900s, the formalized political structure for inter-parliamentary collaboration (The Nordic Council), the national appointment of Ministers responsible for Nordic collaboration, the establishment of the then Scandinavian state-owned Scandinavian Airlines System and a common Nordic football league tournament.

The Scandinavian countries are all welfare states based on a socialist model, as shown in more detail below. A number of conventions secure free movement within the Scandinavian territory, including the right to live, study, and work, the right to social security and the right to speak your own language in other Scandinavian countries. Nevertheless, there are considerable differences in the regulation of assisted reproductive technologies and cryopreservation.

As the table below demonstrates, both regulation and regulatory instruments vary a great deal. As a result, different cryo-pathways have formed in Scandinavia; one related to sperm and treatment of single and lesbian women centered in Denmark and another pathway involving travel to Sweden for egg freezing.

2. The Scandinavian Welfare States

In choosing to specifically focus our research on the Scandinavian context, we argue that the Scandinavian region is especially unique as regards the ice age of reproduction. While we, throughout the book, highlight the ways in which the welfare state both enables and constricts reproductive practices, it is worth giving a brief overview of what a Scandinavian focus contributes. Notably, political dreams of a welfare state appeared in the Scandinavian countries during the 1920s and 1930s. During that time, Denmark and Sweden began to develop welfare state societies. Although the same political ideas were found in Norway, it was not until the mid-1960s and early 1970s that Norway truly became a welfare state: Having been an active opponent of the German invasion, Norway faced a long period of rebuilding in the wake of World War 2 (WW2), unlike neutral

Table 1. Scandinavian Legal Cryo Landscapes.

	Eggs Non-medical	Eggs Medical	Sperm	Embryos
Denmark	<i>Cryopreservation</i> 5 years	<i>Cryopreservation</i> Until woman's 46th birthday in case of serious disease (woman or partner)	<i>Cryopreservation</i> Indefinitely	<i>Cryopreservation</i> 5 years
	<i>Requirements to destroy</i> Woman's death Woman turns 46 years old	<i>Requirements to destroy or donate</i> Woman turns 46 years old Serious illness in woman or partner no longer present Woman's death	<i>Requirements to destroy</i> Man's death unless written consent to posthumous use	<i>Requirements to destroy or donate</i> Separation Divorce Woman's death Man's death (unless written consent to posthumous use)
	<i>Age limit for use</i> Under 46 years	<i>Age limit for use</i> Under 46 years	<i>Age limit for use</i> None	<i>Age limit for use</i> Woman under 46 years
Norway	<i>Cryopreservation</i> Not allowed (but amended legal framework is expected that would allow self-financed cryopreservation with an upper age limit for use)	<i>Cryopreservation</i> As long as it is in the interest of the woman and medically sound	<i>Cryopreservation</i> Allowed on medical indication Storage limit indefinite, but use requires marriage or stable relationship	<i>Cryopreservation</i> 5 years
	<i>Requirements to destroy</i>	<i>Requirements to destroy or donate</i> Woman's death	<i>Requirements to destroy</i> Man's death	<i>Requirements to destroy or donate</i> Woman's death Man's death Man or woman no longer able to consent

	<i>Age limit for use</i> -	<i>Age limit for use</i> General guidelines on assisted reproduction state that woman must be over 25 and under 39. Can be derogated from based on medical and psycho-social assessment of the couple. Reasonable age difference between man and woman	<i>Age limit for use</i> None	<i>Age limit for use</i> None
Sweden	<i>Cryopreservation</i> Indefinitely	<i>Cryopreservation</i> Indefinitely, 5 years if the egg has been subject to somatic cell nuclear transfer.	<i>Cryopreservation</i> Indefinitely	<i>Cryopreservation</i> 10 years, with a possibility to prolong.
	<i>Requirements to destroy</i> None	<i>Requirements to destroy</i> If an egg, which has been subject to somatic cell nuclear transfer, has been used in experiments	<i>Requirements to destroy</i> None, but sperm from a dead donor cannot be used for insemination of women who did not know the donor	<i>Requirements to destroy</i> If an embryo has been used in experiments
	<i>Age limit for use</i> None in legal framework (but regional Councils have set in place age limits for the public sector of 37–41 years)	<i>Age limit for use</i> None in legal framework (but regional Councils have set in place age limits for the public sector of 37–41 years)	<i>Age limit for use</i> None in legal framework (but regional Councils have set in place an age limit of 55 years for the public sector)	<i>Age limit for use</i> None

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Sweden and Denmark, which had been a “protectorate” with an official policy of “reasonable collaboration,” at least until 1943 (Elting, 1981).

In the Scandinavian welfare states, the (re)production of families is a major focal point for different reasons. In Denmark, reproduction became vital as the notion of a welfare state providing free education and healthcare took shape as a political project in the 1920s, especially in terms of controlling the “quality” of the individuals who would potentially pose a “burden” to society and the public purse. Lene Koch has demonstrated how, in Scandinavia, eugenic practices were adopted by parliamentary majorities on the initiative of the Labour (Social Democratic) parties and enjoyed widespread scientific endorsement (Koch, 2006). Koch’s doctoral thesis evidences how eugenics as a political ideal became an integral part of Danish healthcare and social welfare policies, but also how the practical implementation of this ideal was complex and included both elements of coercive legal measures and elements of liberalization of reproduction. The welfare state project and its adoption of eugenic policies marked the first successful liberalization of abortion and sterilization. Even though this liberalization, which made some abortions legal (in Denmark and Sweden with the adoption of the first Abortion Acts in 1938), was motivated by societal concerns, it nevertheless constituted the very first legal recognition of the individual’s own control of reproduction. Simultaneously, the falling birth rate was seen as a national crisis, and in Denmark, a population commission was therefore tasked with considering social programs relating to motherhood (Brøndum, 2012).

The commission’s recommendations lead to few changes in practice compared to Sweden. In Sweden, the issue of population control was equally pivotal. Abortion on eugenic grounds had been legalized in Sweden in 1938 and eugenic sterilization laws had been adopted in 1934 as well as in 1941. It was, however, the wider issue of population control (combined with the Scandinavian-wide social democratic ideology) that encompassed the political ideal of the welfare state. In Sweden, a fear of population decline drove several pronatalist welfare initiatives in the area of reproduction, including the adoption of a marriage loan reform intended to lengthen the fertile period of women within marriage by making earlier marriages economically feasible. A maternity relief reform provided economic assistance to childbearing women in need and programs of improved housing for large families were intended to indirectly affect fertility by upgrading conditions for families that were to serve as examples of appropriate family patterns (Kalvemark, 1980). In this way, the programs were also intended as social engineering projects and these intrusions into private life were justified by an instrumental rationalism. To produce more than one child was seen as rational behavior just like good dental hygiene and was thus actively promoted for this reason (Freiburg, 1993).

In Norway, just after WW2, all parties had announced a common program that would introduce a rights-based welfare state model focusing on equality as opposed to social welfare dependency on handouts and alms. But unlike most European countries, rationing continued well into the 1950s, demonstrating a prolonged period during which the Norwegian economy and country as a whole were rebuilt. Major welfare state legislation came with the introduction of social

security in laws of 1964, 1966, and 1971. Support for unmarried mothers followed in 1981 and paid maternity leave followed between 1987 and 1993. Having been established decades later, and not in the context of a perceived national crisis related to falling population numbers, the underlying message of the Norwegian welfare state is not about encouraging women to have more children, but rather about creating the necessary societal framework to support women/couples in having the number of children they choose to have (Sørum, 2019). However, in her new year's address to the Norwegian people in 2019, the Norwegian Prime Minister called for Norwegian women to have more children in order to counter-balance the increase in the number of pensioners, so that the weight of the welfare state might be distributed across a greater number of shoulders. Thus, even in 2019, reproduction in the welfare state relates to collective and societal interests.

The Scandinavian welfare states are redistributive and provide a wide range of benefits and services as citizens' entitlements with the aim of creating more egalitarian societies (Leira, 2002, p. 32). This includes, but is not limited to, paid parental leave, free health care, affordable childcare, and child support to single parents or lower-income families: typically parents are entitled to up to one year of parental leave to share between them, with the state providing an income based on previous salary (often capped at the same level as unemployment benefits, with some employers providing the remainder of the normal salary for some of the months). Prenatal care, birth, and child/parent medical check-ups following birth in the home are free, as is fertility treatment subject to certain conditions. Childcare is heavily subsidized, meaning that parents pay approximately \$300 a month for childcare, and most families receive a cash financial subsidy from the state with single parents receiving more. For example, in Denmark, a couple would receive an annual cash subsidy of \$2,760 for a child aged between 0 and 2 years, reducing to \$1,700 for 17 year-olds, whereas single parents receive a further \$5,500 annually.

While the Scandinavian welfare states historically have created a framework in which economic stratifications are cushioned, in the welfare state, women must nevertheless dutifully manage their reproductive abilities in order to reproduce not only the family but, in fact, the nation. Below, we present our cryopolitical framework and delineate our decision to analytically focus on Scandinavian imaginaries on the ice age of reproduction. We then present our empirical data and give a brief overview of the chapters in this book.

3. Freeze and Re-Animate. A Cryopolitical Framework

The ability to freeze is nothing new. Indeed, freezing parts of, or even whole bodies, can be traced back to the emergence of cooling technologies and the use of increasingly sophisticated techniques undertaken, following the Cold War period, within the general field of cryobiology. Initially employed in the animal breeding industry (Clarke, 2007), cryopreservation is today common practice and big business involving freezers, shipping companies, laboratories, and biological banks, all of which play a part in the transnational exchanges of biological material (Parry, 2004). Importantly, the ability to freeze and bank parts of the body has

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enabled body parts to be used for new purposes. Joanna Radin (2017) illustrates this, when she traces how the freezing of blood mobilized biological material and helped it gain relevance in new contexts:

It is the ability to hold still biological substances at various degrees of low temperature that has enabled such materials to become incredibly mutable and mobile, able to be manipulated, relocated and recombined to answer questions other than the ones for which they were initially extracted from the body. (p. 3)

In this book, we align ourselves with this thinking and we position the ability to freeze as a key biopolitical tool of the twenty-first century (Radin & Kowal, 2017). Consequently, we turn to cryopolitics as an overall theoretical frame for understanding the cultural imperative of putting reproduction on ice.

The concept of cryopolitics emerges from debates on the geopolitical importance of the Arctic and climate change policies. Coined by Michael Bravo and Gareth Rees (2006), cryopolitics was initially concerned with ecological policies and the melting ice in the Arctic. However, in his later work, Bravo (2017) redefines cryopolitics to include “the productive agency of natural and artificial ‘material frozen states’” (p. 33). He makes a point of stressing the interconnections between the cultural need for cold storage and the melting ice in the Arctic: The more the economy grows, the more cooling is needed, and the more likely global warming is to continue to be a problem. Charis Thompson (2017) makes a similar observation, when she notes that we “live in a world chronically short of ice in nature, not in culture” (p. 339). We agree with Radin and Kowal’s (2017) decision to view cryopolitics as an intervention in the politics of low temperatures as well as an overall framework for understanding the cooling efforts undertaken in the field of cryobiology. In contrast to Radin and Kowal’s (2017) decision to focus on the freezing of blood, DNA, interspecies, and animal conservation, however, in *The Cryopolitics of Reproduction* we apply the cryopolitical framework to tease out the practices and the performance of cryo within the field of human reproduction within the Scandinavian welfare states. This includes, for example, how cryogenic reproduction unfolds in media accounts, in legal deliberations, in public debates, in commercial settings, and in various clinical contexts. Consequently, we are interested in the ways that cryopreservation animates different possibilities and understandings of reproduction, kinship, morality, reproductive citizenship, life, and death.

In *The Cryopolitics of Reproduction*, we view cryopolitics as an overall theoretical framework that addresses the ability to freeze whole or parts of bodies such as reproductive cells and tissue. In many ways, cryopolitics bears a strong resemblance to Michel Foucault’s (1979) notion of biopolitics. By assembling bio and politics, Foucault analyzed the ways in which the body, the subject, and populations became the object of intensified political attention in modern societies. Famously, Foucault argued how power changed from a sovereign power characterized by the right to kill to a modern biopower characterized by the creation, maintenance, and control of life; thus, biopower refers to ways in which

individual citizens' lives, bodies, and reproduction are regulated to fit dominant norms and how these regulations are internalized by citizens, whom biopower takes as its subjects. Thomas Lemke (2014) aptly captures this dynamic, when he positions liberalism as a key framework in biopolitics and as a particular way of governing individuals. According to Lemke (2014), in liberalism, individuals are governed through self-imposed estimations of risks and a "permanent fear of failure" (p. 67). In particular, fear also has a "segregatory function," (p. 68) dividing individuals according to particular risk assessments. This is seen in terms of egg freezing, for instance, where blood tests and an ultrasound examination on current egg count and fertility potential come together to estimate the so-called "risks of infertility." Meanwhile, Alexander Friedrich (2017) maintains that cryopolitics is not simply biopolitics in disguise. Rather, cryopolitics seeks to intervene in how freezing not only transforms our understanding of life but also becomes a way of cheating death – a biopolitics of freezing of sorts (Friedrich, 2017; Radin & Kowal, 2017).

Importantly, cryopolitics intensifies the biopolitical notion of to "make live and let die" with the cryopolitical statement of "make live and *not* let die" (Kowal & Radin, 2015, p. 63). In this way, freezing becomes a biological as well as an affective time machine. It produces what is referred to as forms of *latent* life (Luyet & Gehenio, 1940; Radin, 2013). Latency has, as Radin (2013) successfully shows, several meanings. Not only does it refer to the technoscientific efforts needed to keep biological material available for the future, it also turns frozen matter into future informational and affective resources, enabling some reproductive citizens to extend their reproductive years or perhaps avoid reproductive death altogether (Radin, 2013). In the case of Radin's (2013) research object "The Human Genome Diversity Project," for instance, frozen blood became a method used to strategically ensure future access to long lost indigenous communities. She notes (Radin, 2013, p. 488) that latency became a way for the scientist to gain "new knowledge about biological variation." In a similar vein and in an analysis of cryonics as a form of science fiction, Grant Shoffstall (2010) points to the intersections of latency and futurity when he states: "Like science fiction, cryonic suspension and the claims of its advocates dwell primarily in the realm of *possibility*: the *what if* or the *what could be* of a given future" (p. 287). As a term, then, latency refers both to the ability of biological matter to be frozen in time and space but importantly also, as it has been employed in feminist scholarship, as "part of the apparatus of postcolonial medical infrastructure" (Radin, 2013, p. 488).

Whereas latency refers to the ways that cryopreservation pauses the development of (cryogenic) life, throughout this book, we use the concept of liminality to help reveal the other aspects of moral dramas that cryopreservation produces. Based on Victor Turner's understanding of liminality as an in-between state of being, feminist science scholar Susan Squier (2004, p. 5) develops an understanding of liminality that frames marginalized lives as both "symbolically privileged and troublingly unstable." While Squier (2004, p. 9) empirically relies on select case studies in the fields of science and literature, she argues that liminal lives exist at the boundaries of life and death, becoming at times "marginal to human life" yet simultaneously holding "a rich potentiality for our ongoing biomedical

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negotiations.” Whereas Radin (2013) uses latency to situate cryopreservation in particular historical contexts, liminality, as evidenced in the work of Squier (2004), assists in theorizing the in-betweenness produced within the context of cryopreservation and as it unfolds in a variety of empirical accounts.

Thus, the notion of cryopolitics with its attention to latency and liminality sets out to critically explore what can be seen as the transgressed boundaries of life and death. Freezing produces both a new form of latent biological matter as well as matter that exists in a “state of suspended animation” (Radin, 2013, p. 8). Klaus Hoeyer (2017) similarly turns to suspense and suspension as especially productive terminology when discussing cryopreservation. According to Hoeyer, suspense has several meanings: Biological bits and parts – once frozen – are put on hold, suspended from the bodies they came from, resulting in a suspension of life and death. Cryo, however, heightens the drama and creates yet another form of suspense: “The suspension of biological decay creates a space for action in which new social forms are built, new property managements emerge, and new hopes and concerns can flourish” (p. 209). While Hoeyer (2017) focuses on the role of biobanks, throughout *The Cryopolitics of Reproduction*, we widen the notion of suspense to additionally include the ways that cryopreservation creates drama in ethical and legal debates as well as in popular accounts and in the narratives of freezers. We agree with Hoeyer (2017) when he eloquently points to the intersections between ice, law, monstrous imaginaries and drama and says:

In the hold of cold, hot dreams and chilly nightmares of the future evolve. The depth of the drama reflects not only the legal transgression between person and thing, but also the imaginary space in which ideas about self and other can be transgressed. (p. 209)

While in *The Cryopolitics of Reproduction* we advance an interdisciplinary approach, we pay particular attention to work conducted within Science and Technology Studies (STS). STS scholars have been successful in showing how cooling technologies change our very understanding of what it means to be biological while also situating new technological developments as sites of practice highlighting the ways that human and non-human actors come together (Friese, 2013; Landecker, 2005). For example, Carrie Friese (2013) discusses how nature is being potentialized through cloning technologies central to the development of endangered species. Similarly, fertility preservation – as egg freezing is commonly referred to in the United States – is, in the clinical practices and in the cultural imaginaries, turned into future investments and self-donated seeds, (Carroll & Kroløkke, 2017) upholding what feminist scholars have termed seed-based thinking, re-naturalizing the genetic connection as essential in the making of kin (Rothman, 1989). In this way, STS scholars situate freezing technologies in concrete material practices while simultaneously highlighting how freezing changes our very understanding of what it means to be biological (Landecker, 2005). We agree with Hannah Landecker (2005) who states that freezing has influenced our understanding that to be biological today means to be “suspendable, interruptible, storable, freezable in parts” (p. 4).

Importantly, a focus on the cryopolitics of reproduction means recognizing the ways in which cryopreservation radically challenges and re-calibrates temporalities. As noted by Zerubavel (1981), temporalities are embedded within temporal techniques like calendars and watches, techniques that inculcate “hidden rhythms” and form a temporal experience that appear natural and feel like “my inner clock” (Freeman, 2010) and work to orient people in specific ways (Adams, Murphy, & Clarke, 2009). This means, that the way time feels and structure life, not simply is, but rather could be understood as a sociotechnical imaginary which is naturalized and structure bodies and lives according to technological and normative scripts. In this line of thought, reproductive temporalities are not understood as natural, bodily, or given structures of life. Rather, they are understood as effects of cultural hegemonies and capitalism (Zerubavel, 1981). In his book *In a Queer Time and Place* (Halberstam, 2005) on queer and subcultural temporalities, Halberstam turns to heteronormative temporalities, which he understands in three levels: First, “the time of reproduction,” which is “ruled by a biological clock for women and by strict bourgeois rules of respectability and scheduling for married couples.” Second, “family time [which] refers to the normative scheduling of daily life (early to bed, early to rise) that accompanies the practice of child rearing.” And finally,

the time of inheritance [which] refers to an overview of generational time within which values, wealth, goods, and morality are passed through family ties from one generation to the next. It also connects the family to the historical past of the nation, and glances ahead to connect the family to the future of both familial and national stability. (Halberstam, 2005, p. 5)

In *The Cryopolitics of Reproduction*, we argue that the cryopolitics of reproduction involving when, how and if to have children, are embedded within such cultural temporalities, that are not biological, though they might appear or feel biological. Rather, they are normative and performative. For example, whereas the ability to freeze biological material allows the synchronization of parts of different generational and time development ages, it also creates new understandings of frost as a dating technology allowing especially younger women to use their frozen egg cells as a reproductive, romantic, and familial investment. Meanwhile, in the case of ovarian tissue freezing, for example, frost allows women to put their reproductive abilities on hold — synchronizing women’s fertile time with treatment protocols and in this manner, securing their reproductive futures at the onset of disease. In the scientific imaginary, however, ovarian tissue may also re-emerge as a cold remedy for women’s hot flushes. This is especially the case, when ovarian tissue transplants are imagined as remedies used to postpone menopause (Kroløkke and Bach, in review).

Here, cryopreservation enables biological parts to be apparently paused, while other parts paradoxically continue living. In this case, cryopreservation synchronizes reproduction, not only with reproductive intent but also with the realities of increased life expectancy and reproductive aging. For example, in scientific texts,

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menopause is particularly equated with increased health concerns and, within the welfare state, increased healthcare funding costs. In sharp contrast, ovary transplants are framed as a cost-efficient and even resource-wise way of managing women's ovaries. Whereas the ovaries of a newborn girl contain an average of one million eggs, in these scientific accounts, close to 99.9% of follicles undergo decay or are, one might say, wasted during a woman's lifetime. While many of these follicles may not be suitable for reproduction, in these medical texts, scientists speculate that they can be used for the purposes of oestrogen enhancement. As noted by Kroløkke and Bach (in review), what may appear as a "radical" option, then, is retold into an "efficient" management of women's ovaries. In these stories, freezing is translated into a rescue mission ending degeneration and reducing healthcare costs. As a result, ovarian tissue freezing becomes a "reproductive conservation method."

Cryopreservation is a future-oriented strategy and frequently embedded within temporal techniques. It is consequently not surprising that fertility clinics in North America rely heavily on the visual imagery of the clock in which women are reminded that their fertility is "running out," has already reached its "prime," or it is metaphorically and perhaps also literally "five minutes to midnight." Within a cryopolitical framework, the imagery of the clock is interesting in several ways. The clock – rather than other technological innovations – has been considered by sociologists as the key machine of the industrial age. Time periods became, as noted by John Hassard (1990), the central planning feature. And the clock, and along with it, the ability to synchronize production and engage in high levels of coordination was deemed necessary in the desire to enhance productivity. Consequently, time, as exemplified through the clock, has gained economic value. And it similarly plays a role in putting reproduction on ice, as exemplified in commercials about social egg freezing, where not only time but also "optimal" time is at stake. Optimal time in the sense that egg freezing, in order not to be sub-optimal for the delivering of offspring, has to be done during the woman's prime fertile years.

In *The Cryopolitics of Reproduction*, we problematize the ways in which the decision to freeze is individualized as well as, at times, positioned within the welfare state. A cryopolitical framework helps to reveal the normative expectations that individuals must manage their present fertility to ensure future fertility and the making of healthy new citizens. As noted by Rose (1999), responsibility is at the heart of the distinction between good and bad citizens: "This responsibility for the self to manage its present in the light of a knowledge of its own future can be termed 'genetic prudence': a prudential norm that introduces new distinctions between good and bad subjects of ethical choice and biological susceptibility" (p. 134). Moreover, for a responsible reproductive citizen, cryopreservation enables a form of technological prosthesis, yet is also disciplined and managed by the state. While cryopreservation enables for it to never be "too late to become a mother using a cryopreserved embryo or to resurrect an individual, race, or species" (Radin & Kowal, 2017, p. 12), the Danish welfare state, for example, disciplines women's reproductive bodies in particular as evidenced, for instance, in the age in which women are allowed to receive assisted reproduction (see also Chapters 3 and 5).

In combination, cryopreserving biological matter defers and disentangles elements or parts from particular bodies and reproductive environments. Yet its attraction lies precisely in its promise to re-animate and re-entangle biological matter into future new or (old) enhanced bodies, landscapes, or emergent transnational market exchanges. As a theoretical framework then, cryopolitics theorizes and discusses what is at stake when biological matter is frozen in particular normative temporalities, legal, ethical, and cultural imaginaries. Clearly, the ability to freeze and halt decay profoundly changes what reproductive matter is and in what way it is significant. Through an affective economy involving desire and hope, frozen matter is given new life. In short, cryopolitics, within the context of reproduction, is a form of liminal politics (Radin & Kowal, 2017).

4. Reproductive Imaginaries and Methodological Entanglements

In *The Cryopolitics of Reproduction*, we build upon – and seek to contribute to – a set of interdisciplinary scholarly works from feminist cultural studies, medical sociology, STS, reproductive law, and applied ethics. Importantly, we use the concepts of “imaginaries” and “entanglements” as analytical and methodological frameworks that unite this interdisciplinary quest. The concept of cultural imaginaries is a well-established analytical framework (Franklin, 2007; Franklin, Lury, & Stacey, 2000). In *Dolly Mixtures*, for example, feminist anthropologist Sarah Franklin (2007) shows how British sheep along with the genetic engineering of Dolly the Sheep are interwoven with cultural imaginaries of Britain as an innovative and pioneering nation. Meanwhile, Mette Svendsen (2014) reveals how prenatal human babies and piglets, in a Danish hospital and laboratory, follow different trajectories and imaginaries of biographical and biological lives, respectively. In this imaginary, the research piglet becomes naturalized as mere biological life turned into “raw material that sustains human life and health” (p. 191). To focus on imaginaries, then, means highlighting the ways in which discursive and material practices are connected to technological advancements (Franklin, 2007), and focusing on what is considered good, desirable, or even natural (Jasanoff & Kim, 2009) as well as what life becomes worthy of living (Svendsen, 2014).

Throughout this book, we wish to pursue the notion of imaginaries as an analytical construct and turn to “sociotechnical imaginaries,” as articulated by Sheila Jasanoff and Sang-Hyun Kim (2009). Jasanoff and Kim (2009) situate imagination as both “instrumental and futuristic” (p. 123) projecting, at the national level, “what is good, desirable, and worth attaining for a political community” (p. 123). The concept of “sociotechnical imaginaries” reveals how technological accomplishments are always embedded in particular practices as well as within a “reservoir of norms and discourses, metaphors and cultural meanings” (Jasanoff & Kim, 2009, p. 123). While Jasanoff and Kim (2009) pay particular attention to the sociotechnical imaginaries related to the nuclear policies of the United States and South Korea, they situate imaginaries as historically, technologically, nationally, and socially constituted as well as institutionalized and practically enacted in law and policies. Moreover, because imaginaries travel, they become integral, for

example, to technologies, law, national (and international) policies, popular culture, and advertising. As an analytical concept, therefore, sociotechnical imaginaries come together with technological progress, national policies, commercial opportunities, and very normative constructions of how life should be lived (Jasanoff, 2015). In the case of *The Cryopolitics of Reproduction*, we will return to the concept of sociotechnical imaginaries in the conclusion, but throughout the chapters, we will highlight how discursive, affective and material practices, related to the ability to put reproduction on ice, produce and draw upon very different imaginaries.

In order to capture sociotechnical imaginaries throughout *The Cryopolitics of Reproduction*, we turn to entanglement as a wide-angle analytical and methodological lens (Mol, 2002; Waldby & Mitchell, 2006). While entanglement in quantum theory is used to theorize how energy and matter predictably interact, in *The Cryopolitics of Reproduction*, entanglement highlights how the ice age of reproduction is sociomaterial, and hence consists of a set of intertwining legal, ethical, cultural, technological and bodily relations, and clinical practices. Consequently, when we use entanglement, we use it to reveal the ways in which reproductive tissue, gametes, and embryos emerge through clinical practices, such as how gametes are preserved in IVF laboratories, and thus removed from a body and stored in freezing tanks. This involves movements between bodies, that is already shaped by and shaping of cultural imaginations, marketization processes while simultaneously located in particular kin relations, moral, and affective economies of hope, uncertainty, potentiality and fear (Ahmed, 2004, 2010). For example, ovarian tissue is deeply entangled with concrete female bodies, medical expertise, family networks, and affects of hope, yet once preserved and discovered it becomes a means to postpone menopause and as a remedy for osteoporosis (Andersen & Kristensen, 2015). Clearly, not only does cryo re-structure and entangle with temporality, cryo has productive transformative potential: When matter is cryopreserved, it engages new potentialities. For example, old age is rejuvenated by frozen ovarian tissue or ovarian tissue turns into a potential remedy for menopause-related ailments. To capture the entanglements that are at stake empirically in *The Cryopolitics of Reproduction*, we pursue a wide range of empirical material through an interdisciplinary lens that entangles legal and ethical approaches with the perspectives of sociological and cultural studies. While we wish to address cryopreservation within a wider Scandinavian context, in actuality, we rely heavily on Danish empirical material. The decision to empirically foreground Denmark is done for several reasons: Not only are we all located in Denmark and our empirical access has primarily been to Danish clinics, sperm deposits, and laboratories, Denmark also brands itself as a pioneer of different cryo-technologies, especially with regards to the freezing of sperm and ovarian tissue.

Our interdisciplinary methodology included combining a legal dogmatic method with applied ethical reasoning and qualitative methods such as in-depth interviewing and ethnographic observations. It also includes analyses of popular culture accounts such as those found in YouTube videos, marketing material as well as more quantitative methods such as one large survey of Danish students' attitudes on freezing for medical and non-medical reasons (see the Appendix

for a more detailed description of the empirical studies). The interdisciplinary approach offers rich analysis of the complexity of the ways in which cryopreservation of gametes and gonadal tissues is institutionalized and regulated in the Scandinavian welfare state. Together, the analyses highlight key elements of how fertility preservation, as a sociotechnical imaginary, emerges in the form of technological possibilities that are developed, organized, and negotiated in relation to specific normative understandings, moral principles, and economic structures.

The Scandinavian legal family tends to emphasize the intent of a given regulation, which makes interpretation of wording, preparatory work and parliamentary comments important in establishing what the law is. Whereas Denmark and Sweden are members of the European Union and Norway is associated as an EEA (European Economic Area) member state, all Scandinavian countries are members of the Council of Europe and all are parties to the European Convention on Human Rights. As such, the dynamic, value-based style of legal interpretation has also gained ground. In order to uncover the values and normativities behind the legislation and enshrined in it, we focus on the rhetorical strategies, tropes, and their performative effects, in particular the ways in which they seek to naturalize particular types of family formations.

While legal documents help to contextualize cryopreservation in a particular historical and cultural milieu, interview data and ethnographic observations provide insights into the embodied experiences of the people who cryopreserve gametes and tissue and illuminate the imaginaries and practices among biomedical professionals and biobank administrators (such as doctors, biologists, lab technicians, sperm banks, etc.). While the overall study relates to the three Scandinavian countries, Chapters 2 and 4 in particular draw on new empirical data from Denmark produced by some of the authors on, respectively, sperm deposits, embryo storage, and ovarian and testicular tissue cryopreservation. For more details on these studies, see Chapters 2 and 4 and the Appendix.

5. Chapter Overview

Chapter 1: The Market in Ice

Cryopreservation has facilitated and accelerated the marketization of human gametes. This is particularly the case in Denmark, where the ability to freeze has provided new commercial and therapeutic opportunities that cross national borders. However, the freezing and marketization of reproductive cells co-produce a number of ethical, legal and political questions. For example, what imaginaries are at play when politicians or ethical councils debate cryo-technological and market developments? Similarly, what imaginaries unfold when discussing the national border crossing of cryopreserved reproductive material? For instance, why does frozen Danish sperm get to travel the world, while Danish eggs get to stay at home? More generally, how did a monetary market for frozen sperm, but not eggs, develop in the Danish welfare state? In Chapter 1, we unfold a number of difficult questions related to how cryopreservation, within ethical and legal debates, entangle with the marketplace, including imaginaries of the best interests

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of children, reproductive autonomy, and what should (or should not) enter the marketplace in order to understand the making and non-making of markets in reproductive matter in a welfare state setting.

Chapter 2: Disease: On the Use of Freezing on Medical Indication

Risk management, temporality, and cryopreservation intertwine in cases of freezing on medical indication. This involves the freezing of sperm and ovarian tissue prior to chemotherapy, that would otherwise damage the ability to reproduce with the patient's own cells. In the chapter, we follow the imaginaries that emerge. Scientific accounts of ovarian tissue freezing provide important insights into the core processes of how medical developments take place and how imaginaries of scientific progress and possibilities play an important role in this process. For example, when doctors in Denmark, Belgium and the US started preserving ovaries from sick women and girls in the late 1990s, they had no clinical proof that autotransplantation could actually lead to pregnancies in humans, so they relied on the transferability of animal studies and semi-successful human experiments. As ovarian tissue freezing, in the case of Denmark, is paid for by the welfare state, cryopreservation moreover becomes a technology of hope entangling with normative understandings of reproductive futurity as constituting part of the good life. Today, the growing number of children born since 2004 testifies to the method's success in humans. A firm belief in scientific progress influences the imaginary of ovarian tissue preservation, for example, projecting how preservation is managed and who the potential freezers are understood to be. In our study of the entanglement of cryo and disease, in this chapter, we also discuss how freezing is practiced within quite normative imaginaries, emphasizing the promise of "own" genetic offspring.

Chapter 3: Delay: On the Use of Freezing for Non-medical Reasons

Fertility cryopreservation promises to expand and restore women's and men's reproductive lifespan. Not only do these technologies have an impact on the autonomy, equality and well-being of the potential parents and possibly their children, the freezing of reproductive cells entails a potential destabilization of the normative temporalities surrounding reproduction. In this chapter, we develop the sociotechnical imaginaries on cryotechnology as constituting the possibility of delay. Clearly, cryopreservation enables a *delay* or reproductive postponement. In the case of "non-medical freezing," the aim of cryopreservation is no longer used to combat the negative effects of a disease, but rather, to enhance the chance of seemingly healthy people having healthy children. In this manner, cryo entangles with the desire to optimize reproduction in the storing of young(er) reproductive cells intended for later use. Some women, for example, may have some of their oocytes cryopreserved when they are in their mid-twenties (to increase their chances of having children later in life). Women, as well as men, may want to delay their reproduction because they might want more time to find a suitable partner, time to complete education, time to mature and have their

career as well as secure their financial situation before embarking on parenthood. In this chapter, we discuss the ways that legality, ethical debates, policies, clinical practices along with the hopes and dreams of a particular reproductive future come together, in the Scandinavian welfare states, to produce competing understandings of cryopreservation as constituting a form of reproductive delay.

Chapter 4: Death and Destruction

In Chapter 4, we investigate how cryopreservation radically challenges established notions of reproductive life and death. First, we look at how cryopreservation increases the possibility of the posthumous use of men's reproductive cells, which clearly challenges legal, moral, and cultural understandings of reproduction. Second, we discuss how the cryopreservation of embryos (and gametes) similarly challenges conventional understandings of reproduction, when cryopreserved embryos, for example, because of legal time limits for storage, are destroyed. We understand the calibration of life and death as established within different imaginaries: The cryo-technologies seem to, on the one hand, activate a dystopian fearful imaginary about science and man taking the powers of the Gods to make the decisions to (unethically) create/destroy life. And, on the other hand, the technophobic dystopias are encountered by users themselves, who domesticate and "un-monsterfy" the technologies by embedding them in a heteronormative symbolic order of kinship, family and love. Thus, we argue that cryopreservation holds radical destructive queer potentialities of death and destruction, yet also, show how these potentialities, in the Scandinavian context, invariably become domesticated and controlled by aligning cryo-technologies with imaginaries of the traditional family.

Chapter 5: Disturb

Not only is reproductive temporality potentially restructured, cryo, as we have shown in the previous chapters, also has transformative as well as normative potential. In this chapter, we compare and juxtapose the different affective and discursive threads that relate to phenomena that culturally trouble (or disturb) normative understandings of who should reproduce and how reproduction should take place. For example, although an adult could technically have a frozen embryo of her dead parents implanted, and give birth to a girl that biologically would be her daughter, yet genetically her sister, ethical and legal debates along with clinical procedures seek to ensure that a particular reproductive temporality is still in order. Similar to the desire for a normative kinship order, monstrous imaginaries of the elderly mother disturbs yet also animates new understandings of (late) motherhood. Addressing the controversies associated with fertility preservation in relation to gender affirmation treatment, we also look, in this chapter, at the ways in which transfertility troubles normative understandings of who should reproduce. Disturbing the gendered categories of reproduction, we demonstrate how, at least in the Scandinavian context, the liminal potentiality of frozen fertility has called for the reorganization of specific reproductive

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categorializations and laws in relation to fertility preservation and assisted reproduction more generally.

Conclusion

In the conclusion, we (re)turn to the cryopolitics of reproduction including our method of comparative problematization (Jasanoff & Metzler, 2018) in order to discuss the ways that the ice age of reproduction entangles with different imaginaries across the Scandinavian countries. We begin the conclusion, however, by considering Scandinavian exceptionalism from a feminist perspective, considering *not* what makes the Scandinavian countries unique and different (for example, the development of a welfare state), but importantly, *how* narratives of Scandinavian exceptionalism come to function as a normative smokescreen for whom, when and how reproduction is even allowed to take place. This chapter draws conclusions from the four preceding chapters and highlights national differences and core imaginaries.

Chapter 1

The Market in Ice

1. Introduction

The fertility market is a billion dollar industry. In Denmark alone, the fertility industry generates hundreds of millions of dollars of revenue (Toft, 2015). To give just one example: In April 2019, having made more than \$ 65 million US, the Danish family behind European Sperm Bank sold two-thirds of its shares (for an unknown but probably very substantial amount) to Axcel, a Nordic private equity firm. While equity firms appear to have become the new financial players in the European fertility market, according to the Allied Market Research group (2015), the market in assisted reproduction is expected to double its growth from 2013 to 2020 (Toft, 2015). Projected as a global growth market, the business in IVF alone includes treatments, donor gametes, hormone medication, and IVF equipment. Rising infertility rates, trends toward later pregnancies, technological advances in fertility equipment and services, together with rising rates of wealth and a continued desire for genetically related children provide further evidence and support for this burgeoning market (Allied Analytics, 2018).

It is difficult to imagine this large-scale global market without cryopreservation, as freezing technologies and the market in fertility services are closely intertwined. For one thing, freezing technologies make it possible to achieve, on a grand and international scale, what was previously only possible in a small clinical setting. For example, since human sperm can be frozen, sperm can be stored and distributed all around the globe and, therefore be commodified. In addition, with regard to today's vitrification of oocytes, eggs as well as sperm can now be stored in large tissue banks, granting patients increased selection choice (e.g., of who to choose as a donor) as well as enabling emergent possibilities of self-donation involved in the freezing of one's own reproductive cells and tissue. In the process, cryopreservation becomes a kind of insurance against infertility later in life. In this way, freezing technologies and the fertility market are deeply intertwined.

It is perhaps not surprising that the market in human reproduction is not like most other industries. Not only does it deal with one of the most intimate aspects of our lives and involve the making of babies and families, the fertility

market also tends to be tightly regulated and surrounded by ethical controversy. In some aspects, this is perhaps particularly the case in the Scandinavian countries, where reproduction and the welfare state are closely entangled. For example, in Denmark, the practice of freezing eggs in order to postpone pregnancy for non-medical reasons has been met with resistance on the grounds that it is harmful to women, future children, and broader societal values. At the same time, however, Denmark is also home to one of the world's largest sperm banks, *Cryos International*, a significant agent in the making of a global market and, as we will demonstrate, heavily entangled in the commodification of sperm in Denmark.

The notion of a market can be difficult to pin down. On the one hand, it is often used broadly to signify any area in which there is supply and demand, for example, the dating market. On the other hand, the notion of a market is often used narrowly to signify institutions where self-interested people (individually or collectively) exchange goods and services for money, for example, the housing market. In this chapter, we focus on the making of the *monetary* market in assisted reproduction. It is, however, clear from previous research that a market is so much more; Julie Smith (2013, 2014) has, for example, demonstrated the economic value of breast milk and breastfeeding, how its contribution can be valued in market statistics and how the failure to account for its value in economic data has severe impact on public policies. In his work on sperm donors in Denmark, Sebastian Mohr (2018) has shown that the exchange of gametes for money never solely is a question about money or payments. Rather, Mohr shows how monetary exchanges are embedded and entwined within other forms of markets, for example, affective or gift economies. We therefore use the notion of a market in a somewhat broad sense, meaning an institution where individuals exchange goods and services, noting that the market for sperm in Denmark more closely approximates the narrow definition of a market, or a monetary market, while the market for eggs more closely approximates the broad definition. While the monetary market in assisted reproduction is booming, and the commercial interests at stake were also cited by a previous Danish government as a primary reason to uphold anonymity in sperm donation as an option (Bill L151/2016), it is also clear that some markets in Scandinavia are very limited (e.g., egg and embryo freezing) while others are thriving (sperm donation and cross-border reproductive care).

The aim of this chapter is to discuss and understand the making and non-making of a Scandinavian monetary market in frozen sperm and egg cells. We have chosen to focus exclusively on reproductive cells, because embryos as well as ovarian and testicular tissue, within the Scandinavian welfare states, are not currently positioned as reproductive commodities. Consequently, we first historicize cryopreserved "commodities" in what is frequently understood as the "cool" North. As noted by Schurr (2018), place and context are important. Indeed, geographically, Scandinavia can be said to be "cool." Parts of the Scandinavian territory are in the Arctic region. Land within the Arctic region has seasonally varying snow and ice cover, in places even permafrost. Arctic seas equally contain seasonal sea ice. Ice is a well-known force of nature throughout the Scandinavian region, and ice is even seen as potentially health-conditioning, as Scandinavian folklore sees children born in winter as stronger and sturdier. For generations,

Scandinavian babies have conventionally napped outside in the cold weather in order to improve sleep as well as health. Meanwhile, Nordic “coolness” extends to the ways that Nordic design and products are now seen as providing sustainable and aesthetic pleasure, connoting an inherent sense of quality as well.

Indeed, the Danish sperm bank Cryos International strategically played on this sense of Nordic coolness, when, in the late 2000s, they marketed Danish sperm as a Viking and quality product (Kroløkke, 2009). The “viking strategy” also reminds us how Nordicness is embedded within a specific racial and colonial history of Whiteness (Vitus & Andreassen, 2015). Race scholar Rikke Andreassen has argued that the notion of Viking sperm both rekindles racial discourse akin to that propounded by the racist race sciences of the early nineteenth century, which were indeed very prevalent in Scandinavia, while simultaneously erasing the racial and colonial histories and legacies of Whiteness in the Nordic countries, as consumption of (racialized) sperm is reframed within neoliberal consumer logics (Andreassen, 2017, 2019). In the case of cryopreservation, however, cold temperatures are entangled not only with cultural conventions but also with regulatory responses, as slow freezing and vitrification simultaneously allowed new reproductive techniques and markets to emerge. These various differences have produced very different histories as regards diversity in practices and the management of assisted reproduction.

Having considered the historical perspective, we draw on interdisciplinary literature studies as well as empirical materials including bioethical, legal, feminist and cultural study accounts in order to theorize the market. Because Denmark has played a unique role in the making and unmaking of a market in the Scandinavian context, we use the Danish context to describe how frozen sperm and eggs, within the Danish welfare state, come to be understood and regulated as commodities. We first show how cryopreservation of sperm responds to specific concerns around safety as well as how freezing enables commodification by creating a larger pool of donors from which the recipient can choose. As sperm is left largely unregulated, it is also allowed to “travel the world,” invoking a nationalist imaginary of the conquering Vikings (Kroløkke, 2009). In contrast, the freezing of eggs is highly problematized, monstrositized, and limited, which precludes the making of commercial egg banks in Denmark. In the final section of the chapter, we bring these discursive, affective, and material elements together in order to discuss the making and unmaking of a Nordic market in reproduction.

2. The Legal Framework

Although the Scandinavian countries differ widely in the ways that cryopreservation is regulated, they are all welfare states. The welfare state is redistributive and provides a wide range of benefits and services as citizens’ entitlements with the aim of creating a more egalitarian society. Overall, the Scandinavian countries are all successful capitalist economies, but the Scandinavian welfare state model is also known for regulating market forces through political interventions. All Scandinavian countries cover the cost of fertility treatment in the national health plan conditional upon certain criteria being met such as medical indication, age,

marital status, etc. Typically, three cycles of IVF are offered with only a small amount of co-payment. All the Scandinavian countries do, however, also have a private sector for treatment in cases where criteria for access to public treatment are not met. This is especially the case as far as bypassing waiting lists or having more cycles than the three rounds sponsored by the State are concerned.

The use of donated sperm is thought to have existed in the Scandinavian countries since the 1920s.¹ In the case of Denmark, sperm banking developed and became routinized due to entanglements with individual entrepreneurs, a distinction between public and private clinics prevalent in the welfare state, and private fertility clinics. Globally, the market in egg cells did not develop before the emergence of IVF and since the technique of sperm cryopreservation is comparatively much simpler than that of egg vitrification, the market in sperm developed much earlier. Even today, egg donation, in Denmark, often takes place in “fresh” (non-cryopreserved) cycles. In this chapter, we illustrate that Scandinavian legal regulation has played a significant role in the commercialization of reproductive matter, enabling sperm to readily travel across national borders as a commodified entity, while Scandinavian egg cells are domesticated and not marketized nor commodified. In Scandinavia, egg cells are exchanged in systems of donation, rather than in systems of monetary markets.

Danish IVF history reveals interesting and unintended entanglements between public clinics, private clinics, and an entrepreneurial sperm bank. Around the turn of the twentieth century and during the following decades, a strong desire among the Scandinavian governments to collaborate and form common legislative frameworks was in place. This was the case, for instance, in the area of family law and led to increased legal collaborations between Scandinavian countries. In 1948, legislation in relation to reproductive assistance began to be discussed when working groups under the Danish and Swedish Ministries of Justice considered whether legislation on the use of insemination was needed and appropriate. At the 1948 Nordic Meeting for Lawyers,² what was referred to as insemination and the pertinent issue of artificial conception was especially highlighted as in need of Nordic debate and a common Nordic legal framework (Melander, 1948). At this time, however, neither the proceedings of the Nordic Meeting for Lawyers nor the reports of the working groups resulted in a governmental Bill even though the white paper given by the Ministry of Justice working group contained a draft Bill.³

¹For more detail, see the historical chapter of the Swedish white paper on children through insemination, *Sveriges Offentliga Utredningar* 1983:42 (Huvudbetänkande av inseminationsutredningen), p. 31.

²Nordic Meeting for Lawyers, “De Nordiske Juristmøder,” have brought legal academics, practitioners, judges, administrators, civil servants, etc., from all legal institutions together every third year since 1872.

³The working group formed by the Ministry of Justice’s letter of May 29, 1948 delivered their white paper in 1953 (*Betænkning 29/1953 om en særlig lovgivning om kunstig befrugtning*).

In line with the Nordic lawyers, who saw a need to reform family law as a result of, among other things, the insemination issue (and so-called “illegitimate” children in general), the working group’s draft Bill proposed regulation of who could perform insemination (doctors), regulation of consent (treatment of married women required consent from the husband), regulation of donor selection (selection was made by the treating physician who was also responsible for ensuring anonymity), regulation of paternity (the husband), and a stipulation that no legal bond existed between the donor and child. However, at that time, the feeling in the Danish Parliament was that medical issues were best left to the medical profession to decide on, on a professional and scientific basis, and for that reason most medical issues should not be (and were not) addressed by legislation. Consequently, in Denmark, no special rules or regulations governed insemination, donation, and artificial fertilization prior to 1997, when the Act on what now became known as “artificial fertilization” was adopted. Instead these practices were subject to sparse regulations that generally regulated medical treatment. The general medical law framework was characterized by a high degree of professional self-regulation and covered primarily the legal and administrative framework for the healthcare system, some educational demands regarding healthcare personnel, issues of malpractice, and the duty to provide information to patients.

Consequently, the practices surrounding sperm donation had been left to develop within the healthcare system at the discretion of physicians and without regulatory interference. Likewise, in Sweden, where insemination with both partner sperm and donated sperm had been practiced at several women’s clinics and private gynaecologist practices without special rules or regulation (Sjögjerd, 2012). Following the common Nordic deliberations on family law, the Swedish Ministry of Justice had tasked a working group with wording a draft Bill.⁴ The draft Bill was similar to the draft Bill proposed by the similar working group under the Danish Ministry of Justice. However, the new Swedish Parental Act deliberately did not address insemination, as the Bill stated that it was practiced to such a small extent that no explicit regulation was needed, referring to a study by the National Board of Medicine showing that between July 1945 and June 1948, a total of 95 inseminations had been performed in Sweden resulting in seven pregnancies. It was not until 1983 that one of the first legal regulations in the world on insemination was adopted in Sweden through the Act on Insemination⁵ with further updates in 1985. Two significant features of this law were the banning of private sperm banking and the insistence on using non-anonymous donors only.

⁴SOU 1953:9 Statens Offenliga Utredningar – Förslag till Lagstiftning om Insemination avgivet av sakkunniga inom Justitiedepartementet. [The State’s public white papers – legislative proposal on insemination by professionals in the Ministry of Justice.]

⁵Act No. 1984:1140.

In Denmark, the issue of regulation was revisited by a working group⁶ on fertility treatment set up by the Minister of Health in 1992. The working group argued that overall there was no need for special regulation because the practice of insemination had evolved in such a way that it did not give rise to any concern: Insemination was performed by gynaecologists and specialist doctors and as such the working group was satisfied that the standard of care met professional medical standards and that adverse risks of transference of diseases through donation were managed appropriately. The main theme of discussion was the fact that the donor and the receiving couple were anonymous to each other and to the future child. The practice of anonymity had been the norm right from the beginning among the gynaecologists and specialists who provided fertility treatment. The working group noted that almost all donors made the donation conditional on anonymity, and even the clinics did not have any means of identifying the donor at any subsequent stage. It was also, at that time, common to use sperm from multiple donors and to recommend intercourse around the same time as the treatment, thus making the actual paternity difficult to establish. The 1992 working group remarked that it was also worth noting that in 5–10% of marriages, the genetic origin of the offspring was in fact not the husband. The working group used this argument to conclude that donation was not that different from “normal” births.

The working group reiterated the fundamental arguments behind the practice of anonymity in their report, since the adoption of a new law in neighboring Sweden in 1985 giving the child a right to any information about the donor recorded in the medical files, meant that it was the right time to discuss whether this was still an appropriate principle to uphold in Denmark. The reasoning behind anonymity in donation had always been three-fold. First, the purpose of providing insemination as a fertility treatment was “to replace a natural function” and the child’s upbringing and place in the family therefore “ought to take place as close to the normal and natural way as possible.” Second, the interests of the donor also had to be considered. It was presumed that the donor was acting for altruistic reasons and not because he wanted a relationship with any offspring. Lastly, the working group argued that the Swedish law did not carry any legal weight anyway, since it did not place an obligation on parents to tell the child that it had been conceived with donor sperm, and if this information was not provided it would be hard to fulfil the right of the child which was at the center of the Swedish law. Also, the Swedish law had resulted in fewer cases of sperm donation in Sweden and an increasing number of Swedish women receiving treatment in Denmark. The working group concluded by saying that it was a common feature of any regulation that by upholding certain interests, other interests would be excluded. In this case, upholding the value of a “normal” family entails that there can be no relation or relationship between the donor and child.

⁶Behandling af ufrivillig barnløshed, en rapport afgivet af en arbejdsgruppe nedsat af sundhedsministeriet [Treatment of involuntary infertility, a report submitted by a working group under the Ministry of Health], Copenhagen, 1992.

In the early 1990s, administrative guidelines began to emerge in Denmark. The practice of anonymous donation had been adopted from the beginning by the medical community. The early guidelines continued the conceptualization of anonymity as the natural norm and the predominant interest became the regulation of eggs and embryos. On June 13, 1994, the Danish Board of Health issued an instruction on the introduction of new technologies in fertility treatment and a circular on doctors' notification of new treatments seeking to achieve pregnancy. These guidelines represented the first regulation of sperm donation with the aim of ensuring that donated sperm was free from HIV, requiring sperm banks to notify the Board of Health of transactions and results. In this context, cryopreservation now became seen as a safety measure and fertility treatments, with the use of donated sperm, could now only be frozen, not fresh. This was a precautionary measure that would ensure sufficient testing of the sperm prior to use, ensuring that donor sperm was free from disease (most notably HIV). But up until that point, sperm banks had not been subject to any formal supervision from health authorities. So, while egg cells and embryos had to be controlled in ways that sperm did not, it was the issue of patient safety and the health authorities' interest in monitoring the quality of care that sparked early regulation of an otherwise free market in sperm that included the use of fresh donations of sperm.

Consequently, up until 1984, in Denmark, assisted reproduction had not been subjected to regulation. Instead, an imaginary of the competent and independent scientist had dominated the Danish case (Herrmann & Kroløkke, 2017). Medical issues were considered best left to the medical profession to decide on a professional and scientific basis, and for that reason most medical issues were not addressed by legislation (Herrmann & Kroløkke, 2017). In October 1984, however, a working group under the Ministry for Interior and Health published their report "The Price of Progress" (Ministry for Interior and Health, 1984), which recommended the establishment of a Council on Ethics. In 1987, the Council on Ethics was established by Parliament, and in 1989, it published a report on the protection of human gametes, embryos, pre-embryos and fetuses. On the topic of cryopreservation, the Council on Ethics observed that viability was hard to preserve and as a result recommended a time limit for cryopreservation. A majority of the Council found

that cryopreservation of eggs should be allowed subject to the same conditions applicable to sperm, i.e. that cryopreservation should be allowed for a limited time and had to be destroyed at the time of the banker's death. (The Ethical Council, 1989, p. 81)

However, considering the cryopreservation of sperm, the Council stated that it should not be subject to any limitations except those required on medical or administrative grounds, provided that the sperm was destroyed when the banker died (The Ethical Council, 1989, pp. 60–61). This requirement exclusively addressed the time lag between deposit and fertilization, ensuring that fertilization did not take place after death. Jointly, the Council on Ethics, together with increasingly sophisticated technological developments, meant a shift in the

imaginary from the early legal understanding of the competent scientist to a discursive construction of the Moral State. We will return to these discursive and affective threads in later sections and will also consider legal developments, but now we give a brief overview of the ways in which sperm became developed and regulated in Denmark.

2.1. The Development of Private Cryopreserved Sperm Banking in Scandinavia Up To 1997

While sperm donation in Sweden was already regulated from 1985, the development of sperm banking in Denmark took place at a time where regulation was sparse. In 1981, the first Danish commercial private sperm bank was created. According to Ole Schou, the founder of the Danish sperm bank *Cryos International*, a nocturnal dream of “frozen sperm in ice formation” generated the idea of a commercial sperm bank’ (Gandini, 2015; interview with Schou, 2009). It was not until 1987, however, that Schou established *Cryos*, and then, initially as a bank for sperm deposits. It was another three years before the donor programme was developed in 1990, with a business-to-business sales model meaning that sperm was sold to clinics that mainly practiced sperm selection in the lab (Adrian, 2006, 2010). In the 1990s, Danish sperm banking developed into a global industry. At the beginning of the new century, *Cryos* faced new competition with the establishment of the *European Sperm Bank*, operating both in Denmark and on the international market.

The development and intensification of the use of cryopreserved sperm in the case of sperm banking and donation accelerated at the beginning of the 1990s for several reasons. As already explained, the HIV virus had become a global health threat, necessitating new safety measures that made using fresh sperm dangerous and eventually illegal. Furthermore, IVF had reached a stage of routinization, allowing a number of private fertility clinics to provide clinical hope for infertile couples. In Denmark, where private health and fertility care was almost non-existent at the time, the development of a private market stirred some controversy within the community of gynaecologists and reproductive specialists, because it marked a departure from the previous setup where the medical community had sourced and distributed sperm within their own sector.

Sperm cryopreservation, however, was not new. Sperm banking had been organized first through Chief Physician Lebech’s sperm bank in the mid-1960s, and since 1976, through The Central Sperm Bank (“Den Centrale Sædbank i Pilestræde”) established as part of the general practitioners’ common laboratory facilities in central Copenhagen. Although this sperm bank was not owned by the state or the county council, but instead developed as an independent foundation, the controversy of public/private treatment within the medical community had caused the sperm bank not to sell sperm to private fertility clinics (Adrian, 2016). In 1989, the Mermaid Clinic, which was established as one of the first private hospitals in Denmark, wanted to offer fertility treatments, including sperm donation. However, being a private sector hospital they could not receive donor sperm from The Central Sperm Bank, while importing sperm from the US was quite

expensive. This became a business opportunity for Schou, whose challenge at the time was to find the necessary working capital to establish the donor programme. With a substantial order from the Mermaid Clinic, Schou was able to set up business and establish the donor programme. With a background in business studies, he integrated a knowledge of markets, service and sales into his methods for conceptualizing *Cryos International*. From the very beginning, he wanted a large donor corps covering a diverse selection of phenotypes, and he was determined to offer speedy delivery upon a sale. Within a few years he effectively supplied the Danish market, and since then has expanded globally with sales to more than 100 countries (Adrian, 2006).

2.2. Challenging Heteronormativity Through the Market

In 1997, the Danish Act on Artificial Fertilization was adopted. The aim was to create a legally binding framework for fertility treatment performed by doctors. According to the preparatory work, the existing practice of anonymity in sperm donation was to be continued. This meant that clinics were now legally obliged to ensure anonymity, and as a result, sperm banks had to offer anonymous sperm in order to supply the domestic market. No specific reasons for codifying anonymity are given in the travaux préparatoires, but by upholding previous practice, the legislator endorsed the original reasons for anonymity which effectively meant keeping the traditional heterosexual family unit intact. This reason was also given explicitly in relation to the Act's ban on egg donation between known parties, especially between family members, as this would create unfortunate and confusing familiar relationships.

The question of donor anonymity became the predominant political issue in relation to the market in sperm across Scandinavia. Sweden had already banned anonymous donation in 1985, and in 2005 Norway followed suit. Meanwhile, in 2007, Finland similarly banned anonymous donations, thereby, foregrounding the child's right to know about their genetic origin even if it meant fewer donations and less business for domestic fertility markets. Denmark, however, maintained its position. In a 2006 amendment of the Act, anonymity was explicitly upheld, stating that there was no demand from donors or families to change the law. Additionally, legislators raised concerns about the best interests of the child, which in their opinion could not be viewed as isolated from the family in which the child was to live — legislators were concerned that it might affect the overall welfare of the family if a third party was to be involved in the child's life. Furthermore, according to legislators, the interests of society had to be considered as well. If anonymity were abolished, the number of donors would decline and Denmark would face a "sperm drought" and the same problems with providing treatment as seen elsewhere in the world. The need for more complex and costly (and state-supported) treatment such as IVF would increase if options for simple insemination were limited in this way, and then, of course, the issue of business interests was also at stake.

Moreover, a central issue was the question of access to treatment. In the parliamentary debate that led up to the adoption of the regulation, one of the

discussions centered on how conception needed both a sperm and an egg, a father and a mother, thus naturalizing the heterosexual relationship as the premise for parenthood (Bryld & Lykke, 2000, 2002; Nebeling Petersen, 2009; Stormhøj, 2006). During the period between 1997 and 2007, it became illegal for Danish medical doctors to provide fertility treatment to lesbian and single women. However, since the law did not state that other health professionals were not allowed to treat women with insemination, a midwife named Nina Stork established a clinic, buying sperm from *Cryos* through a doctor who acted as an intermediary. Nina Stork's clinic, initially set up as a political protest, soon grew to be a profitable private clinic, well-known as a clinic directed specifically at both lesbian couples and single women within Europe. Both Stork herself, as well as the women who succeeded in having children through insemination, challenged existing heteronormative understandings of family by showing picture-perfect families in the media and being vocal in debates.

Even prior to 2007, when the Danish legislation was changed to enable medical doctors to treat women irrespective of them being single or lesbian, several other private clinics were established, owned by midwives or biomedical laboratory scientists, respectively. As these clinics had also marketed themselves as offering more women-centered modes of care, they became well-known to fertility travelers from abroad and continued to develop and flourish after medical doctors became able to legally treat single women and lesbian couples. As the development of ICSI treatments in the 1990s brought about a fall in the number of heterosexual couples in need of sperm donation, the normative change of what came to constitute a family can today be seen in the change of who the sperm banks perceives to be their customers, not only in Denmark but worldwide. While they believed that almost all of their customers in the 1990s were heterosexual couples, this is not the case today, and during the 2019 symposium *Cryos* announced that single women and lesbian couples now constitute their largest consumer group (Cryos Symposium, May 2019).

2.3. From “Business-to-Business” to “Business-to-Consumer”: Danish Cryo-sperm Goes Global

While the Danish market and legislation seemed of importance during the initial years of the commercialization of Danish sperm, the sperm market soon took off on the global stage. The market logic, regulations and standards of safety differ. Notably, these logics were entangled by very mundane practices of which donors were selected and the premise on which the selection of the donor was made. Although a “gray” market of non-cryopreserved sperm existed, in all of the Scandinavian countries, sperm donation was most common in medical settings. In this setting, the doctor was, during this time period, in charge of the selection decisions but in practice, decisions were often referred to biomedical laboratory scientists. Because sperm donation had been understood as a treatment that replaced a “natural” function and secured the heterosexual family, where the husband was to assume paternity in every way, the phenotypes of the social father were expected to be matched (Rosenkvist, 1979). Conversely, in some clinics in Sweden

the donor was imagined as a potential stand-in father, in view of the fact that donor programmes relied on non-anonymous donors only (Adrian, 2006, 2010).

Consequently, it was a game changer when Cryos entered the US market. This was a market shaped by different logics, most notably understanding the woman or couple needing sperm as *consumers* and not as *patients*. On the US market, Cryos' initial "Business-to-Business"-model did not work. Here, it was expected that the consumer (herself) would make the selection. In the US, the "business-to-customer" market model had already existed for many years and with the advent of the Internet all the competing sperm banks were already selling sperm based on existing donor profiles with extended profiles, baby pictures, etc. (Adrian, 2010; Almeling, 2011; Cooper & Waldby, 2014; Daniels, 2006; Krøløkke, 2009; Martin, 2015; Moore, 2008; Schmidt & Moore, 1999).

When Cryos launched their first website in the US with ice, snow, fire, and a pregnant belly, providing donor sperm named after Vikings and marketed to customers overseas, there was an outcry in the Danish media (Adrian, 2006). Although Schou, in 2001, argued that the markets were separate (Adrian, 2006), as early as the mid-2000s the new competing sperm bank, *European Sperm Bank* began selling sperm online directly to customers with donors having both what they called extended and basic profiles. As neither was owned by medical doctors, these two sperm banks could provide treatment outside the legislation (because legislation only applied to treatment given by medical doctors). Within this context, customers began buying sperm on the Internet. As several countries, including Norway and the UK, began to prohibit the use of anonymous sperm from the mid-2000s onward and the debate on anonymity entered the public arena, in 2006, *European Sperm Bank* began producing and selling both anonymous and non-anonymous sperm and *Cryos International* followed suit. Their product now included both basic and extended profiles, with the latter becoming a legitimate choice at the clinics not owned by doctors. In practice, a market for the use of both anonymous and non-anonymous sperm took off already in the mid and late-2000s in Denmark, although medical doctors were not allowed to treat with non-anonymous donors before the legislative changes adopted in 2012. However, despite the logic of the Danish legislation trying to regulate a market of "Business-to-Business," in practice, the increased commercialization of sperm moved choices of donor selection away from the medical doctor to the patient, increasingly understood as the customer. This change in decision-making in terms of donor choice also became more visible in the clinical settings where donor decisions were more vocalized (Adrian, 2019).

When Norway and the UK, in 2005, changed their legislation from allowing only anonymous sperm donors to now allowing only non-anonymous donors, *European Sperm Bank* began sourcing sperm from non-anonymous donors. Moreover, since the midwife-owned clinics were already making special imports from the US in order to receive sperm from non-anonymous donors, *European Sperm Bank* followed suit and began sourcing sperm from non-anonymous donors from the bank. After a few years, *Cryos International* followed *European Sperm Bank*, introducing business-to-consumer sale through a developed customer-oriented website, matching those developed by the US sperm banks.

The development of an accessible website for consumers led to an increasing number of consumers from all over the world contacting sperm banks to enquire whether they could receive the sperm at home. For some women, it seemed more relaxing to carry out the insemination at home by themselves. However, there were also a lot of lesbian and single women who, due to discriminatory legislation around Europe, were not able to receive treatment locally and for whom it was not possible to travel for treatment. Instead, they were interested in buying the sperm directly from *Cryos International*, thereby bypassing local legislation. In 2011, Cryos began to deliver sperm to private addresses all over the world. In Europe, this was possible even in countries where sperm donation was not legal, because the sperm changed status, no longer being categorized as *human cells* but as a *product* which could move freely within the European market. However, this subversive market practice (Adrian, 2016) was challenged by the EU commission, which compelled Danish legislators to review the national implementation of the EU tissues directive, making it illegal to send sperm directly to private addresses without the involvement of a healthcare professional person. In parliamentary debates, however, it was clear that the main reason for the European Commission's wish to challenge the practice was that many countries found the possibility of non-heteronormative families morally problematic. It was not obvious that moral arguments should influence the Danish interpretation of the tissues directive, since moral arguments have previously been dismissed as irrelevant in a free market context, cf. Case 159/90 — *The Society for the Protection of Unborn Children Ireland Ltd v. Stephen Grogan and others*. Today, cross-border sales can still take place, provided that shipments are addressed to an authorized health practitioner, such as an optician. Consequently, today creative arrangements could make it possible to receive sperm for home insemination.

2.4. *The Story of Why the Cold North Kept the Eggs at Home*

At the same time as sperm began to travel and there was an increase in fertility travel to Denmark from all over Europe for sperm, Danish women's eggs were and still are, kept at home (Adrian & Kroløkke, 2018). Vitrification, which is the successful technique used in oocyte cryopreservation, technology of oocytes, came comparatively late to the cold north. While Spain already has a flourishing donor market (Bergmann, 2012; Funes, 2017; Kroløkke, 2014; Pavone & Gove, 2017; Payne 2016), in Norway, egg donation remains illegal (Aasen, 1998) and in Denmark and Sweden, egg donation has been controversial and compensation has historically been low. Until an amendment of the law in 2007, in Denmark, egg donation was only allowed from women who were themselves undergoing fertility treatment. Combined with the fact that until 2012 egg donors were compensated the same amount as sperm donors (which for an entire IVF treatment cycle translated into compensation of 500 DKK, i.e., \$85), the supply of eggs could not meet the demand. Although compensation was raised to 2,500 DKK in 2012/2013, this amount still did not prove sufficient to recruit donors. It was not until the amount of compensation was increased to the same amount as seen

in countries such as Sweden, Spain, and the UK (approximately €1,000), that a change in donor numbers was seen.

At the beginning of the 2010s, vitrification was becoming a routinized technology in other places around the world. Once again, Cryos International saw this as a business option. Given that sperm banks were operating all over the world, in countries with differing legislations, and given the infrastructure of cryoboxes in circulation, and a well-organized computer system and cryotanks, it did not seem such a big move to include eggs in the sales inventory. The Danish Act on “Artificial Fertilization” had barred eggs from transnational mobility, relying on control as a key principle in safeguarding eggs that were removed from the female body from the perceived monstrosities that ARTs could potentially give rise to. Although a legislative change in 2012 now enabled eggs and embryos to be moved across the Danish border, which until then only had been legal in the case of sperm, Cryos faced two challenges: recruiting sperm donors with the minimum compensation given to women going through IVF, and gaining Danish legal support to make money on the sales of the egg. In relation to both questions, they faced rejections when they applied to the Ministry for the Interior and Health. In their application, Cryos suggested a model of compensation to the donors in which it was made possible for them to have half of the donated eggs frozen for their own later use. However, this model of compensation was considered by the Ministry of Health as too generous relative to the amount of financial compensation the women were allowed. Furthermore, although Cryos International was allowed to make money on sperm, women’s eggs were perceived as a radically different substance, and consequently the Ministry of Health viewed sales of oocytes as illegal. To this day, oocytes can still be stored for only five years in Denmark, while the regulations state that sperm can be stored forever if it is donor sperm or even after the man’s death if he has written a will. Therefore, legislation has reduced business opportunities from non-medical freezing in Denmark as well as the development of private egg banks.

3. Theorizing the Market in Ice

While beer, Bang & Olufsen, Volvo, and Lego blocks have become well-known “quality” Scandinavian export commodities, when it comes to the export of Scandinavian sperm and eggs, the moral grounds for the making or unmaking of a market become more shaky and, as we will demonstrate, highly gendered. In this section, we theorize the making and unmaking of a market. Today, the Scandinavian cryo-market consists of cryopreserved sperm as well as cryo-related equipment (such as hot plates and mini incubators) along with various mediums (such as sperm-freezing mediums, known as cryoprotectants) developed by companies such as Origio and FertilityTech, located in Denmark and Vitrolife located in Sweden. We base our theorization of the market on an interdisciplinary set of scholarly articles that collectively situate reproductive substances as morally contested commodities (Radin, 1996), while simultaneously documenting how cryopreservation has become pivotal in the market in frozen reproductive parts.

At the most basic level, markets are institutions characterized by *continuous*, *voluntary*, and *specified* exchanges of goods and services between individuals or collective agents, such as businesses and organizations (Herzog, 2013; Rosenbaum, 2000; Satz, 2010). To clarify: a single exchange is not enough to constitute a market. Markets coordinate behavior through various mechanisms, and they can only do this to the extent that people can adjust their behavior in response to the anticipated actions of others, which requires continuity (Satz, 2010). Markets are also characterized by voluntary exchanges. For example, we may not consider it trade when someone forces two people to exchange goods. Ultimately, only *specified* exchanges count as market transactions. We do not consider it trade when two people exchange gifts around Christmas, for the simple reason that the exchange in question was not sufficiently specified. If it were, it would hardly count as the giving of gifts (Rosenbaum, 2000). Importantly, markets can be more or less free. Take, for example, the previous sections on the making of a sperm market in which sperm banks operated by non-medical doctors existed outside, at that time, of Danish legislation. In most industrialized nations, there are rules and regulations with regard to who can participate in the market. For example, one typically needs a licence in order to sell food on the market. Another example is the sperm market again, where people must be 18 to become donors.

The rules and regulations for market exchanges can, generally, be laid out along seven dimensions or variables (Brennan & Jaworski, 2015). First, markets can be (and are) regulated with regard to who can participate in the market. Second, markets can be regulated with regard to which means of exchange are allowed on the market (money, barter, bitcoins, gift cards, and so on). Third, markets can be regulated with regard to prices, which can be fixed or flexible, high, moderate or low, and so on. Fourth, markets can be regulated with regard to distribution or proportion between participants on the market (how much the different parties to the exchange get). Fifth, markets can be regulated with regard to the mode of exchange on the market (auction, lottery, bazaar, co-op, and so on). Sixth, markets can be regulated with regard to the modes of payment, such as salaries, scholarships, tips, contributions to charity, and so on. Exchanges need not be carried out in money that the seller receives personally. Charitable donations in the name of sellers can also function as a mode of payment. And finally, markets can vary in their motives for exchange. They can be for-profit, public benefit, cost-recovery, non-profit, charitable, and so on.

In the case of the market in reproduction, altruism and gifting frequently collide with market and commodity thinking. Notably, feminist scholars have provided us with sharp analytical insights into what becomes contextualized as gift markets (Almeling, 2009; Sharp, 2000; Strathern, 1992). While donating eggs, for example, clinical or even testimonial accounts are framed as giving someone the “gift of life” (Tober & Kroløkke, forthcoming). A third reason concerns autonomy. Donors and recipients should be allowed to arrange contracts as they see fit, insofar as they are competent adults. A fourth and final reason is harm prevention, as legalization is understood to counteract black markets for gametes (and exploitation of poor women around the world, a standpoint that has been

complicated in studies of sex selling and surrogacy). These reasons form the main pillars in the case for allowing the sale of gametes.

Because of the concern that paid donations will squeeze altruistic donations, paying gamete donors has largely been resisted in the Scandinavian countries. As long as donors are only compensated for their expenses, discomfort, and so on, they are, ethically speaking, seen as presumably acting primarily from altruistic motives; that is, with the intention of benefiting others. When financial incentives are introduced, more egoistic motives enter the picture and potentially begin to take over. The squeezing of altruism is primarily seen as morally problematic for the following reasons. Introducing financial incentives changes the nature of a donation from “a public-spirited activity into a job for pay,” which can put off some potential donors, leading to a decline in quantity (Sandel, 2012, cited in the Danish Council on Ethics, 2013a). Moreover, there is a concern that financial incentives are likely to attract donors, who are more inclined to hide relevant medical information, leading to a decline in quality. The contradiction between individual donors who donate altruistically contrasted with clinics that gain immensely from their donation appears, in the Scandinavian countries, to be unproblematic. In fact, Strathern (1992) highlights what may appear as a productive tension between the gift and the commodity when she calls for an understanding of gift markets, while Hoeyer (2013) calls for scholars to problematize how and when certain “things” (such as sperm and eggs) are made to appear exchangeable. Meanwhile, feminist scholars stress that the market in reproduction is deeply entangled with late-modern forms of capitalism in which younger, and frequently less financially secure women and men exchange their reproductive cells in order to partake in white, middle-class visions of the good life.

In bioethics literature, the market is understood less from the standpoint of economics and more from the standpoint of moral objections to the buying and selling of gametes, embryos, and gonads. For example, a typical objection concerns the notion of human dignity but also the notion of exploitation and the squeezing of altruistic donations, which has been advanced as a concern about the commercialization of the human body (The Danish Council on Ethics, 2013). The issue of monetary compensation or payment to donors has, therefore, long been a subject of ethical debate. Yet the idea of a market is here also commonly understood as consisting of subjects who have ownership of commodities or objects (Hoeyer, 2014).

Clearly, the buying and selling of human gametes is fraught with ethical controversy. Considering the ways in which gametes, in the Scandinavian context, enter into a close relationship with babies and notions of biological kinship, this is perhaps not surprising. The primary moral reason for allowing the buying and selling of human gametes is arguably, in bioethical literature, beneficence. Assuming that financial incentives will increase the supply of gametes, incentives will give people opportunities for having children that they would not otherwise have had. To the extent that demand can already be met, an increased supply of gametes will give people (who can afford it) more options, for example, in terms of more healthy gametes or physical likeness with the recipient. Another moral reason in favor of selling gametes is fairness. Donating gametes, especially eggs,

comes with certain costs. It is only fair, for example, that donors are rewarded for their toil and trouble (Brandt et al., 2017). On the other hand, critics worry that increased commercialization will lead to increased exploitation, a loss of dignity, and less altruistic donation. The latter is seen as particularly worrying, as altruistic donation promotes “social cohesion,” as well as “motives and virtues that are necessary in order to have a well-functioning society.” Moreover, the squeezing of altruistic donation is seen as morally problematic because “altruism is a good in itself, which can be worthwhile to promote. Presumably, most people would prefer living in a society with altruistic as opposed to paid donation” (The Danish Council on Ethics, 2013a).

Meanwhile, anthropologists and feminist scholars call for a rethinking of the market. Hoeyer (2013), for example, states:

We need to *denaturalize* market thinking as a transparent representation of exchange, while simultaneously taking into account how notions of markets are embedded in very *concrete* experiences and material exchange practices and have performative effects for them. (p. 35)

Although not specifically addressing the dynamics of cryopreservation, cryo is necessary to make the market in reproductive substances possible in the first place. For example, sperm is frozen and then shipped to clinics as well as private users worldwide. Meanwhile, the market in preservation tanks, preservation mediums, and liquid nitrogen constitute the building blocks of turning fertility preservation into a burgeoning commercial practice. The commodity context, and most notably the effects of it, is heavily criticized in feminist accounts, however. To feminist scholars, the market logic in reproduction reproduces gendered and raced understandings as well as the desirability of able-bodied, flawless, “own” children (Coleen, 1995; Ginsburg & Rapp, 1995).

Having briefly outlined theoretical perspectives on market and market thinking, we will now move on to two larger imaginaries, focusing on the entanglement between reproductive cells and the market resulting in the imaginaries of travelling sperm and domesticated eggs.

4. Imaginaries of Travelling Sperm

Because our interest lies in the ways that sperm, in particular, entangles with the making and unmaking of a market in reproduction, below we outline three analytical concepts that we believe engage with the Scandinavian context. As noted in our Introductory chapter, our empirical material primarily consists of legal documents as well as ethical guidelines that make particular reproductive paths possible (Adrian & Kroløkke, 2018). Clearly, Danish sperm has, as also demonstrated in our historical overview, become an export commodity and consequently, the remaining part of the chapter focuses on sperm. We begin, however, by discussing how the imaginary of Danish *travelling* sperm can be understood in the light of three discursive and affective elements: involved in nature and

safety, kinship and the best interests of the child as well as within discourses on commercialization.

4.1. Nature and Safety

What is nature? In the Scandinavian context, “nature” is frequently invoked in moral debates on the market in fertility (Bryld & Lykke, 2006). Moral philosophers have traditionally been very sceptical of the entanglement between nature and morality. And indeed, nature plays a rather murky role in these Scandinavian debates. In Danish ethical debates, the “unnaturalness objection,” is put in close proximity to the ability to disturb (The Danish Council on Ethics, 2003; see also Chapter 5). While we return to the notion of disturbance in Chapter 5, the general thought behind this objection is presumably that evolution tends to lead toward perfection, and that we should therefore not disturb what has seemingly been perfected over billions of years. But even if nature holds a particular wisdom, it is far from clear that this gives us any conclusive moral reasons to allow or ban certain treatments and services on the fertility market. More plausibly, disturbing the so-called natural order can be offset by competing moral considerations, such as beneficence. For example, we apparently have moral reasons to interfere with the natural order when people get sick. Presumably, the morality of going against the wisdom of nature, if there is such a thing, is a question of the potential gain as well as the potential gravity of the disturbance.

To show that any given disturbance of the natural order is morally wrong therefore requires a separate argument. Indeed, feminist (performative and post-humanist) scholarship has already disturbed and deconstructed the distinction between nature and culture, or between the natural and unnatural (e.g., Adrian, 2014; Bryld & Lykke, 2000; Butler, 1993; Franklin, Lury, & Stacey, 2000; Haraway, 1985; Kember & Zylinska, 2012). In these accounts, albeit in different ways, the apparently obvious distinctions between nature and culture, body and technology are deconstructed to show that this distinction is, in fact, a cultural construct and does not reflect any clear boundaries; rather, it produces exactly what is then understood as nature. Central to these feminist analyses is the notion that the production of nature is never innocent. Indeed, they are powerful manifestations of (post)colonial (Bryld & Lykke, 2000), patriarchal (Haraway, 1985) and heteronormative (Butler, 1993) imaginaries that favor, in particular, Western, heterosexual forms of kinship.

It is interesting, though not surprising that the use of cryopreserved sperm has readily been aligned with heteronormative understandings of the “natural” heterosexual, nuclear family. Not only is the use of donated sperm in fertility treatment a relatively old practice as well as well-established in the agricultural breeding of farm animals prior to human use, it has also been seen as readily *replacing* a so-called natural function in order to create the “desirable” heteronormative nuclear family (Bryld & Lykke, 2006; Nebeling Petersen, 2009; Stormhøj, 2006). As genetic kinship was already questionable in certain marital offspring (e.g., in the case of infidelity), and the general family law framework emphasized the marital institution rather than genetic kinship as the main constituent of

paternity (meaning that the husband of the woman giving birth is automatically given paternal status), the use of donor sperm was entirely uncontroversial. We will, as already noted, return to the notion of nature in Chapter 5 but it is worth reiterating at this point that “nature” operates as an unquestionable argument and one predominantly used by the Danish Council on Ethics as well as, in the case of political debates, when medically assisted reproductive technologies are regarded as potentially monstrous, or at the very least, “artificial.”

4.2. Kinship and the Best Interests of the Child

The notion of “the best interest of the child” is a discourse frequently invoked in the making and unmaking of a market (Andreassen, 2019; Nebeling Petersen, 2007). For example, “the best interests of the child” was an early element of ethical debates, together with questions on anonymity and most notably, the rights of donor children to know the identities of their genetic parents (The Danish Council on Ethics, 2002, 2004). In contrast, in Sweden, genetic kinship became pivotal, and in 1985, the right of children to know their genetic parents became the winning argument as anonymity was abolished, providing children aged 18 years or older with the opportunity to make enquiries about their conception at public registries.

The best interests of the child appear in the ethical debates in several ways. Whereas sperm donation itself was, as we have previously seen, uncontroversial, the question of donor anonymity was not. For example, one argument in favor of upholding anonymity in Denmark, when anonymous donation was banned in Sweden, was that since it cannot be guaranteed that parents will tell their children that they were conceived with donor sperm, banning anonymous donation does not in itself secure the right of children to know their genetic origins, and, thus, within the argumentative logic, banning anonymity does not secure “the interests of the child” which was the main argument in Sweden for banning anonymous sperm donation.

The “best interests of the child” is a moral-ethical argument and one that is deconstructed in contemporary feminist scholarship. From a moral-ethical perspective, it is not clear whether the argument succeeds. Ethicists usually view moral rights as positive as well as negative: Positive rights presumably give people the capacity to demand that others act in certain ways, whereas negative rights give people the capacity to demand that others do not act in certain ways. That is, negative rights are rights not to be interfered with; positive rights are rights to be benefitted from (Narveson, 2001). Thus it may be that the right of children to know their genetic origins is a negative right. That is to say that others have a duty not to deny them this information, even if there is no duty (e.g., for parents) to provide such information. If so, then it seems that anonymous donation does interfere with children’s right to know, as such donation precludes knowledge.

In feminist scholarship, however, feminists deconstructively problematize the very notion of “the best interests of the child” and understand the notion, not as a descriptive term reflecting pedagogical knowledge, but rather, as a rhetorical construct. As such, it functions as a prism to understand a given culture’s

understandings of kinship, gender and children. For example, in 1997, as part of the Danish Act on Artificial Fertilization (described above in Section 2.2), it became illegal for medical staff to assist lesbian and single mothers with reproduction.⁷ In the parliamentary readings leading up to the adoption of the act, the “best interests of the child” functioned as a strong guiding principle in favor of excluding lesbian and single women. As “artificial insemination is articulated [in the proceedings] as a substitution for intercourse, which is represented as ‘the natural fruit of love’, alternatively as ‘the natural’ or ‘the normal’ way of having children” (Stormhøj, 2006, p. 139), throughout the parliamentary proceedings “the best interests of the child” became naturalized as secured by heterosexuality including clear demarcations of the nuclear family (i.e., only one mother and only one father, who are married). Likewise, non-anonymous sperm donation was represented as capturing the nuclear family, and the “best interests of the child” became rhetorically staged rather to safeguard the heterosexual nuclear family and the father than to secure the best interests of the child.

Interestingly, ten years later the law was changed, allowing medical staff to treat both lesbian and single women (L151, 2006, p. 37). Now, the “best interests of the child” is not solely connected to the heteronormative family, but has become gendered and connected to motherhood. Women’s (and not necessarily heterosexuality’s) love and nurture for children are discursively connected to a gendered notion of motherhood. The MP Jørgen Winther, who opposed lesbian and single motherhood in 1996, is now in favor of it, and he explains in the proceedings: “I think that it should be possible for two gay men to adopt legally. But I think that a female presence is also essential when it comes to nurture, as women are really good at looking after children.”⁸ Although these changes in the law did not change the ban on non-anonymity, it clearly shows, how the “best interests of the child” can be read as a rhetorical construct, which can be analyzed as a prism for the changing social concerns associated with ARTs.

4.3. Commercialization

As one of the Danish sperm banks grew and was named the world’s largest sperm bank by Guinness Book of Records, the market in travelling sperm came to align itself with the historical making of the Viking nation and Danish interests in preserving a national export success as well as averting the danger of sperm drought and upholding the supply of donor sperm needed to meet demand for fertility treatment. To Danish legislators, the sperm industry had become a national export success, and the fact that big industry interests were at stake was even used as a winning argument by the Government in a 2006 parliamentary debate on maintaining donor anonymity. The Danish law as well as the Parliamentary debates reflected popular understandings of the Danish nation. This ideal

⁷§3 of Act 460 of 10 June 1997: “Artificial insemination must only be given to women, who are married to, or who live in a marriage-like relationship with a man.”

⁸Parliament’s reading of the Bill L151, 1. beh., 2006: 19.

included the Viking nation which was made territorially great by spreading its (male) seeds — a narrative which was widely cited in later international media news stories under such compelling headlines as “The father’s a Viking” (The Guardian, 4.2.2011), “Invasion of the Viking Babies” (The Telegraph, June 23, 2014), “Spreading Scandinavian Genes, without Viking Boats” (New York Times, September 30, 2004) (Herrmann & Kroløkke, 2018).

In the creation of a commercial market in sperm, previous concerns relating to donor anonymity were also mentioned. Discussions on donor anonymity combined, however, with the commercial interests of the state, stressing the importance of anonymity in order to meet the demand for sperm in relation to fertility treatment. Presumably, many donors would most probably not donate their sperm if they did not have the option of anonymity, leading to decreased supply and shortages. At least, this appears to have been the case in countries that have banned anonymous donation (Bernstein, 2010; although cf. Cahn, 2012).

Interestingly, the freezing of human sperm not only paved the way for an international market in anonymous donor sperm from Denmark, it also provided opportunities for the selection of gametes. With regard to certain diseases, this was seen as a major improvement and using frozen sperm soon became a requirement in many countries. In Denmark, however, the selection of gametes for non-medical reasons had already been seen as morally problematic for a number of reasons. Thus, Danish clinics could only disclose information about donors regarding various physical traits that made it possible for couples to pick a sperm donor that resembled the social father’s physical appearance. At that point in time, clinics could not disclose information about cognitive capacities, artistic talents, or athletic prowess (The Danish Council on Ethics, 2002b). This is not surprising, considering that the use of donated frozen sperm in relation to assisted reproduction in the Scandinavian countries had largely been seen as a replacement of the male in the nuclear family. In this understanding, frozen sperm in fact ensured that the heteronormative nuclear family would stay intact.

As is often noted in the works of the Danish Council on Ethics, these limitations are in stark contrast with the market for frozen sperm (and eggs) in the United States. In this way, the US is continually referred to as an imaginary of the limitless consumer society, a scare story on the perils of the free market. In particular, three moral reasons have been presented in favor of limiting information about donors. First, in the Danish context, it has been thought that disclosing further information is inconsistent with a particular cultural understanding of parenthood—that parents should welcome and love their children regardless of their capacities. Second, it has been thought that disclosing further information about donors could potentially lead to a problematic commodification of sperm (and eggs), where gametes from donors with certain traits are priced higher than others on the market. And finally, increased commodification in this domain has been thought to be morally problematic because it could lead to social inequality, as the most attractive gametes on the market would be reserved for the rich (The Danish Council on Ethics, 2002b). However, it is not clear why disclosing further information about donors, but not basic information regarding

appearance and ethnicity, which is commonly disclosed already, would be inconsistent with the understanding that children should be loved regardless of their capacities. Moreover, it is not obvious why stratification of prices would necessarily be morally problematic. For instance, such stratification could also mean that it would be easier to recruit, for example, donors from certain ethnic groups or non-anonymous donors, which are currently thin on the ground. Finally, it is not self-evident that issues concerning increasing social inequality could not be fixed via regulations such as price ceilings.

5. Imaginaries of Domesticated Eggs

In a parliamentary debate on January 25, 1994 on the topic "What are the government's plans in relation to following, regulating or prohibiting the use of current and future reproductive technologies?" Parliament agreed on a motion confirming that ethical assessments had to be part of the ongoing development of ARTs in relation to both research and clinical applications. Parliament underlined explicitly that treatment could not be introduced if the underlying research was prohibited according to the 1991 Act on Biomedical Research Ethics Committees and that the Council on Ethics and Board of Health should be notified before the introduction of new treatments in order to advise on any ethical and health issues. Furthermore, the Minister for Health was to make sure that new treatments did not exceed what was ethically acceptable before they were introduced into clinical practice. The Parliamentary motion was subsequently then transformed into a Ministerial Order (392/1994) and guidelines (109/1994) by the National Board of Health.

A remarkable gendered implication of the Ministerial Order was a newly added restriction on transnational mobility. Increased mobility of human tissues had at that time been a European political focal point for more than a decade with, for example, the Council of Europe's recommendation no. R (79) 5 concerning international exchange and transportation of human substances (1979) calling for member states to facilitate such exchange. Unfertilized eggs, embryos and sperm were, however, exempt. It is not clear why the Ministerial Order restricted transnational mobility on eggs only. However, in a decision of March 22, 1993, the Health Ministry had denied a Danish woman to export nine cryopreserved embryos retrieved at a private hospital in Denmark to a private clinic in Germany where she lived and worked, citing the legislator's premise of being able to ensure that the limitations on cryopreservation, etc. were enforced. The decision was brought before the Ombudsperson, who noted (opinion FOU 1993.277) that the legal basis for such a prohibition was inadequate but since he could not refute that it had been Parliament's intention that eggs and embryos were to stay in the country for control purposes, there were insufficient grounds for criticizing the Ministry. It is likely that the ethical concerns relating to freezing in new reproductive technology formed the background for ensuring the control of eggs and embryos once removed from the "safety" of the female body. In 2002, the same argument was used as the reasoning for a provision to ensure that stem cell lines derived from embryos could only be imported into Denmark

if the same requirements as those applicable in Danish law had been met abroad (2002/1 LF 209).

While sperm had unrestricted international mobility, eggs were subject to a travel ban in order to control them. While legal literature (Herrmann, 2008) argued the ban to be in breach of EU law which guarantees the free movement of citizens and goods, the ban stayed in place until 2012. In the general remarks to the Bill,⁹ it was noted that the ban made it impossible for a hospital to release frozen eggs to couples who had begun treatment in Denmark and subsequently moved abroad and wished to continue treatment there. The Government states that in its assessment, the risk of circumvention of the Danish regulation is low, not least because the requirement to destroy eggs and embryos in case of death or divorce were amended at the same time. As for the “risk” of surrogacy, it was noted that couples could already travel for such arrangements and that in such cases the success rate was lower when using transported (frozen) eggs compared to fresh. Freezing, therefore, and the subsequent lower success rate if implanted into a different woman, became a reassuring factor that would make circumvention of the Danish regulation more difficult. Finally, the comments offer reassurance in declaring that lifting the travel ban for eggs does not alter the ban to “sell, advertise sale or in any other way help the sale of eggs and embryos”.

5.1. Nature and Safety

Whereas cryopreserved sperm, as demonstrated in the previous section, readily became an export commodity, the notion of nature came to play a very different yet quite significant role in relation to cryopreserved eggs. Meanwhile, ideas relating to “the natural” helped shape Scandinavian policies on egg donation and later fertility preservation. For example, in Sweden, IVF was first regulated through an Act adopted in 1988. The Act on what was labelled “Fertilization outside the Body”¹⁰ prohibited the use of donated eggs because fertilization outside the human body with the use of another woman’s egg violated the process of human life and was a technical construct to such a degree that it had the potential to affect views on humanity and human nature. IVF could only be used with the couple’s own reproductive cells, however the law permitted the use of donated sperm in case of insemination. Swedish legislators struggled to find good reasons for this difference between eggs and sperm, as several public consultation responses noted (Bill 1987/88:160, p. 11.), reflecting social and historical norms with regard to the importance of the mother in the nurture of children. Her nurturing role for the children (as opposed to the father’s role as breadwinner for the household) gave rise to the notion that the female genetic ties were more important than those of the male. In 2002, the Swedish position on egg donation was liberalized, allowing the use of donors.

⁹<https://www.retsinformation.dk/Forms/R0710.aspx?id=141094>

¹⁰Act no. 1988:711.

Ideas of nature are, as evidenced in these discourses, heavily gendered. Prolonging the reproductive age of women into their 60s, for instance, would, in Danish ethical and legal parliamentary debates, disturb “the natural order of things” (see Chapter 5). The same can be said with regards to the skewing of the usual kinship order, for example, when women use the frozen and stored eggs of their daughters to give birth to their own genetic grandchildren (see Chapter 5). From bioethical points of view, appeals to nature are problematic, however. For example, one could argue that it is simply in our nature to advance our possibilities through technology. This seems highly plausible, judging from the history of human evolution and societal development. Thus, taking control of our reproductive capabilities via freezing technology can in itself be seen as an expression of human nature. If tinkering with the rest of nature is really what sets humans apart, then it is difficult to see why postponing our reproductive age, for example, would be unnatural. Moreover, it seems difficult to maintain that some particular aspects of assisted reproduction are unnatural, while maintaining that assisted reproduction is not unnatural as such. Thus the “nature” objection of inconsistency threatens to generalize all forms of assisted reproduction.

Moreover, in the case of the cryopreservation of women’s reproductive capacities, prolonging the reproductive age of women by freezing and storing human eggs, in particular, has invoked monstrous imaginaries of the unnatural. For example, it is often claimed that children are better off with younger parents (and mothers in particular). In the words of the Danish Council on Ethics (2015), “it is better to establish a societal practice that encourages women to have children earlier in life, because everything else being equal, it promotes the life prospects of children that their mothers are not too old.” Similarly, in the 1994 Parliamentary debates, a concern over the “unnatural” was featured heavily in the image of the freezer, the ageing mother and the best interests of the child. We will return to the best interests of the child in the next section and instead focus on the freezer and the ageing (monstrous) mother. For example, in one proposition, a leading Danish politician stated, in reference to the cryopreservation of embryos, that it was offensive to have “the family in the freezer”¹¹ calling for a maximum two-year cryopreservation period.

Meanwhile, the general extension of the one-year legal limit was believed to address the concerns relating to the woman and her family, cases of illness and the physical and mental trauma of having to undergo renewed hormone stimulation and egg retrieval. The extension was meant to ensure the successful achievement of one pregnancy in accommodating further treatment cycles when the first attempts were unsuccessful. It was noted that longer cryopreservation limits abroad indicated that there were no safety issues involved in extending the limit. However, the limit was not extended beyond two years out of consideration for

¹¹Second reading of Bill L5 on 29 April 1997, Folketingets Forhandling 1996–1997, page 6352 and the proposals made during the subsequent Health Committee deliberations between readings [not publicly available, but made available to the authors courtesy of the Library of the Danish Parliament].

the voiced ethical concerns including the Council on Ethics, which in their annual 1995 report stated that one scientific study indicated that the cryopreservation of eggs would be likely to damage chromosomal material. Between readings, the parliamentary Health Committee considered the Bill and members put forward various suggestions for amendments to the Bill. Their deliberations, the material they received in the public consultation process, and the suggested amendments reflect a number of key concerns and questions: Would the technology lead to unnecessary treatments potentially burdening the welfare state? And what were the consequences of individualizing eggs and embryos in this way in relation to women's rights on the one hand and disposition rights over the material on the other?

In this juxtaposition of the (un)natural, a clear gendered order came into effect. Whereas male gametes had no storage limit, women's eggs have historically been restricted with regard to the number of years that they could be preserved in a frozen state (with a further restriction regarding their transnational mobility added in 1994). The Council on Ethics' report formed part of the background material for the 1991 Act on Biomedical Research Ethics Committees, which lifted the research ban on fertilized eggs in order to ensure an adequate quality in the provision of fertility treatments. IVF was now becoming a recognized treatment in clinics, which meant that research – as was the case in all other treatments offered – was deemed integral in ensuring good quality. Article 14 of the Act authorized the Health Minister to issue a ministerial order regulating the donation and cryopreservation of human eggs. This included first and foremost requirements when establishing egg banks and cryopreservation. But in reality, the authorization was intended for the regulation not only of technical issues, but also of a normative issue, reflected in the fact that the Government explicitly stated that it presupposed a maximum cryopreservation period of 12 months for eggs and embryos, but no reasoning for the limit was given in the comments included in the Bill (L59/1991). In this way, eggs and embryos were regulated in ways that sperm was not. For the Council on Ethics the winning argument for regulating storage seemed to be the preservation of viability, while the Government did not give any reasoning for fixing the limit at 12 months in the preparatory work.

In what we may view here as the "Moral Danish State," an attempt was made to regulate the normative issue of the status of the egg as well as that of the embryo along lines of nature and safety. Authorization was given to the Minister to regulate technical issues in a law predominantly concerned with codifying the framework for biomedical research ethics that had previously been based on a non-binding professional framework. The Moral State was clearly not completely comfortable with regulating medical practices, which was in line with the general legal trend at the time — medical issues were on the whole best left to doctors to decide on a professional basis. Between readings in Parliament as the Bill passed to further deliberations in the relevant parliamentary committee, the Health Minister had, in a reply to question 96 from the Committee stated that "cryopreservation of eggs is allowed when intended for later implantation in the same woman or for donation. Unfertilized human eggs cannot be

cryopreserved for more than 12 months” (White Paper No. 59, 1992). Since the Act’s authorization had to be interpreted in light of the scope articulated in the preparatory work, cryopreservation was regulated accordingly in administrative practice. Despite the fact that the Ministry had received more than 100 applications from couples asking for extensions to the 12-month period due to physical and mental problems associated with having to undergo a renewed cycle of egg retrieval, it had been impossible to grant extensions due to the lack of a legal basis to do so.

While the “unnaturalness” of the elderly mother was certainly a concern (see Chapters 3 and 5), other monstrosities were also mentioned. Notably, in these Parliamentary debates, the monstrosity of disrupting what appeared to be a normative kinship order (“twins in separate pregnancies”) became pivotal. According to a spokesperson for the Social Democratic Party, separating “twins” became morally suspect:

At present no eggs are frozen, but technology may catch up. I think that 12 months is the right amount of time. To me, there is something unethical about having embryos in storage maybe even to have twins in separate pregnancies.

Similarly, the Conservative Party’s spokesperson expressed concern when comparing frozen reproductive cells with what she speculated was a similarly poor viability of frozen food:

It is the thought of the artificial that scares me ... after two or three years in the freezer ... are the eggs in good condition? The food we freeze has a shorter shelf life.

Meanwhile, the spokesperson for the Socialist Party reiterated the need to tame ARTs, simply referring to the technological developments as “monstrous research” (1996/1 LSF 5 debate). The Bill did, however, not succeed in being read three times in the parliamentary working year because the parliamentary Health Committee felt that there was insufficient time to debate and negotiate the Bill and consequently it was automatically struck. Government put forward the Bill with slight revisions the following Parliamentary year (1996/1 LSF5).

5.2. Kinship and the Best Interests of the Child

Interestingly, while sperm, in the legal and Parliamentary debates, escaped the position of becoming kinship bearers, of eggs became bearers in need of state protection. In this context, the ability to cryopreserve eggs and embryos became technologies to be tamed. Consequently, the entanglements between Parliamentary debates and Danish law produced an image of the welfare state as rightfully controlling women’s abilities to put eggs on ice. In the context of the law, in 2006, a Bill (2005/1 LF151) sought to update the Act on Artificial Fertilization and included new provisions on assessment of parental skills, widening access for egg

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donation, and extending the maximum period of cryopreservation of eggs to five years. The accompanying remarks state that both the Ministry and the National Board of Health had continued to receive requests for dispensation in order for couples to try for a second child with the cryopreserved fertilized eggs. It is worth noting that, during this time period, the debates made reference to cryopreserved eggs and fertilized eggs interchangeably.

Whereas one pregnancy had been the goal of the previous legislation, the issue was now to secure families more time to establish a continued kinship order and a second pregnancy. Relying upon scientific knowledge that cryopreservation posed no risks, the government extended the cryopreservation limit to five years, successfully enabling the possibility of two children established within a normative kinship order. It was stressed, however, that cryopreserved eggs were subject to other legal limitations in addition to the length of the cryopreservation period, such as the requirements of destruction in case of death and divorce, the rules on donation to other women and the requirements of consent in the case of donation to research. It was to ensure enforcement of these rules and requirements that an upper limit for cryopreservation should still be in place. Meanwhile, no upper storage limit was in place on the cryopreservation of sperm.

5.3. *Commercialization*

The ability to cryopreserve has also had a strong impact on what is today becoming a market in eggs. This is seen, for example, in the ways in which the Danish law has sought to respond to cryopreservation practices. Here, the imaginary of medicine as a scientific and commercial endeavor, in the service of the moral good, has shifted. Notably, eggs came to be seen early on as vulnerable entities in need of protection, in terms of limiting storage time and transnational mobility, while no such concerns were expressed with regard to sperm. In this context, the realm of new technology had to be tamed because of what became framed as the risks to the patients and the overall ethical concerns relating to present and future reproductive options, including the gendering of reproductive cells (see also Chapter 3).

Today, the cryopreservation of eggs for non-medical reasons on the one hand appears to challenge the ideas of the domesticated egg yet on the other hand also reiterates it, as eggs are now presumably preserved for later self-donations (see Chapter 3). Freezing for non-medical reasons, however, supports a burgeoning international market in fertility preservation. For example, in the case of the Danish sperm bank, Cryos, cryopreservation has provided the technological grounds for expanding their sperm bank to the US market, enabling egg banking as well. Meanwhile, in the case of freezing for non-medical reasons, Swedish clinics advertise their cryopreservation services to Danish women, encouraging them to preserve their fertility in Sweden for a maximum period of ten years, thus bypassing the Danish five-year cryopreservation rule.

6. Summary

If eggs become a commodity, a global market may emerge, where some international actors will be willing to pay large sums of money. We do not want that. We want to meet the Danish demand for 600 donor eggs per year so childless Danish citizens can receive the treatment they require (Flemming Møller Mortensen, politician (S), in *Berlingske Tidende*. [Ladefoged, 2016])

Throughout this chapter we have discussed how it came to be that Denmark became a frontrunner on the international market for frozen sperm, while no corresponding Danish market has emerged for frozen eggs. In this summary section, we briefly outline some of the key arguments that, in the context of the Scandinavian countries, naturalize a market in sperm yet remain resistant to the commercialization of eggs. One apparent reason is the concern, as echoed in the above quote, that an international market for eggs would be detrimental to Danish citizens in need of fertility treatment, as private corporations would simply sell off Danish donor eggs abroad, where the potential financial gain is greater than at home, if they were allowed to trade in eggs similarly to the way in which they trade in sperm. In this imaginary, eggs are seen as a scarce resource yet potentially also more financially valuable on the global market while “inherently” belonging (unlike sperm) to the nation state.

In the above quote, the commercialization of eggs raises the question of whether we have stronger moral obligations toward members of our own countries than we have toward citizens of other countries. There is a concern that allowing an international trade in frozen eggs (similar to sperm) would mean that childless citizens abroad would have better prospects of treatment, as human eggs are a scarce resource in most countries, at the expense of Danish citizens in need of donor eggs. The question is whether it is morally justified to reserve the available eggs for Danish citizens in need of fertility treatment, as opposed to selling them on an international market. According to the political philosopher David Miller, nations are shared communities, and because of this shared community “the duties we owe to our fellow nationals are different from, and more extensive than, the duties we owe to humans as such” (Miller, 2000, p. 27). According to this perspective, the Danish state does indeed have a moral reason to prioritize Danish citizens when it comes to fertility treatment. But even in this relatively weak form, nationalism remains, however, a controversial view in the field of political philosophy (Nenad, 2018).

As noted in this chapter, the Scandinavian markets in cryopreserved eggs and sperm follow very different trajectories. Although arguments relating to nature, kinship, and the best interests of the child as well as concerns relating to commercialization can be seen in legal briefs, political discussions and ethical controversies and guidelines, these arguments follow, as evidenced throughout our discussion, very gendered trajectories. In contrast to the construction

of the Moral State and technologies to be tamed, notably present in the case of cryopreserved eggs, imaginaries of market opportunities and Danish sperm that “naturally” transgresses nation states and becomes an export commodity guide the ways in which sperm becomes regulated, in effect creating what more closely approximates a (thriving) monetary market for sperm than for eggs. While this chapter has taken a wide perspective in outlining the making and unmaking of a market in Scandinavia, it underlines the ways in which this market entangles with cryopreservation technologies as well as the ways in which it comes to be narrated in the light of gendered as well as national concerns relating to the exceptional welfare state.

Chapter 2

Disease: On the Use of Freezing on Medical Indication

1. Introduction

This chapter concerns fertility preservation in the context of disease, or what is often conceptualized as “medical freezing” or freezing on “medical indication.” A standard example of medical freezing is the cancer patient who freezes reproductive cells or tissue before going into chemo- or radiation therapy. However, as we will demonstrate in this chapter, the demarcation of “medical freezing” and its connection to the notion of disease is not necessarily clear, nor absolute. Rather, the rationales and logics behind what comes to count as medical freezing as well as who are seen as “worthy” candidates for medical freezing serve as important sites for investigating the normative frontiers of biomedical achievements and sociotechnical imaginaries associated with fertility preservation.

The development of programmes for “medical freezing” is entangled with the developments in especially the treatment of cancer. With rising survival rates, more attention has been directed at the late complications of, for instance, cancer, including fertility-related difficulties (Woodruff, 2007; for cancer statistics in the Nordic countries see NORDCAN, 2019). In fact, this concern has laid the ground for the development of oncofertility as a separate field within reproductive medicine that specializes in fertility preservation in cancer patients (Woodruff, 2007). With the increased awareness and understanding of how specifically chemo- and radiation therapy as well as certain diseases (also non-malignant diseases such as Cryptorchidism, Turner syndrome, or Lupus) affect future fertility, attention has been directed at technologies for storing reproductive matter outside of the body “before it is too late”; at protecting the capacity to reproduce, rather than offering assisted reproduction afterwards with poor results.

Currently, cryopreservation is positioned as the most promising method for fertility preservation. However, other technologies are also available. In a 2014 article detailing clinical guidelines for fertility preservation, one of the leading fertility experts in Sweden, together with an American colleague, outlined several different

options for fertility preservation that should be considered (Rodriguez-Wallberg & Oktay, 2014). Besides from cryopreservation, Rodriguez-Wallberg and Oktay (2014) suggest to always consider shielding of testis or ovaries from radiation if possible. Another option is “ovary transposition” which involves surgically moving the ovaries and fallopian tubes to the abdomen wall away from pelvic radiation areas. They also mention, but reject, the possibility of using hormone-suppressive drugs in females which some biomedical professionals believe to have a protective effect by putting the cells “to rest.” It is a contested practice (see, for instance, Blumenfeld, 2014), and our field observations show that, at least in Denmark, so-called GnRH agonist is often given in combination with cryopreservation of eggs or ovarian tissue. In males, the overall viewpoint internationally is that hormonal approaches to conserving fertility have so far not proven useful or only to be of limited value (Picton et al., 2015).

Bodily differences between testis, sperm, ovaries, and oocytes (eggs) enable and disable particular practices regarding fertility preservation in ill patients. As also described in the previous chapter, cryopreservation of sperm has been in place longer than other techniques. Likewise, embryo freezing proved to be a robust technique to be offered, also in the Scandinavian countries, long before the freezing of oocytes was successful. Embryo freezing is, however, only an option for women who have time for egg retrieval and access to sperm to be used for fertilization. In the context of disease, this leaves out large numbers of women who are either in too much in a hurry to start treatment or single (and unwilling to use donor sperm). Additionally, neither are options for prepubescent children/adolescents who cannot have eggs retrieved nor produce viable sperm samples.

Consequently, in the 1990s, selected clinics in Sweden (1995) and Denmark (1999), on an experimental basis, started preserving ovarian tissue from cancer patients (Oslo University Hospital, Norway followed in 2004; cf. Rodriguez-Wallberg et al., 2016). Additionally, new vitrification techniques improved the freezing of unfertilized eggs in the early 2000s (Gook, 2011), which made oocyte freezing an option in many of the university hospitals in the Scandinavian countries in the following decade (Rodriguez-Wallberg et al., 2016). However, despite the technological possibilities, the Scandinavian fertility doctors recognize that far from all patients whose fertility can be compromised by treatment or their condition are offered fertility preservation (Rodriguez-Wallberg et al., 2016). As we will discuss further in this chapter, alternatives to sperm cryopreservation, if the testis are not mature, are still limited and highly experimental.

This chapter reveals how the material differences of procedures and biologies matter to the ways medical freezing emerges as an offer to patients as well as to how cultural norms shape the procedures and experiences of fertility preservation. Time and risk assessments are important elements. For instance, the retrieval of eggs requires hormonal stimulation over a few weeks to ripen multiple eggs. A single cycle stimulation, however, only produces a limited number of eggs which might not be enough to enable a full-term pregnancy, less not several. In contrast, the preservation of sperm and gonadal tissue can be performed from day to day and involves thousands of sperm and egg cells. However, tissue preservation requires surgical procedures and is in this sense a more extensive and risky procedure.

In what follows, we engage with how these differences enable diverse visions of “medical freezing,” entangling technologies, materialities, and imaginaries of future families as we ask how socio-technical imaginaries unfold in the practices and visions of cryopreserving reproductive material from ill people in the context of the Scandinavian welfare states. Empirically, the chapter focuses on the Danish case, as it builds on ethnographic fieldwork on ovarian tissue freezing and sperm depositing conducted in Denmark. Drawing on observations, document analyses of medical journal articles and websites as well as interviews with both biomedical professionals and patients who have frozen, respectively, sperm and ovarian tissue in relation to serious disease (see Appendix), the chapter seeks to demonstrate how “medical freezing” is conceptualized, envisioned, and experienced (for more details on the empirical data, see also the Appendix).

The chapter begins with a section contextualizing cryopreservation practices on medical indication within the regulatory frameworks of the different Scandinavian welfare states, though the empirical analyses centers the Danish case. To situate our discussion of medical freezing further, we then turn to a theorization of the notion of disease. In the empirical section, we analyze and discuss four elements central to the way fertility preservation emerges in the context of disease and is imagined by biomedical professionals as well as among the people who are freezing. We first look at the biomedical imaginary of progress in which fertility preservation emerges as a new and promising, yet challenging, remedy for optimization and risk management. Afterward, we demonstrate how fertility preservation is experienced as a type of cryo-insurance, illuminating specific affective economies of hope and fear that medical freezing is entangled in. In the last section, we examine the gendered imaginaries that unfold in the patients’ accounts of cryo-insurance, demonstrating how fertility preservation is not only a matter of protecting one’s reproductive capacity but also tied to the restoration of normative bodies and gender identities. The chapter concludes with a brief summary in which we also take up the discussion of how the notion of “medical freezing,” in contrast to “social freezing” (see also Chapter 3), is interwoven with larger discussions about prevention medicine as well as ethical and economic prioritizations in the welfare state.

2. The Legal Framework

The Scandinavian countries all have legal frameworks that are permissive toward medical freezing. The guidelines of the Swedish Society for Obstetricians and Gynecologists note that the distinction between “social” and “medical” freezing is not always easy to determine, but highlights the distinction as important since the categorization can bear upon whether the cost is covered by the public health care system or paid out of own pocket (SFGO, 2015). In 2012, Danish law was changed to better accommodate medical freezing and now authorizes the physician to extend the 5-year freezing limit on eggs and embryos if medical reasons exist for doing so, implicating that freezing can be extended for as long as the medical reason for doing so exists, and as long as the upper age limit of 45 years is observed. Clearly, the imaginary of motherhood as a positive future option

overrides, in the case of medical freezing, initial concerns of prolonged freezing while still maintaining the imaginary of the monstrosity associated with late motherhood which dominated the initial law-making process as discussed in other chapters (see the discussion in Chapters 1, 3, and 5). In Denmark, sperm can be stored indefinitely, and even be used after the death of the patient which we discuss in more detail in Chapter 4.

Sweden offers both egg and sperm freezing without storage limits, but limits embryo freezing to 10 years. Interestingly, Norway allows egg freezing solely on medical indication and with no storage limitations per se (but limits use in terms of age and relationship requirements). Meanwhile, in Norway, embryos cannot be stored for more than five years despite medical indication and the patient has to comply with the overall conditions for embryo freezing, for example, being in a stable relationship (NGF, 2019). Long term freezing of sperm is available on medical indication only and performed at public hospitals for men suffering from diseases or undergoing treatment that affects fertility. Use of stored sperm for assisted reproduction must comply with the condition of having been in a stable relationship for more than two years or being married (see Introduction for more details). Meanwhile, ovarian tissue freezing is offered in Denmark, Sweden, and Norway. In comparison, Denmark has been most successful in terms of the number of children born following the procedure (14 out of the 17 children that had been born in the Nordic countries in 2016 were born in Denmark. The Danish centre has also cryopreserved and transplanted much more tissue than in the other countries, Rodriguez-Wallberg et al., 2016, pp. 1019–1020). On the other hand, as we will return to later in the chapter, Sweden has pushed the agenda on whom medical freezing can be offered to. In Sweden, ovarian tissue from young girls with Turner Syndrome is cryopreserved, as are eggs (or even ovarian tissue) in relation to gender-corrective surgery, regarding it as freezing on medical indication (SFGO, 2015).

We will not discuss fertility preservation in transgender individuals more in this chapter, but return to the topic in Chapter 5 when we discuss the normative imaginaries that affect and delineate how transgender people have (or have not) become eligible and intelligible subjects of fertility preservation. The conceptualization of fertility preservation in relation to gender-affirming surgery is complicated, and differs significantly between the Scandinavian countries, relating to the more overall understanding of transgender healthcare which has undergone significant change in the past decade in all three countries.

While fertility preservation is free of charge in the Scandinavian countries, when done on medical indication, access to medical freezing relies on specific estimations of the likelihood of future infertility which are made by cancer and fertility specialists (Rodriguez-Wallberg et al., 2016). Some drugs and treatments are known to be specifically damaging, but in principle the risk of each patient is evaluated on the basis of the treatment procedure, the age of the patient, the likelihood of survival and the time available before treatment has to start. In women with cancer, the official Danish guidelines, for instance, state that the risk of losing fertility has to be >50% (Jensen et al., 2017). However, risk is hard to predict, especially in cancer patients as treatment plans often change over time or in the case of relapse. Importantly, the reproductive material has to be extracted and

preserved before too much chemo has been distributed in the body. Here, the context of the Scandinavian welfare state matters as doctors, who do not have to worry about the patient's medical expenses or insurance plans, are able to apply a "better safe than sorry" approach offering fertility preservation to an increasing number of patients whose chances of survival appear high.

Finally, age is an important inclusion criterion for fertility preservation, especially in women. In Norway, ovarian tissue freezing is not offered to women above the age of 35 years, while egg and embryo freezing can be offered until the age of 39 (NGF, 2019). In Denmark, medical freezing in females is overall regulated by the age rule that restricts assisted reproduction to women below the age of 45, but above the age of 35 ovarian tissue freezing is only offered to women whose ovarian reserve is regarded as good enough by the fertility specialists (Jensen et al., 2015). The same age criteria do not apply to men. In Denmark, we have come across, in the public sector, men in their 60s having established sperm deposits paid by the public.

Though tissue preservation is the new and promising possibility, it is important to emphasize that within the Nordic region, the freezing of sperm is still the most common type of fertility preservation (Rodriguez-Wallberg et al., 2016, p. 1024). Compared to the retrieval of eggs or gonadal tissue, sperm is also much easier to deposit. Based on data from the public fertility centers in the Scandinavian region, it is estimated that for every patient who preserves eggs, embryos, or ovarian tissue, three patients deposit sperm (Rodriguez-Wallberg et al., 2016, p. 1024).¹

Viewed through the lens of this chapter, medical freezing in the Scandinavian welfare states raises a number of interesting ethical questions. Notably, medical freezing raises ethical questions related to the prioritization of scarce financial resources within the healthcare system, as we will also return to throughout the chapter. There are several trajectories of this debate that relates to the notion of cryo-insurance which we introduce later in the chapter. One aspect, however, concerns how to balance public finances in relation to the overall low utilization rates of frozen gametes and tissues documented by previous research. Studies on the usage rates of cryopreserved sperm among cancer patients have showed the return rates to be between 5% and 10% (e.g., Carcia, Herrero, Holzer, Tulandi, & Chan, 2015; van Casteren, van Santbrink, Van Inzen, Romijn, & Dohle, 2008) and among men with other types of disease around 30% (Carcia et al., 2015). Belgian studies found the return rate for embryo freezing in female cancer patients to be 23% (Dolmans, De Ouderaen, Demylle, & Pirard, 2015) and for ovarian tissue to be as low as 2.3% (Dolmans et al., 2013). In Denmark, the return rates for ovarian tissue is also less than 10%, however, the Danish team expects the return rate to increase as many young patients come of age (the youngest patient was around six months old). A second aspect is, as we also discuss further in the chapter, the success rates in terms of how high (or low) the likelihood of actually producing viable pregnancies is. While the statistics differ between different techniques and

¹It is important here to note that this estimate does not include Danish data on sperm cryopreservation which is not centralized in Denmark in the same way as in the other Nordic countries.

materialities, ethical questions about whether fertility preservation is giving the patients false hope influence the development of the field as well as the way that fertility specialists work together with the doctors treating the original condition making “medical freezing” relevant in the first place.

Overall, the discussion of prioritization and, thus the conceptualization of medical freezing, relates to changing notions of illness and infertility. In the following section, we turn, however, to social scientific theorizing of disease.

3. Theorizing Disease

In this section, we theorize freezing for medical reasons in light of biomedicalization theory (Clarke, Shim, Mamo, Fosket, & Fishman, 2003), social scientific theorizing of risk, and surveillance medicine (Adams, Murphy, & Clarke, 2009; Clarke et al., 2003) while simultaneously situating freezing for medical reasons as a hope technology (Franklin, 1993, 1997). Overall, we approach fertility preservation as it emerges as infertility prevention offered to patients. That is, individuals whose fertility might be compromised by the medical treatment they are receiving or by a medical condition. However, we also wish to demonstrate how fertility preservation, as a new type of preventive medicine, illuminates a more overall transformation of the ways biomedicine operates in the welfare state. This transformation has overall been captured in the notion of “biomedicalization” (Clarke et al., 2003; Rose, 2007). The term biomedicalization grasps how “biomedicalization practices emphasize transformations of such medical phenomena and of bodies, largely through sooner-rather-than-later technoscientific interventions not only for treatment but also increasingly for enhancement” (Clarke, Shim, Mamo, Fosket, & Fishman, 2010, p. 2).

First, however, we turn to a brief discussion of the ways that infertility is conceptualized as a disease to highlight the ways that biomedicine and cultural norms associated with fertility entangle. Arguably, the advancement of medical freezing is co-produced with a more general turn toward the biomedicalization of infertility. Clearly not a life-threatening condition in itself, infertility is frequently, however, conceptualized as a chronic disease with severe psycho-social effects and thus, regarded as a condition that should be prevented if at all possible. This is in spite of the fact that within Western biomedicine, in general, disease has traditionally been conceptualized as biological or physiological malfunctions or deviations. Yet, this understanding has become contested as too narrow and simplistic and not taking into account the psycho-social dimensions of health and well-being (The Danish Council of Ethics, 2016). For example, this understanding is reflected in the constitutional work of the World Health Organisation (WHO) who already in 1946 defined health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946, p. 2).

In similar ways, the understanding of infertility has developed. While still defined as a disease, the definition has expanded from a defect in the reproductive organs to a broader understanding of being “unable to establish a pregnancy” without assistance (Zegers-Hochschild et al., 2017). This understanding takes the psycho-social dimension into account, while also extending fertility care to (fertile) partners as

well as to non-heterosexuals. This understanding can be found, for instance, in The International Glossary of Infertility and Fertility Care from 2017 which establishes that infertility is: “A disease characterized by the failure to establish a clinical pregnancy after 12 months of regular, unprotected sexual intercourse or due to an impairment of a person’s capacity to reproduce either as an individual or with his/her partner” (Zegers-Hochschild et al., 2017, p. 1795). While the political significance of calling infertility an impairment can be debated (e.g., Brown, 2018; Lo & Campo-Engelstein, 2018), the overall aim of the definitory work has, according to a group of leading fertility specialists, been to provide more people with access to fertility treatment/care (Zegers-Hochschild et al., 2017, p. 1787). Arguably, this also reflects what The Danish Ethical Council, in a report called “what is disease?”, terms the humanistic disease model (Danish Ethical Council, 2016, p. 9). Here the understanding of disease is connected to the idea of a “condition” as something that affects the person’s “capacity to act” and “to live their lives in accordance with the values and projects the person subscribes to and has chosen to build their way of life around” (Danish Ethical Council, 2016, p. 9 – translation by authors).

Describing the changes of biomedicine especially with regard to (bio)technological innovations, Clarke et al. (2003) highlight how biomedicalization involves an increased focus on being and remaining healthy rather than diagnosing and treating existing symptoms. Health becomes an individual goal as well as a social and moral responsibility (Clarke et al., 2003, p. 171). This orients medical attention toward risk prediction and surveillance medicine, which are mutually constitutive practices. As Clarke et al. (2003, p. 172) emphasize: “Risks are calculated and assessed in order to rationalize surveillance, and through surveillance risk is conceptualized and standardized into ever more precise calculations and algorithms.”

In the context of disease, then, fertility preservation comes to rely on practices of prediction and risk assessment and they entangle with the management of contemporary treatment protocols. Fertility preservation is, in that sense, an act of anticipation (Adams et al., 2009) of predicting in the present that infertility might likely occur in the future either due to a bodily condition such as cryptorchidism in young boys or due to invasive cancer treatment, known for its damaging effects on reproductive cells. As we will also discuss in this chapter, the new medical regime of prediction and prevention seems to be exceeding the classic boundaries of somatic medicine as more attention is directed toward environmental risk, such as the effect of radiation from mobile phones on sperm quality (Gorpinchenko, Nikitin, Banyra, & Shulyak, 2014), the effects of chemicals from cosmetics (Rehfeld, Dissing, & Skakkebæk, 2016) as well as to age and the perils of hormone deprivation (Kristensen & Andersen, 2018). Consequently, enhanced focus on prevention means that medical freezing could be regarded as an offer which should include, at least in theory, many more people whose future fertility is at risk. Thus, the biomedicalization of (in)fertility challenges a clear demarcation between medical and social freezing, which is a foundational rationale of the Nordic welfare states where “medical freezing” is offered for free, while “social freezing” is privatized or restricted (Chapter 3).

Moreover, fertility preservation practices involve a specific entanglement of biomedicalization and cryopreservation as cold storage is currently the

driving technology in establishing programmes for protecting patients' fertility. As Kroløkke & Bach (in review) argue the ability to freeze not only involves imaginaries of prevention and optimization, but also specific ideas about the (re)synchronization of (sick) bodies with normative life trajectories, for example, through the restoration of reproductive capacities, the induction of timely puberty around the beginning of adolescence and the postponement of premature menopause. Embodying a specific form of *cryomedicalization* (Kroløkke & Bach, forthcoming), fertility preservation involves the management of bodily time, including aging, as well as it becomes an orientation toward reproductive futurity (Edelman, 2004). Not only is reproduction encouraged, reproductive desire is also taken as a given as captured by Franke (2001) in the notion of *repronormativity*. Furthermore, as much critical feminist scholarship has demonstrated, this entails a strong cultural connection between the ideal of "building one's own family" and notions of the good and happy life. Consequently, following Edelman (2004) and Ahmed's (2010) work, the childless life is then always already positioned as an unhappy and undesirable life. In his conceptualization of reproductive futurity, Edelmann further criticizes the strong moral imperative to participating in the reproduction of society through the production of new citizens. Following also Rose (2007) and Carroll and Kroløkke (2017), medical freezing can then be understood as a specific technology of the pronatalist welfare state to uphold, and thus manage, the reproductive biocitizenship of patients despite their illness.

Freezing can, however, also be aptly understood as a hope technology, as Sarah Franklin termed technologies for assisted reproduction in her early work on IVF (Franklin, 1993, 1997). Not only does frozen reproductive material promise a chance of genetic offspring, it also orients the sick patients toward a normative future. The child, even the prospective child, can be seen as what Ahmed (2014) calls a token of futurity. By overcoming specific age- and time-related issues, the preservation of sperm, ovarian and testicular tissue extends this hope to groups of sick people for whom preserving cells and tissue might likely be the only chance (for genetic children). As Delvecchio Good, Schaffer, and Lind (1990) and Brown (2015), among others, have demonstrated, cancer treatment is already in itself entangled with the production and surveillance of hopefulness and optimism. Not only are doctors and scientists preoccupied with providing better treatments which will increase the likelihood of survival, "hope is a crucial element within the therapeutic armoury of nursing for patients with life-threatening illnesses" (Rose, 2007, p 135). Describing the introduction of "hope scales" and "hope indexes" in the clinical practices, Brown (2015) further points to the emerging interest of biomedicine to metricise the emotional states of sick individuals, especially cancer patients, as hope is also increasingly seen as central to being cured, or at least responsive to treatment. Hope surveillance is, as Brown argues, not just a measure of emotions already existing in the individual, but part of an institutional and disciplinary discourse that produces "modes of self-management and affective decorum" (Brown, 2015, p. 121).

This theoretical section shows how freezing for medical reasons has to be contextualized within the more overall biomedicalization of infertility as well as seen in light of risk and surveillance theories along with being situated as a hope

technology. In the context of disease and in the specific case of the Scandinavian welfare state, cryopreservation is co-constituted not only as a desirable reproductive technology, but as an integral part of the welfare state management of sick people who can engage with the prospects of future reproduction, and thus, become cured citizens with reproductive potential.

4. Imaginaries of Medical Freezing

In the analytical sections that follow, we highlight the discursive, material, and affective configurations associated with freezing for medical reasons. While we primarily draw upon interviews with women and men who, in the face of serious disease, have had their reproductive cells or tissue preserved (see Appendix), our point of departure will often be the Danish context. Several reasons exist for this. For one, and as will become apparent in the analysis, Denmark considers itself at the forefront of tissue preservation while already having established a world-wide reputation for its sperm bank business (see Chapter 1). In our analysis, we will discuss the ways that our empirical material engages with different imaginaries such as discourses associated with progress and possibility, risk prediction and management as well as the ways that freezing turns into a cryo-insurance in the imaginary of future fertility.

4.1. Imaginaries of Progress and Possibility

Fertility preservation is of high priority to many of these patients and planning for it may provide some emotional comfort and assurance while going through often harsh chemo- and/or radiation therapy, knowing they may regain menstrual cycles and create their own family once they have recovered from the disease. Not only will they possibly be able to have children after otherwise sterilizing treatment, but they may even be able to avoid hormone replacement therapy and not go through premature menopause.

(Andersen, Silber, Berghold, Jorgensen, & Ernst, 2012, pp. 128–129)

Stories of medical progress and scientific achievements are dominant imaginaries on medical freezing. No matter whether the medical narrative of cryopreserving reproductive material from sick patients reflects on the freezing of sperm, eggs, ovarian or testicular tissue, fertility preservation is a story of discovering new methods and providing better options for more people and new groups of patients who can now be (more) hopeful about future procreation. The plotline of progress and optimism is by no means new or unique to cryopreservation. In her early work on IVF, Franklin (2002) shows how the scientific imaginary of progress drew heavily on images of pioneering scientists “embarking upon an expedition or voyage of discovery” (p. 12). These narratives and the imaginaries involved are shaped by how differently the technologies have emerged in time and history.

Overall, the emergence of “medical freezing” is infused with scientific hopefulness and an optimistic belief in (future) progress. Technological optimism is

especially visible in the practices of tissue preservation, as they have been developed in the attempts to offer fertility preservation to prepubescent children (and others) who cannot produce sperm samples or have eggs retrieved. In the cases of both testicular and ovarian tissue freezing, the advancement has been pushed forward by experimental doctors (and willing patients) driven by strong beliefs in scientific achievements being just around the corner. This was, for instance, the case when the ovarian tissue preservation programmes were established in Sweden in 1995 and in Denmark in 1999, before any clinical evidence proved that the procedure would enable pregnancies in humans (Rodriguez-Wallberg et al., 2016). For instance, in 1999, as a group of fertility specialists from the University Hospital in Copenhagen, Denmark, approached the Ministry of Health asking for legal clarification around ovary transplantation, they wrote:

A number of animal-experimental studies conducted abroad have recently demonstrated that it is possible to freeze ovarian tissue and restore fertility after thawing and implantation of the tissue, in the spot from where it was removed. Both mice and sheep have given birth to normal and fertile offspring after this procedure, and the results are now so promising that a number of clinics abroad have started to preserve ovarian tissue from women to, if possible, implant it again at a later point with the aim of restoring fertility. Also, a number of patients have approached us to inquire about the possibility of freezing their ovarian tissue in Denmark. It concerns women who suffer from a disease which requires treatment which is likely to damage the eggs in the ovaries and, thus, render them sterile. If these women could have their ovaries or parts of them removed and frozen to, at a later point, have them implanted, they would probably be able to preserve/restore fertility and give birth to their own genetic children. (Andersen, Byskov, Andersen, & Ziebe, 1999)

As the quote shows, at this point in time, the Danish doctors were relying on exemplary experimental animal models, especially sheep whose ovarian size and structure resembles that of humans (Gosden et al., 1994). The quote further illustrates that not only were the doctors hopeful and embarking on a scientific voyage, they also had patients who were desperate to preserve their genetic material, and who believed enough in future achievements to take part in experimental treatment. Today, ovarian tissue preservation is an established procedure in all of the Scandinavian countries, though it is primarily the clinics in Copenhagen and at Karolinska in Stockholm that have been successful as far as children later born following the procedure (Rodriguez-Wallberg et al., 2016).

In contrast, the establishment of programmes for preserving testicular tissue in young boys currently causes discussions among biomedical professionals as, at the moment, it is not possible to put the tissue to work. In Denmark, however, parents to baby boys who have been diagnosed as cryptorchid are nevertheless offered cryopreservation of testicular tissue as part of the surgery conducted on the testis. Believing the technology will be in place as the boy grows up, the

fertility doctors and the lab involved with cryopreservation strongly recommend this option to the parents while they additionally wish to include other groups of boys in order to provide them with the best future fertility chances possible. Similar to ovarian tissue, testicular tissue preservation counseling relies on a belief in future progress to be made.

Interestingly, the narrative of progress and optimism is infused with stories of national exceptionalism. In Sweden, they pride themselves with being first-movers on both oocyte freezing and ovarian tissue and they also include patient groups which others do not (e.g., Rodriguez-Wallberg et al., 2015; and fieldnotes from observations at scientific events). Similarly, the Danish impact on the scientific achievements is often celebrated. In 2016, a new breakthrough, involving the Danish team, hit world news as a 24-year-old Moaza Al Matrooshi became the first to have a baby after having her ovarian tissue preserved before going into puberty. Testifying to the possibility of preserving fertility in prepubescent girls, the story about the nine-year-old who had ovarian tissue frozen in 2001 in the UK to return at the age of 23 to have it implanted by Danish specialists in New York made headlines such as “Woman has ‘miracle baby’ using ovary frozen in childhood” (Oriti, 2016). To the Danish website Videnskab.dk (science.dk), Claus Yding Andersen, professor at the Laboratory of Reproductive Biology in Copenhagen, said about this new achievement to which he contributed:

When we started preserving the ovaries of these girls 15 years ago, we were not certain we would be able to restore their fertility later in life, but this proves that we can. (Sjögren, 2017, author’s translation)

Andersen further emphasizes the Danish team as central to the breakthrough, as he is quoted for underlining, “We are world-leading on this area, which was the reason why the British contacted us regarding Moaza Al Matrooshi” (Sjögren, 2017). While we return to Scandinavian exceptionalism in our concluding chapter, Andersen’s comment here reveals the ways that progress narratives come together with a naturalization of the “exceptionally” technologically progressive Scandinavian welfare states.

While more and more options are developed, it is important to note that fertility preservation also involves biomedical practices of risk prediction and management; practices that have developed in alignment with the specific way healthcare is organized in the Scandinavian welfare states. In the next section, we turn to a closer exploration of how worthy and qualified candidates for medical freezing are produced.

4.2. Medical Freezing and the New Regime of Risk Prediction and Management

Counseling a breast cancer patient regarding her options for fertility preservation should include several important factors other than just the impact of chemotherapy on ovarian reserve. The age of the

patient, the number of children desired, concerns regarding type of tumor, presence of BRCA mutation, hormone sensitivity, and concerns regarding the possibility of pregnancy after treatment for breast cancer may vary greatly between patients, so there is no “one-size-fits-all” approach. (Rodriguez-Wallberg & Oktay, 2014, p. 111)

Medical freezing does not exist in a vacuum, but is entangled with the achievements within other medical arenas and treatment options for severe medical conditions and an overall turn toward risk prediction and management (Clarke et al., 2003; Rose, 2007). As the likelihood of survival and recovery from serious disease increases, such as with childhood leukaemia or lupus, or the understanding of the psycho-social implications of a medical condition such as Turner syndrome changes, the need for fertility preservation grows. Importantly, the belief in progress in itself has a significant effect on who comes to be imagined as in need of medical freezing as well as on how fertility preservation becomes a tool to manage risks associated with specific conditions. As noted by Langstrup (2007) in a study on stem cell research, the users of technology should be regarded as *an effect* of innovation processes rather than an already existing and given identity group. This is an important point in terms of understanding who comes to be understood as candidates for freezing on medical indication and also in terms of discussing how “medical freezing” is established in relation to “social freezing” (see also Chapter 3).

While cancer patients have been regarded as obvious cryogenic agents, and thus a primary target group for fertility preservation, some forms of cancer cause controversy which can enlighten us on how risk is understood and managed. While the freezing of sperm, eggs, and embryos are considered riskless in terms of cancer, the preservation of tissue involves a different type of risk. This applies to ovarian and testicular cancers, but also to, for instance, leukaemia, cancer of the blood, and to breast cancer patients with BRCA genes which is not only inheritable, but also increases their future risk of ovarian cancer. Nonetheless, founded in the belief in future achievements, from the beginning ovarian tissue from leukaemia patients has been stored in the hope that new technologies and knowledge would develop before the patients would need it. Illuminating how timely consideration and optimism entangle, in 2015, the Norwegian ovary preservation team wrote:

We are not aware that transplantation of ovarian tissue in patients with leukemia has ever been performed (13). However, in very young patients the tissue can be stored for decades in the hope that methods for in vitro growth of follicles, safe xenotransplantation to immunosuppressed animals or techniques for purging of malignant cells from the cryopreserved ovarian tissue, may become available. (Tanbo et al., 2015, p. 940)

The quote illuminates how the ability of cold storage to preserve the reproductive material for a long time, enables hope to be kept alive through the latency of the stored tissue. This destabilization of time not only allows for future (re)

synchronization of the infertile leukaemia survivor with the normative life course of procreation, it also opens up a window for scientific accomplishments to be made and thus offers opportunity for improved risk management.

Arguably still controversial, the Danish team is currently transferring frozen-thawed tissue to women who have suffered from leukaemia or who carry BRCA genes which involves increasing their risk of ovarian cancer. Based on new studies, they do not find evidence that enough leukaemia cells persist in the tissue to present a significant risk. In BRCA patients, the team has also developed a technique to remove the tissue once the woman has had a baby or after a few years if the attempt to become pregnant is unsuccessful (see e.g., Kristensen et al., 2017). These practices, declared too risky by other biomedical professionals, testify to how, at least in the Danish context, the assessment of risk is interwoven with a strong ideal of protecting and enabling genetic kinship relations.

In the realms on non-benign diseases, candidates for medical freezing emerge through changing conceptualizations of their conditions, and, as we will show, through a changing understanding of what it means to be at risk. In Sweden, for instance, ovary preservation is now offered to patients with Turner syndrome (SFGO, 2015). Infertility is a known problem in this group, but recently it has been discovered that they are born with an ovarian reserve similar to other infants which, for unknown reasons, decreases at a rapid speed. Co-produced by a changed understanding of the psycho-social effects of Turner, a disease that has been associated with mental immaturity and non-fitness for motherhood, women with Turner syndrome are frequently offered fertility treatment. Thus, young Turner girls are now also becoming obvious cryogenic agents. In Sweden, they are already considered as good candidates for donor eggs, but early age cryopreservation of ovarian tissue provides them the opportunity for genetic parenthood (Hovatta et al., 2006).²

Another example of how optimism works and affects the negotiation of risk and of what it means to be a “worthy” candidate concerns the autoimmune disease lupus. Causing controversy in the same way as leukaemia, Danish doctors are currently promoting to offer fertility preservation to this group of patients (who are often treated with chemotherapy) as new progress seems to have been made in finding a cure for lupus. As observed at a conference held by the International Society for Fertility Preservation in Vienna in 2017, this is a debated position. In fact, other doctors consider the prognosis of Lupus too severe, the patients too unwell and the cure too far away to support reproduction through fertility preservation. This discussion highlights an important ethical discussion around whether the optimism in offering fertility preservation to an increasing number of people with diverse conditions could potentially create “false hope.” The notion of “false hope” is interesting, especially when interweaving with risk management, since hope is always connected to potential outcomes rather than certainties. Similarly to the case of leukaemia, the argument among Danish biomedical

²A similar progress is taking place around Klinefelter syndrome, another chromosomal defect in boys that also causes fertility problems.

professionals is that reproductive material from Lupus patients (or other high-risk groups) can always be frozen without the promise of future use. Again, the logic of “better safe than sorry” says that if nothing is frozen and a cure is found, these women will not have a very limited chance to have (more) genetic children.

Another dimension of this discussion relates to how much risk patients end up being willing to take in terms of realizing their dream of genetically related offspring, once you have first preserved their chance. From an ethical perspective, there is also always the future child to think about, like with all types of assisted reproduction (Pennings, 1999). In this case, especially the risk of losing the parent early due to recurrence of cancer due to the reintroduction of malicious cells becomes a relevant matter. We go into more depth with this issue in Chapter 5, but here it suffices to note that in such discussions there is always a tension between the welfare of the future child and a parent’s rights to procreate, inviting different ways to strike a balance between these competing concerns. With regards to patients wanting to have children, a concern could be if their wish for a genetically related child may obscure their judgement of the potential risks and rewards. However, as pointed out by Coggon and Miola (2011), people are generally allowed great freedom when it comes to their medical decisions, even if circumstances are pressing in various ways.

A third example of how new cryogenetic agents emerge in the entanglement of scientific progress and biomedicalized risk management is the increase of commercialization of sperm deposit facilities, not least the globally operating company Give Legacy. What is particularly interesting about Give Legacy is the way they challenge the distinction between medical and non-medical freezing. Although situated in Switzerland, Give Legacy draws on the feel of the cold North and Viking mythology, emphasized through their logo of a shield with the web of wyrd a letter or “rune” in the old Nordic language of Norse. With a painted face of a man having an aura of the ancient Greeks and thus having an important legacy, they write on their front page of their webpage: “Protect your most valuable assets. We founded Legacy to protect men like you.” Founded by Harvard graduates that had a friend whom fell ill with cancer at a young age, the risk of illness and disease threatening male fertility became apparent. Developed at the Harvard Innovation Lab in Cambridge in the US, this sperm bank arguably targets men identifying with a socioeconomic and educational elite. Give Legacy offers men a practice of securing their fertility into the future. Visually developed to appear as discreet and secure as a Swiss banking facility, the exclusive service provider, on their website, explains the need for protecting your assets:

“Give Legacy was founded to ensure that forward-looking men can lock in their future and store their healthiest sperm discreetly and with a trusted provider. The fact is the modern man faces many risks, from the chemicals in his food to the radiation from his mobile phone to the diseases that others carry. There is a reason why male fertility has declined so drastically in the past 40 years. At the same time, humanity is undergoing a fundamental transformation that brings us closer to the singularity each day. Google’s chief futurist – Ray Kurzweil – believes that the day when humans live forever could arrive by 2029. Yet men produce a new genetic mutation every 8 months and DNA fragmentation leads to

damaged sperm DNA. By taking a snapshot of your healthiest, highest-quality genetic material today, you are protecting yourself from risk today while opening the door to the scientific advances of tomorrow..." (<https://www.givelegacy.com>, accessed on October 24, 2018).

In this tale, sperm depositing is promoted not only in order to secure reproduction in time, rather, it is to "lock in one's future" and to secure one's "legacy" (here conceptualized as one's sperm) from the risks of illness and disease. It enables the "better I" to live forever through banking one's seed safely, even in a discrete manner. This idea of banking sperm forever draws upon both technological progress of potential eternal life as promised by the imaginaries evoked by the movement of singularity, at the same time as it is promoted as an answer to the challenge of the Anthropocene. Here, the technological hazards of life are captured in the formulation of "modern man" facing an onslaught of risks associated with chemicals and radiation disturbing the genetic inheritance, constituting a threat to his sperm. The figure of the "Swiss bank" is paradoxically both a story of technological quick fixes and progress as the threat of the Anthropocene becomes a challenge for male legacy of the elite. The risks of illness of male infertility may be fixed by storage, at a young age, ensuring "quality children" (the highest-quality genetic material) forever.

This understanding of risk management does not only emerge in the commercialized tale of Give Legacy; the importance of the securing of sperm and fertility is likewise at stake in the interviews with Danish men having sperm deposits in a Danish sperm bank. Considering the biological easiness in which men can produce sperm compared to the surgery involved in the freezing of eggs and ovarian tissue, it is interesting that the biomedicalization of the freezing of sperm in a larger scale has yet to evolve. Ivan, who deposited sperm due to testicular cancer, had tried to convince his brother to freeze sperm and told his friends and family that he would give his son a deposit when the time came. He explains what he told his brother turning 18:

I told him I thought he should have it done. It does not cost 100,000 Danish Kroners to store (approx. 15,000 USD). It is more like 4,000 for 5 years (approx. 650 USD). The gain or what you may call it, if you face not being able to have children, is that you would still be able to have your own children because you did that act. I would not keep that information away from him. That is why I told him to do it (Interview with Ivan, 2019).

Ivan does, moreover, reflect that this information potentially could be dispersed to all men at one point or another. Freezing for medical reasons made him aware of the potential of the cryotechnology. In line with Give Legacy, he points to the promise of securing fertility for men in a much broader scale, not the least his friends and close family ("I would not keep that information away from him").

Overall, the numerous fertility preservation strategies signal a shift from simply disease treatment and management toward an increased biomedical attention to the "quality of life" of the (cured) patients, including the management of late complications such as infertility. In this way, the imaginary of "medical freezing"

is based on the idea of fertility preservation as a way to enable cancer survivors, especially children, and chronically ill people to live “normal lives.” In this imaginary, the notion of “normal lives” includes the envisioning of genetic procreation as especially important. In the next section, we turn to patients’ stories about preserving reproductive capacity to illuminate not only how fertility preservation, in the context of disease, is experienced as an insurance against future infertility, but also, how it turns into a life insurance offering a glimpse of the future which has been compromised by severe illness.

4.3. Cryo-insurance and the Imaginary of Reproductive Futurity

I just thought it was like an insurance. That’s what I was thinking, what we were thinking. Rather be safe and not be on the other side and realise that we should have done it or ... you never know which priorities you have on the other side. (Interview with Helena, 2017)

In this section, we explore the ways that fertility preservation is given meaning as a type of cryo-insurance, as exemplified in the above quote from an interview with Danish Helena who had ovarian tissue preserved before starting breast cancer treatment. We are especially interested in demonstrating how the imaginary of fertility preservation as an insurance is entangled with what cultural critic Sara Ahmed (2010, 2014) terms affective economies of hope, fear and happiness as well as in calling attention to how the prospective child works as a token of futurity in the context of disease. In this sense, we wish to demonstrate how patient experiences share the technological optimism with the biomedical imaginary of progress analyzed before, but also how fertility preservation becomes an orientation device (Ahmed, 2006; Franklin, 2013), (re)synchronising bodies and identities with normative life temporalities and ideas about the good life.

Conceptualising fertility preservation as insurance targets an important temporal dimension of the procedure of freezing one’s reproductive material. As an act of anticipation, of reacting in the present on the prediction of a high risk of infertility in the future, fertility preservation involves what Adams and colleagues (2009) have talked about as speculative forecasting. The patient might never need the tissue for reproductive purposes, either because their reproductive organs were not damaged badly or because they do not want (more) children – or eventually because they die. As already mentioned, many clinics observe that the majority of the patients never return for their preserved gametes or tissue. Consequently, fertility preservation is a practice of preparing for *potential* trauma in the future. Like with other types of insurance, it is about securing oneself, in the *current* trauma, in the event of a future reproductive crisis.

However, unlike, for instance, car insurance, fertility preservation provides no guarantee that the patient will have the reward (the child) in case of the “accident” (infertility) taking place. This has made some doctors and bioethicists question the insurance terminology, especially with regards to oocyte freezing (e.g., Mertes & Pennings, 2011). In fact, the chance of a take-home-baby is rather low, though it

varies depending on the type of matter stored, the age of the patient at the time of cryopreservation etc. Dutch and Canadian studies have found the live birth rate of cryopreserved sperm from cancer patients to be between 50% and 62% (Carcia et al., 2015; van Casteren et al., 2008). At the moment, ovary preservation is estimated to give a chance of around 30% (Jensen et al., 2015). The chance of pregnancies is harder to estimate in the case of embryo and oocyte freezing since it depends on the number of frozen oocytes/embryos as well as the ability of frozen oocytes to fertilize (as demonstrated by, e.g., Meniru & Craft, 1997). A small-scale study on female cancer patients from Belgium found the live birth rate with frozen embryos to be 44% (Dolmans et al., 2015). A larger US-based, non-cancer related study found, however, that both embryo and oocyte freezing leads to live births in only 25% of the cases (Ho et al., 2017). Arguably, freezing from only one cycle does not give a very high chance of having a child (Meniru & Craft, 1997). As we discussed above, there is no technological solution to put testicular tissue from prepubertal children to use at the moment.

For several of the men having faced illness such as cancer, however, the possibility of a sperm deposit was likewise perceived as an insurance. Ludwig explains:

It is an insurance or savings in the bank, a child savings (børneopsparing), because it can be of use. I have stored it for the family. The day I need to have it cashed, I know it is there and I can go to the bank to have it consigned. (Interview with Ludwig, 2019)

Most of the men interviewed use the notion of insurance to describe why they had a deposit established in the sperm bank. It is in order to secure the possibility of having genetically related children later in life that the deposit is underscored as central for them. However, the sperm deposit did not seem to work as a “happy object” (Ahmed, 2010) that enabled hope during treatment, it was, to these men, central due to keeping the potential of a family after the treatment was over. In the case of these interviews, this was especially important when seen as a compensation for the prospects of sterility.

Although all of the men interviewed had deposits, several reported that they were misinformed during treatment, or there had been malpractice involved in the establishment of the deposits which could have had consequences for their reproductive future. For instance, Bent had not been offered to have a deposit established in the waiting time before treatment, and did not have his sperm stored until after chemo had begun. However, he had, by chance, kept his fertility, and had a child after treatment without the use of his cryopreserved sperm. Meanwhile, Laurids, who prior to his cancer treatment had stored sperm both at a private sperm bank and a public clinic, explained how the obligatory blood testing, which is needed in the private clinics to handle the sperm during treatment, was not carried out in relation to the deposit he had stored privately. Laurids and his partner had only been able to use the sperm for treatment, as he also had deposited in a public clinic, where the necessary testing had been done in relation to these deposits. Sterile due to the treatment, Laurids realized that he could have been facing false hopes by having had sperm stored, thus challenging the idea of insurance enabling future reproductive security.

In practice, the notion of insurance likewise becomes disturbed in the case of Pelle, who also had his sperm preserved prior to cancer treatment. However, just like Bent, he had a child without the use of reproductive technologies. Unfortunately, the pregnancy damaged the body of his partner so much that the doctors did not recommend for her to go through another pregnancy, and a few years later their only child died due to cancer. Pelle now has sperm stored, but whether the sperm will be of use is questionable, as this would demand involvement of a surrogate. Instead the possibility of adopting a child and reconfiguring kinship was, in the interview, increasingly becoming a plausible alternative. He explains how he and his wife are in the process of rethinking the question of genetic kinship:

What is it about these genes? It is just a look, but is it important that the kids look like me? Maybe it is more important that the values you have are brought forward to society, to the world, to faith, to hope. When we talk [he and his wife], we are leaning towards the idea that maybe it is not the genes that are necessary (..) what is important may instead be the values of the family that you want to pass on. (Interview with Pelle, 2019)

In the context of disease, fertility preservation is not only about preserving the capacity to bring new (genetically related) life into the world. As a producer of hope, the latent vitality of the frozen tissue revitalizes the patient in several ways (for a discussion on latency, see also Chapter 4). In some cases, however, frozen gametes may challenge the notion of conceiving more genetically related children. Similarly to what was found in medical evaluations of the procedure (for instance, Hoeg et al., 2017 and Lötzer et al., 2016), interviews with Danish women who have frozen ovarian tissue show how the freezing of tissue functions as a more overall reorientation toward life. When asked about her decision to freeze, 23-year-old Agnes, who had one of her ovaries frozen at the age of 22, states that: My mum said I should do it, because I had to survive. So I had to get it out, so I would have, in some way, a future. Agnes' recollection displays how the prospect of a reproductive future becomes a way to imagine having a future at all, for the patients as well as their relatives. Helena, who was cited above, spoke about how it felt somewhat out of place to be confronted with the question of having more children during a conversation about scanning her lungs for metastasis. Nonetheless, like Agnes, she explained how talking about future fertility simultaneously felt like a confirmation that the doctors believed in her survival. If not, why would they spend money on preserving her fertility, as she put it.

The way that reproductive futurity and hope entangles is even clearer in the narrative of Carol who found that fertility preservation affected the very way she dealt with being sick. 27 years old when freezing ovarian tissue due to aggressive breast cancer, Carol a few years later explained:

You have something to fight for. I mean, there always is, I guess, but something extra. And when I had done all this (freezing), and

I really wanted it then...I have to get out on the other side. And I will live life again. So I think that kept me going. (Interview with Carol, 2017)

In Carol's narrative, the frozen tissue turns into what Ahmed (2010) would call a happy object; an object sticky with hope. The proximity of the prospective child, the extra, completes Carol's envisioning of living not only life, but a happy family life, which enables her to remain optimistic and oriented toward the future during the invasive treatment. In the end, Carol needed egg donation and IVF, but the tissue still reversed the menopausal condition her body was in after treatment and, in her account, relieved her from a lot of discomfort.

These stories illustrate how fertility preservation comes to function as an orientation device (Ahmed, 2006), a way of being turned toward specific objects (the prospective child) and landmarks (survival). This process is further illuminated in the interview with Jane, who already had a young child when she was diagnosed with aggressive breast cancer and never has returned to have her tissue transplanted. Where most of the interviewees immediately accepted fertility preservation when offered, Jane was in doubt and almost declined it. About her change of heart she explains:

I think it was also because I was just thinking but I have to decide about something that has to do with...the future and right now I am critically ill. I mean, I did that a lot; because I remember I was reading the information material a million times. And I was thinking, do I really put my body through all this because of something that is not really possible? (...) I remember that we walked out from that conversation with the doctor (fertility specialist) completely like...high, you know, because it was such an awesome ... also because a lot of what he talked about had to do with a life after. And that was just so hard to see when you have the whole thing ahead of you, right? Well, okay, so there is a chance that you will get out on the other side of all this. And that there is a life and that you will have all your options back. (Interview with Janne, 2018)

Janne's account clearly demonstrates how cryopreservation of reproductive material, despite the lack of guarantees, comes to symbolize a life insurance in multiple ways as it enables them to be optimistic about the future. Another noteworthy aspect of Janne's reflections is also the empowering aspect of regaining reproductive autonomy in the sense that fertility preservation provides Janne with the choice should she want more children. This aspect has to be understood as shaped by how being diagnosed with cancer often involves feelings of losing power and control over one's life course (Frank, 2013; Jain, 2013). You just have to jump on the train, as Janne says, referring to how it felt having a treatment plan laid out. The interviews illustrate how fertility preservation, at the time of fertility counseling, is experienced as a small window in which a bit of control is regained

through the prospect of choice both in terms of whether you want to preserve ovarian tissue at all and if you want (more) children in the future.

Meanwhile, the emphasis on having a (reproductive) choice needs to be situated as a configuration of fertility preservation within the more overall cultural imaginary of personal autonomy. Not only a cultural value of the neoliberal society as, for instance, discussed by Carroll and Kroløkke (2017) in relation to egg freezing, reproductive autonomy is also a dominant imaginary of the individualized Scandinavian welfare state. Cryo-insurance becomes a self-management technology through which a sense of control and personal autonomy can be restored and this is in spite of the lack of guarantees provided by contemporary cryotechnologies. In this manner, cryopreservation sutures the (reproductive) identity of the neoliberal citizen who, in the biomedicalized society, needs to be in control of their own health and secure having as many options as possible to live the good life (Clarke et al., 2003).

In practice, the imaginary of fertility preservation as cryo-insurance is thus both circulated as well as enacted among the patients. The notion of insurance is additionally reconfigured when the imaginary of technological fixes is challenged, when bodies act surprisingly or when malpractices take place. The attempt to preserve fertility is, however, important not only to the ways patients move forward in their lives, but also in terms of how they understand themselves. To develop the aspect of identity production more, we now turn to how gendered imaginaries affect the experiences with and conceptualization of fertility preservation.

4.4. Imaginaries of “Normal” Womanhood and “Potent” Masculinity

In this last analytical section, we explore how the imaginaries of preserving and restoring fertility entangle with the (re)production of gendered identities. As enactments of cultural norms, narratives of (in)fertility are produced differently by men and women. Importantly, the entanglement of fertility and gender is not restricted to the accounts of the patients. In the scientific writings about the advancements of ovarian tissue preservation, especially with regards to its ability to restore the hormonal cycle, Danish fertility specialists, for instance, state that:

Restored hormone production may even be the desired effect rather than fertility restoration in some patients (10), and a more appealing alternative to pHRT for some women. In Denmark around a dozen young women who entered menopause due to cancer treatment have had frozen/thawed tissue transplanted only to become a “normal woman” again and avoid menopause. (Kristensen & Andersen, 2018, p. 2)

The connection between having a cycle and feeling like a “normal woman” is, however, also echoed in the interview material. Not only can the menopausal condition of the body, caused by loss of ovarian function, entail different types of discomfort such as hot flashes and vaginal dryness, several of the

interviewees also voice how having an ovary extracted or losing the ovarian function felt like being deprived of womanliness. Invoking a narrative of gender identity loss, Sandra says about the experience of regaining her cycle after transplantation:

It was ... (laughing) it sounds a bit crazy, but suddenly I was happy to have my period, right. I mean ... and actually it was ... it was, it sounds a bit; but it was like becoming a woman again. I had really missed it, this thing about feeling the body react in all kinds of ways. (Interview with Sandra, 2018)

Sandra's hesitation indicates that she finds it a bit odd to connect the bodily experience of monthly changes she experiences after having her cycle restored to a feeling of womanliness. Besides from a bodily sensation of vitality, which Sandra associates with normality, normality is also achieved in the practicalities of having hormonal cycles: "now I also have to go to the store to buy sanitary napkins," Sandra adds.

One of the younger women who had ovarian tissue transplanted without much effect talked about how the failed attempts to restore her cycle, which has also been attempted with hormone replacement therapy, have left her feeling rather "genderless" as she doesn't have enough estrogen in her body. Zenia, another young women who had tissue transplanted for non-reproductive purposes, similarly recalls how her hormone-deprived body left her feeling out of place:

Before it started working, I had sort of a feeling that...not to be; I recall the feeling of being somewhere between a man and a woman. Or like being nervous about whether not having a cycle meant that I was about to become more of a man than a woman. And I didn't like that because would I begin to grow a beard or something? I mean before it began to work again, I was nervous about the consequences if I didn't get my hormones up and running again. And I found that annoying, also with regards to what men would think about that. I was single at that time and found it stressful. Since then it has been fine, but it was some kind of insecurity about my femininity, I think. (Interview with Zenia, 2019)

Zenia's account not only shows how the deprivation of hormones destabilizes her sense of gender identity. In contrast to the other interviewee who felt "genderless," Zenia speaks of a fear that she will eventually have masculine features ("would I begin to grow a beard or something?"). Zenia's account further demonstrates how her sense of womanliness, as well as her fear of appearing "manly," is produced within a heteronormative framework where womanliness becomes a matter of being attractive to men.

The matter of being an attractive partner is similarly present among other interviewees a bit older than Zenia. In their stories, however, heterosexual

attractiveness re-entangles with childbearing. Illustrating a joy similar to Sandra's about regaining her period, Leila, for instance, recounts:

Leila: Well normally you hate having your period, right (laughing), but this time you are just so happy and I was thinking yes! You have become a woman again. So it is wonderful in that situation.

Interviewer: Did you not feel like a woman before?

Leila: but ... it's more like when you think about the fact that you do not have your period, that you might not be able to have children, then you can feel that you are not woman enough. It's more like that I think. You are not fertile.

As the exchange reveals, Leila's sense of value as a woman is associated with being fertile ("that you might not be able to have children"). The feeling of having less value as a partner is also reflected in the interview with Sandra, when talking about not dating for a period of time after she went through cancer treatment, she says: "I mean, what do I have to offer? I can't even assure you that you can have children if you are to be in a relationship with me." Some of the women who already had partners similarly spoke about feeling like failures because they might not be able to "give my partner children." While also reflecting about how producing a baby is often seen as the ultimate love exclamation of the heterosexual couple, as described by, for instance, Bryld and Lykke (2002), these stories also reproduce a rather traditional image of a complementary heterosexual love relationship in which the primary role of the woman is to be fruitful.

For several of the men, having a sperm deposit was likewise related to masculinity. This was not least underscored in the stories of how the sperm deposits came to be. Ivan, who had his deposit made prior to cancer treatment, explains how he experienced the visit to the sperm bank as very awkward, as producing the necessary sperm ejaculation is a sexualized act:

I think I walked back and forth on the pavement several times, I walked around for ten minutes, back and forth. It was by a bus stop, and there were a lot of people, and you had to enter this doorway, where it said SPERM BANK with big fat letters It was weird to walk in there, like "ooohhh, what do people think." And the silly thing was that I had been at that bus stop several times before, but I have never noticed that anyone has entered that door. [...] and then I entered and it was exactly what I had expected. It was white walls, glass and a white desk, white gowns, and a waiting room, and you could have some water – it was just like you had gone to any other place, and

now you were waiting for your turn. Then I went to the desk ... I was pretty cool, but I recall that I was pretty nervous. My hands were cold, because I was a bit anxious in regards to the situation, because ... this has something to do with sexuality and fertility, and it is not a topic where you just stop people on the street and talk to them about it, it is a private matter. (Interview with Ivan, 2019)

Moreover, it is also a situation where the sperm quality, which is associated with masculinity, is assessed.

I saw myself walk around like a confused chicken without my head, into the room and the booth and out of the booth again and over to deliver the plastic cup, and it was transparent, everyone could see “well that was not much there” or “wow, this is too much it is almost spilling all over.” (Interview with Ivan, 2019)

The transparency of the cup and the situation of handing over the sperm to the lab technicians was, by several of the men, described as a situation that was difficult because of the fear of being assessed as producing too little. This fear was amplified in the interviews with men who had become sterile due to chemotherapy. For example, Laurids explained, when asked whether becoming sterile had impacted on his masculinity:

Maybe a little bit, but it is not like how it would be as a woman to lose one of her breasts. It is nothing I am ashamed of, or hold back, and I know it is silly. Maybe it has taken a few per cent, a little sting in one’s sense of masculinity. (Interview with Laurids, 2019)

Although sterility, as he explains it, has made only a small impact on how he perceives himself, he also underscores that he was close to dying during his treatment. Thus, the question of sterility was not what had been in focus, rather, that of vital importance in his account was the deposits that had enabled him to have children afterward. Laurids had, however, interestingly been one of the men that suggested that all men should be told about how easy and relatively inexpensive setting up a sperm deposit is. To him, sperm depositing becomes a rational act, albeit conflicting with the awkwardness of providing the sample. This awkwardness or rather the act of masturbation, conceptualized here as a sexual act, raises the question by Laurids of, why don’t men just do it before they have a diagnosis?

In the biomedical as well as patient accounts, preservation enables the re-enactment of heteronormative gender identities. As noted by Oudshoorn (1994), in her archaeology of sex hormones, hormones became sexed (understood as uniquely “belonging” to feminine or masculine bodies). As revealed in this section, the freezing of ovarian tissue along with sperm deposits reiterates this understanding of normatively gendered bodies.

5. Summary

In this chapter, we have shown how cryotechnological achievements entangle with optimism and belief in future progress and have shaped the development of what has become conceptualized as medical freezing, that is fertility preservation programmes for people who are already enrolled in the healthcare system and, consequently, understood as patients. Through the examples of the development of ovarian and testicular tissue freezing, we have illuminated how an overall belief in future scientific achievements has pushed forward the establishment of fertility preservation programmes before there has been any proof that the preserved material will work to produce human babies.

Drawing on the notion of cryo-insurance, we have shown how the ability to preserve the possibility of having children produces hope among doctors as well as patients and their relatives. Through the examination of patient accounts, we have also revealed how cryo-insurance, as an orientation device toward a reproductive future, has a normalizing function as it allows the patients to go on with the life they imagined and planned for, which most often includes having (more) children. We have highlighted how cryo-insurance, in the context of disease, involves a specific kind of future orientation as the prospect of future children allows the patients to even imagine a future, an image often compromised by the potential death threat of a cancer diagnosis. Through the proximity to the child, as a token of futurity, the patient is, however, reinstalled as closer to life than death.

Throughout the chapter we have discussed how the development of different kinds of medical diagnoses such as cancer, Turner syndrome or Cryptorchidism, has turned an increasing number of patients into cryogenic agents whose reproductive citizenship is in need of immediate protection. As we have demonstrated in the chapter, fertility preservation involves very specific biomedical practices of risk assessment and risk management. Not only should the risk of future infertility meet certain criteria (e.g., >50%), which can be hard to predict in the context of illness, both the chance of survival and the chance of reproductive success, which in the scientific imaginary correlates strongly with age, also have to be sufficiently high for it to be worthwhile. In this way, numerous processes of speculative forecasting (Adams et al., 2009) shape which patients are offered which kind of fertility preservation as well as who can have, for instance, ovarian tissue transplanted afterward. Illustrated through examples of the controversy created over certain types of disease such as leukaemia and Lupus, we have showed how there are significant differences between the Scandinavian countries and the medical teams in terms of when the hope for a baby outweighs the risk of going through surgery or of reintroducing malicious cells.

Importantly, we have also demonstrated how the latent potentiality of the frozen tissue entangles with the production of embodied gender identities. For both the men and women interviewed, the ability to restore fertility, either very physically in the sense of regaining menstrual cycles or in the capacity to engage in genetic reproduction, shapes how they are able to understand themselves as men and women. Several of the men mentioned that the prospect of infertility affected their sense of masculinity, illuminating how virility and fatherhood are important

elements of contemporary Scandinavian manhood. Similarly, the women talked about feeling deprived of femininity when they went into early menopause. Not only did regaining their hormonal cycles, through ovarian tissue transplantation, suture their bodily sense of normality, the prospect of being able to procreate restored their sense of value as attractive partners, reiterating rather traditional gendered structures of meaning in which a woman's value is closely connected to reproduction.

Clearly, medical freezing practices have to be understood within the context of the Scandinavian healthcare system in which treatment is free. This allows for doctors to work within a logic of "better safe than sorry," because they do not have to take the financial situation or insurance plan of the patient into account. Yet, the limited, and highly debated, budgets of the public healthcare system also co-produce the need of categorical demarcation and prioritization. With increased attention toward prediction and prevention, which is foundational to the way medical freezing is performed in the Scandinavian countries, clear distinctions between "medical freezing" and "non-medical freezing" collapse. With only few of the so-called medical freezers returning to use their stored reproductive material, it is, from an ethical point of view, relevant to ask why scarce public resources are employed. Nevertheless, cryopreservation of reproductive cells or tissue, in the context of disease, is conceptualized as a valuable insurance against future infertility. In contrast, the freezing of eggs for "non-medical reasons" is, however, also often, in the Danish public debate and among bioethicists (see e.g., Mertes & Pennings, 2011), positioned as something closer to a lottery ticket than an insurance (Notes from field observations). In the next chapter of the book, we turn to an exploration of freezing for non-medical reasons in the Scandinavian countries, highlighting the normative and heavily gendered imaginaries as well as the legal and ethical discussions affecting how Swedish women have obtained access to self-paid egg freezing, while the Danish and Norwegian women have not.

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Chapter 3

Delay: On the Use of Freezing for Non-Medical Reasons

1. Introduction

In 2009, 564 egg freezing cycles were performed in the United States for non-medical reasons. Meanwhile, in 2016, according to a recent news account, the number had risen to 8,892 cycles (Sussmann, 2018). Similarly, in the United Kingdom, there has been a dramatic increase in the number of egg freezing cycles for non-medical reasons from 395 cycles in 2012 to 1,170 in 2016 (Sussmann, 2018). Today, throughout the Western world, an ever-increasing number of human eggs reside in cryotanks. This rise is, in part at least, due to the fact that egg freezing is no longer considered experimental. In 2012, the European Society for Human Reproduction and Embryology, together with the American Society for Reproductive Medicine, removed the experimental label, enabling the preservation of human eggs to become a widely available technology. Although it has become a burgeoning business in the United States, Australia, the United Kingdom as well as Spain, the practice has yet to become established in the Scandinavian countries. This is despite the fact that Scandinavian fertility doctors consider advanced child-bearing age to be one of the primary reasons for later fertility problems in the region and think that cryopreservation promises to synchronize reproductive potential with that of educational, financial as well as romantic realities (e.g., housing costs, educational, and career demands).

In this chapter, entitled *Delay*, we discuss sociotechnical imaginaries associated with what we refer to as “non-medical freezing.” The chapter has been deliberately called “*Delay*” in order to show how the imaginary of delay, in the Scandinavian context, entangles with cryotechnologies and appears in popular cultural, clinical, ethical and legal accounts. In short, “delay” is often associated with the negative consequences of intentionally postponing reproduction. As echoed in the 2016 Copenhagen campaign “Have you counted your eggs today?” the fact that women with higher education levels *delay* pregnancy is directly, in these accounts, correlated with later fertility problems. Criticizing the concept of delay,

however, Inhorn (2019) instead suggests the term “waithood.” Initially developed by Singerman (2007), to understand the cross-national trend in the delaying of marriage, Inhorn (2019) uses the concept of waithood to explain why highly educated women, in metropolitan areas in the United States, use cryotechnologies to secure their reproductive potential. As exemplified in her work, women do not wish to delay reproduction, rather they seek to secure a future chance of reproduction by cryopreserving their eggs. Waithood, rather than delay, is similarly a theoretical concept in sociological research on singlehood (Lahad, 2012). Here, temporality and waiting come together to identify singlehood as an *unanticipated* form of delay (Lahad, 2012, p. 163) yet simultaneously a collective and relational experience. According to Lahad (2012, p. 165): “Waiting is often associated with fear and anxieties about the future, yet it can also be a time of anticipation, hope and excitement.” Thus, waithood constitutes an interesting and potentially less stigmatizing theoretical concept from which the cryopreservation of reproductive cells for non-medical reasons can be understood.

However, throughout this chapter we use “delay” as a concept, and the reason for doing this is to acknowledge the Scandinavian context in which the imaginary of delay has a stronghold as well as to problematize the concept of delay itself. In the Scandinavian context, delay becomes both conceptualized in light of what appears a collective female biological (alarm) clock and individualized as a woman’s own responsibility. As noted by one informant in the survey of Danish students’ attitudes toward egg freezing for non-medical purposes, whose comments echo the sentiment of several others:

If she waits until her egg quality is too low to have children, she should have prioritized it more. Even as a single woman, it is possible to have kids. Kids are not a right, they are a gift. (ID36, 22-year-old female Danish medical student, see the Appendix for details on the survey study)

Consequently, while women who freeze their eggs for non-medical reasons, as echoed in Inhorn’s work, may not refer to delay as a motivation for freezing, as an imaginary, delay figures prominently in the Scandinavian ethical, popular culture, as well as in the survey material.

Similarly, our choice to use non-medical freezing can be called into question. While also referred to as “social freezing,” “elective oocyte preservation” (Inhorn, Birenbaum-Carmeli, Birger et al. 2018b; Inhorn, Birenbaum-Carmeli, Westphal et al. 2018a), “planned” cryopreservation (ASRM, 2018), or “self-donation,”¹ we have deliberately chosen the term “non-medical” freezing. We have done this for

¹The Carl von Linné Clinic located in Uppsala Sweden advertises itself as one of the largest fertility clinics in the Scandinavian countries outlining the cryopreservation of own gametes as a type of self-donation: http://www.linne.se/aggfrysningegendonation?lang=en&fbclid=IwAR0naP0bCNe7MW26aeDXdSGoPxSw0xzI4BxCce1rNrAu3H_ org7bkzU-QKI.

several reasons: Not only do the terms “social,” “elective,” or “planned” mask the fact that not everyone can afford to participate in cryopreservation, they also infer a certain intentionality. As already described in the previous chapter on cryopreservation within the context of disease (Chapter 2), gamete cryopreservation has been advanced to assist women and men suffering from diseases such as cancer with fertility preservation. Consequently, in the Scandinavian welfare states, political and ethical imaginaries of freezing have become closely entangled with whether freezing is viewed as being for medical or non-medical reasons. This labeling also resonates with the empirical material that is emerging from the Scandinavian countries. For example, in the aforementioned survey study of Danish students’ attitudes toward the cryopreservation of human eggs, it is apparent that students strongly support freezing for medical reasons, yet remain split as far as freezing for non-medical reasons is concerned. Moreover, cryopreservation has raised general ethical concerns about the autonomy and well-being of the women and the child (Petersen, 1999, 2004), the alleged unnaturalness of the procedure or the worry that medical freezing gives women false hope (Mertes & Pennings, 2011a). In the Scandinavian countries, there is an overwhelming political and general consensus in favor of moral and legal support of freezing for medical reasons, yet the same cannot be said for freezing for non-medical reasons.

While to some extent arbitrary, the discursive split between the “medical” and the “non-medical” context is also interestingly evident in existing ethnographic research. For example, Martin (2010), in her mixed methods approach, examines discourses on egg freezing for medical and non-medical reasons in the United States. Whereas, as was made clear in Chapter 2, women who freeze for medical reasons are positioned in a sympathetic imaginary as the “worthy cancer patient,” for example, Martin (2010, pp. 533–535), she reveals how women who freeze for non-medical reasons are frequently cast as putting their own selfish needs first. Martin further notes:

The healthy young woman’s decision to freeze eggs is portrayed as a selfish move, unlike the altruism of the cancer patient who is willing to subject her body to invasive treatments to fulfil future family obligations. (Martin, 2010, pp. 536–537)

In the Scandinavian countries, preservation of fertility on medical grounds is undisputed as not only legal but in fact desirable. The juxtaposition between “medical” and “non-medical” is also echoed in the large survey study of Danish students. As noted by one student in reference to the state’s obligation to pay for preservation:

I do not think that it is the state’s job but the woman’s if she wants children in the future. If, however, she has health problems that make it difficult for her to currently become pregnant, then the state should finance it. (ID69, 23-year-old female Danish medical student)

Consequently, while, in this chapter, we acknowledge the ways in which medical and non-medical reasons at times overlap, such as in the case of women who freeze in the anticipation of future disease and infertility, throughout this chapter we consistently use the term “non-medical” freezing to describe core cases of what is considered to be non-medical freezing, that is, freezing that is done not because of a medical condition such as cancer.

This chapter highlights competing imaginaries associated with freezing for non-medical reasons. While this certainly could include the freezing of both eggs and sperm as well as embryos, our focus rests primarily with the burgeoning interest that the freezing of women’s eggs for non-medical reasons has attracted. Moreover, in what follows, we first contextualize non-medical freezing within the context of the Scandinavian welfare states. We then theorize freezing for non-medical reasons, specifying the temporal and anticipatory logics associated with *delay* prior to identifying and critically discussing key imaginaries. Our primary investigation lens is directed at clarifying imaginaries concerning non-medical preservation in the Scandinavian countries. This includes critically discussing some of the moral values that appear in the Scandinavian countries, such as concerns around reproductive autonomy, gender equality, the interests of the child and the interests of women as well as what appears as self-interest in older women. We empirically focus on the Scandinavian context, but simultaneously situate it within larger international debates as well as venturing, at times, into more empirical detail about how these imaginaries unfold in a Danish context.

2. The Legal Framework

The legal framework for freezing for non-medical reasons (delay) relates, in the Scandinavian context, both to the storage time of gametes and embryos and the regulation of their subsequent use. A relatively liberal legal framework for the preservation of eggs is a prerequisite, not only for the emergence of a market in egg freezing, but also for women to feel that non-medical freezing is an attractive option. This is especially prevalent in the United States as well as in Australia, where egg freezing is heralded as the new equalizer, enabling women to wait for “Mr Right” while taking “control” over their fertility.² As outlined in Chapter 1 and in contrast to countries such as the United States and Australia, the Scandinavian countries have responded differently to cryotechnologies, with Denmark and Norway adopting liberal limits for cryopreservation of sperm yet strict time limits for the cryopreservation of eggs. As a result, freezing for non-medical reasons is limited in Denmark due to the five-year cryopreservation rule. Nevertheless, it is now offered by Danish clinics. Meanwhile, Norway explicitly prohibits non-medical egg freezing, as the legality of cold storage depends on medical indication (see Table 1 in the Introduction), which is consistent with the

²An example of this type of marketing can be found at the Egg Freeze Center located in Richmond, Australia. Retrieved from <https://www.number1eggfreeze.com/>. Accessed on February 2019.

fact that sperm donation is allowed but egg donation prohibited according to the Norwegian Biotechnology Act. Interestingly, in Sweden the freezing period of gametes is decided by an individual medical assessment and legal regulation is limited to the cold storage of embryos (see Table 1 in the Introduction). Perhaps not surprisingly, therefore, Sweden is the Scandinavian country with the most developed market in freezing for non-medical purposes. Meanwhile, none of the countries offer egg freezing as part of the national health package, and thus, egg freezing is exclusively offered by private clinics.³

Compared to the other Scandinavian countries, in Denmark the potentiality of ART to delay *female* reproduction became a key concern in the legal response to assisted reproductive technologies. As mentioned in Chapter 1, the first Danish regulatory interest in 1993 came in the form of guidelines⁴ which focused on *controlling eggs*, both in terms of their cryopreserved storage as well as the degree to which they could be used to delay reproduction. Mirroring what was described as women's "natural" ability to bear children, the Danish political responses highlighted a gendered concern and reason for the more restrictive guidelines which deemed fertility treatment to be illegal in women beyond their 46th birthday and set a cryopreservation limit of five years. Bearing in mind that the ability to have children could end prematurely in some women, publicly funded IVF was only to be offered to women up to 40 years of age. On account of what was framed as the maintenance and upbringing of the child, in Denmark, 45 years was to be the upper limit for women to legally receive ART within the private sector. Meanwhile, no age limit existed for men. In a response to the parliamentary Committee for Health, the Minister added that the increased risk in pregnancy and during childbirth for older women was also to be considered when setting the upper limit at 45 years. The guidelines clearly invoked gendered imaginaries and normative understandings related to the appropriate age of motherhood as well as the desire to control women's eggs in terms of storage and delayed use. In setting an upper age limit, the Danish law mirrored traditional and welfare state views of women's role in the family (Pateman, 1989) emphasizing the importance of the female (and not the male) presence in upbringing and caring for the child.

In an explicit quest to *tame* the chilling potential outcomes of ARTs, the adopted Danish Act continued to include what was discursively positioned as an "objective" age limit of 45 years for women in replacement of the Bill's suggested subjective limit of 40–45 years. This was based on an individual assessment of the woman's reproductive capacity and whether or not it has ceased because of

³The price of egg freezing is estimated at 3,000 euros (DKK 23,000) at the Stork clinic (this excludes medicine and the expenses associated with freezing and subsequent thawing). At The Carl von Linné Clinic, the price of egg freezing is approximately 2,400 euros (SEK 25,000) and excludes the annual storage fee (beyond the first year).

⁴Directive No. 15,120 of 22 December 1993 on physicians' use of artificial fertilization and other forms of fertility-enhancing treatments. Shortly followed by Directive No. 109 of 13 June 1994 on the introduction of new treatment methods in assisted reproduction and the Health Board's circular No. 108 of 13 June 1994.

age or the onset of menopause. While this assessment was initially intended to apply to both men and women, in reality it became gendered. A public outcry in the media made by several men caused all parties to abandon the initial age requirement relating to men and highlighted the fact that men could reproduce “naturally” until old age. As the Bill became the first comprehensive Act regulating assisted reproduction, the female age limit of 45 years was codified. However, within the public health care system the regional providers of healthcare have set the limit for access to publicly funded fertility treatment at 40 years for women. Swedish law does not include an age limit for the delayed use of gametes and the final decision is subject to individual medical assessment, with county councils recommending an age range of 37–41 years for women receiving IVF treatment in the public healthcare system but subject to individual assessment. As demonstrated in the above section, the Scandinavian countries differ in the legal frameworks relating to cryopreservation for non-medical reasons, although all three countries rely on gendered regulation. Prior to framing key competing sociotechnical imaginaries in the Scandinavian countries, we turn now to a theorization of delay which emphasizes the temporal and anticipatory logics associated with cryopreservation.

3. Theorizing Delay

In this section, we view the concept of delay within cultural analytical scholarship on the temporal politics of anticipation and biopreparedness as well as within feminist science and technology scholarship. Delay engages with a temporal or anticipatory logic requiring acting in the present by freezing one’s fertility potential, the medicalization and technologization of gamete freezing, and an orientation to the future (van de Wiel, 2015, p. 119). Freeman (2010) theorizes this temporal and normative logic in developing the twin concepts of chrononormativity and chronobiopolitics. According to Freeman (2010), chrononormativity illustrates how time organizes “individual human bodies toward maximum productivity” (p. 3). Chrononormativity involves institutional techniques (clocks, calendars, schedules) that make the movement of individual as well as collective groups of bodies appear desirable, even natural, biological, and somatic. By emphasizing temporalities as norms and politics, Freeman (2010) draws our attention to time as a performative and powerful technique orienting, regulating, and disciplining bodies in synchronized rhythms to normative modes of production and culture, including gender, kinship and identity as well as powerful rhythms that are naturalized and re-appear as “hidden rhythms” (Zerubavel, 1981). Similarly, the preservation of one’s own material becomes, as also noted by Waldby (2019), a private investment directed at ensuring generational normativity.

In this theorization of delay, non-medical freezing can be seen as an act of anticipation. It becomes a temporal state of being oriented to the future and thus acting in the present while being reflective on the past (Adams, Murphy, & Clarke, 2009; Waldby, 2014). As noted by Adams et al. (2009, p. 248), the past and the future collide when “the future increasingly not only defines the present but also creates material trajectories of life that unfold as *anticipated by those speculative*

processes" (authors' italics). While the notion of delay entangles with this anticipatory logic, it similarly draws upon the speculative and promissory industries involved in vitrification, banking and thawing (Thompson, 2004; Waldby & Mitchell, 2006). Freezing for non-medical reasons can then be theorized as not exclusively an individual decision to anticipate future infertility. Rather, it is both a burgeoning commercial practice as well as a way to manage one's reproductive desires, including that of heterosexual coupledom (Inhorn et al., 2018a) while also ensuring generational lineage (Waldby, 2019).

In this way, cryopreservation entangles with market and kinship needs when, as noted by Adams et al. (2009, p. 252): "anticipation is a mode of both creating markets and responding to projected needs." Similarly, in the development of biopreparedness as a concept, cryopreservation becomes an embodied preparation of women's bodies (through hormone injections and egg retrieval) that enables genetic parenthood (Waggoner, 2015). These forms of biopreparedness reinforce freezing as a technology that maintains the desire for a heterosexual, nuclear family while simultaneously drawing upon conventional notions of kinship in which a gestational and genetic relationship between parents and children remains desirable (van de Wiel, 2014, pp. 7–8). Moreover, when positioned within a neoliberal context in which individuals are responsible for optimizing their own reproductive futures, freezing for non-medical reasons becomes enacted as a "responsible" preparation of the body for a likely (and perhaps desirable) future (Carroll & Kroløkke, 2017).

However, it also becomes an anticipation of securing the family line. Based on notions of "thick time" (Neimanis and Walker, 2014), Waldby (2019) develops a different temporal perspective to more adequately understand her interviews with egg freezers. She states that: "The term thick time evokes the sense in which the entire genealogy of the species and ancestry is played out in the real time of lived life" (Waldby, 2019, p. 33). Thick time, then, cements the promise inherent in cryopreservation technologies. It recognizes the individual woman's desire for a future child as well as, importantly, the ways in which cryopreservation enables the continuation of kinship lines. As echoed in Waldby's (2019) text, oocytes turn into family investment material or elements that echo an indebtedness that these women have to their own families.

While women discipline and control their reproductive bodies through what, in this theoretical framing, can be seen as an anticipatory risk-management logic, delay can also be theorized in the light of optimization and biopreparedness. Cryotechnologies enable women and men who can afford it to bank their "optimal" genetic and reproductive material. Although not addressing cryotechnologies specifically, in the opinion of Rose (2007), optimization frequently includes biomedical and technological efforts aimed at securing the best possible futures. In the case of gamete freezing, freezing promises to hold still what at that point in time are viewed as the highest-quality reproductive cells. Cold storage enables not only delay and reproduction at a later (more optimal) time, but also, when understood as an optimizing technology, enables the depositors who can afford it to bank their "optimal" genetic and reproductive material. Rose (2007) states that: "the old lines between treatment, correction and enhancement can no

longer be sustained" (p. 17). The key feature of optimization, therefore, is its forward focus, whereby acting in the present (such as freezing now) promises a more successful (future) reproductive outcome. Hannah Landecker (2004) comments on this development, when she notes that reproductive technologies change what it means to be biological.

In the existing scholarship, delay is strikingly gendered. Women are framed as doubly responsible for managing their reproductive time and for enacting responsible reproductive citizenship through the anticipation of future infertility (Carroll & Kroløkke, 2017). In her discussion of Dutch and British media accounts of egg freezing between 2000 and 2012, van de Wiel (2014), for example, illustrates this theoretical framing, when she highlights the gendered implications that these accounts have of the ageing female reproductive body. Egg freezers are, she notes, both lauded for taking matters into their own hands, yet are also frequently criticized as "lifestyle freezers" whereby choosing to freeze one's eggs is not cast as the solution but rather becomes indicative of the woman being too picky, wanting it all, naively awaiting "Mr Right" instead of settling for "Mr Good Enough" (van de Wiel, 2014, p. 10). Similarly, Martin (2010) notes how women who freeze for non-medical reasons become stigmatized while risk-managing their reproductive future in the quest of genetically related children. She states that:

As a tool of risk management, egg freezing is a technomedical displacement remedy, ameliorating fears of childlessness and the reproductive and genetic unknown at the same time as putting women's bodies and bank accounts at risk. (Martin, 2010, p. 540)

Key to the theoretical debate, therefore, are the ways in which delay seeks to optimize and risk-manage women's reproduction while ensuring the ability to parent what becomes prefaced as one's "own" genetic offspring (Franklin, 2007; Ussher, 2006).

This theoretical section reveals how delay engages temporal and anticipatory logics as well as being situated within a general cultural logic of optimization. Importantly, theorizing delay allows us to situate cryopreservation for non-medical reasons in the light of larger (chrono)normative Scandinavian practices associated with child-bearing and the making of families. Cryopreservation becomes, in this context, a synchronizing technology that tries to ensure reproductive possibilities despite the biological realities of reproductive ageing, for example. Within the anticipatory practice of reproductive delay, therefore, freezing for non-medical reasons engages synchronization strategies by turning reproductive cells into future self-investments, optimizing depositor bodies while also preparing them for future genetic parenthood together with the continuation of the family line. We turn now to some of the sociotechnical imaginaries that, in the context of the Scandinavian countries, surround freezing for non-medical reasons.

4. Imaginaries on Freezing for Non-Medical Reasons

In the following section, we will first present some of the central imaginaries, often evoked as discourses or affective configurations and arguments, for and against freezing for non-medical reasons. While we draw upon popular media accounts, interviews and survey studies (see Introduction), our point of departure will often be the Danish Council on Ethics and its Scandinavian counterparts. In our analysis, we will try to both unfold and critically discuss the imaginaries that focus on normative evaluations concerning the legalization of freezing for non-medical reasons.

The ethical discussions related to the non-medical freezing of eggs are of particular interest to us. There are several reasons for this. First of all, ethical discussions often center around women's reproductive cells and are therefore frequently gendered. Notably, ethical discussions about the cryopreservation of sperm for non-medical reasons are far less heated than ethical discussions about women's reproductive cells. Whereas an emerging scientific and business interest argues in favor of the cryopreservation of both female and male reproductive cells (in order also to ensure men's chances of genetic parenthood), ethical discussions about the non-medical cryopreservation of sperm do not take up much space compared to the parallel discussion on eggs. Moreover, what is seen as men's reproductive ability to deliver "fresh" sperm (regardless of age) combined with the fact that no legal cryopreservation time limits exist on the preservation of sperm, have made men's reproductive choices appear limitless. Second, we have also deprioritized the freezing of embryos for non-medical reasons. In part, this discussion consists of complex ethical issues and arguments surrounding the moral status of embryos, including when it is morally permissible or should be legal to destroy embryos that are cryopreserved for non-medical reasons. Moreover, clinical evidence suggests that women prefer to have their eggs (not embryos) preserved for non-medical reasons (Goold & Savulescu, 2009). The desire to preserve eggs rather than embryos therefore partially contributes to embryos having a higher moral status than eggs, or even the same rights as people, or may lead to women postponing the decision about with whom to create an embryo. When women freeze eggs rather than embryos, they also steer clear of complications that may arise if they later disagree with their partner about what is to be done with this reproductive material. Consequently, in the following sections, we investigate some of the central imaginaries that surround egg freezing for non-medical reasons in the Scandinavian countries.

4.1. Imaginaries of Reproductive Autonomy

We have been successful at liberating women from pregnancies, but we have never been successful at letting women have children, when they want them. (Interview excerpt with David Keefe, Head of NYU Langone Fertility Center, repeated in Vestergaard, 2014)

Egg freezing promises to grant women more reproductive choices. Not only can women now, with the assistance of the birth control pill, control *whether* they want to be pregnant, the development of cryotechnologies has, in this medical (and frequently also clinical) imaginary, afforded (some) women the chance to decide *when* they want to be mothers. As yet another reproductive technology, therefore, egg freezing purports to revolutionize women's reproductive lives. As noted by Herrmann and Kroløkke (2018), egg freezing purports to extend the reproductive choices afforded by the birth control pill, thus granting women the autonomy to synchronize their "biological clock" with the rest of their lives. In fact, some of the obvious arguments in favor of freezing for non-medical reasons are based on values such as reproductive autonomy and increased gender equality (Danish Council on Ethics, 2015, pp. 3–5). However, in order to understand how the non-medical freezing of gametes is understood in a Scandinavian context, we need to consider how different conceptualizations of women's reproductive autonomy coproduce differentiating imaginaries of egg freezing as respectively contributing to women's emancipation or reproducing suppressive societal structures.

Women's reproductive autonomy has become a moral axiom in Western culture (Harwood, 2009; McLeod, 2002; Petersen, 2004, 2015; Robertson, 1994) and maybe even more so in the Scandinavian context. Thus, in Scandinavia, reproductive autonomy arguments extend to women's eggs, including who owns them and who should decide what happens with them. This notion is echoed in the Danish Council on Ethics (2015, p. 11) accounts, when the Council recognizes that an important moral value that should be taken into account when the regulation of assisted reproduction is discussed is that "... the woman herself or her family, as a point of departure, should decide for herself what should be done with her eggs." Similarly, the Swedish National Council of Medical Ethics (2013, p. 148) emphasizes the ways in which autonomy and temporality come together when it writes about egg freezing and autonomy: "The technique can increase the reproductive autonomy of women, as it can increase their possibility to decide when and with whom they will have a child." And in Norway, members of The Norwegian Board of Technology mention that

[...] freezing of eggs at a young age will increase the freedom of choice and the possibility to pursue other goals in life, without renouncing the possibility to have children later in life. (The Royal Department of Health and Care, 2016–2017, p. 30)

As will become clear in our forthcoming analysis, concerns relating to reproductive autonomy are prominent in the Scandinavian context. In Scandinavia, cryotechnologies become both an individualized empowerment tool as well as problematized as a form of gendered exploitation when women become normatively oriented toward having a reproductive future. In the following section, we discuss both of these conceptualizations of reproductive autonomy as they come into play in the Scandinavian welfare states.

4.1.1. Egg Freezing as a Tool to Strengthen Women's Individual Autonomy.

I like it. Without new children, we have no future. But women deserve a career as much as men do. (ID107, 22-year-old female Danish medical student)

In both the clinical marketing material as well as in individual user accounts, egg freezing is stipulated as enhancing women's reproductive autonomy. Responding to the question "should the Danish welfare state or the employer pay for egg freezing," the medical student quoted above expresses agreement on both counts, equating cryotechnological developments with children and the prospects of having a future in the first place ("without children, we have no future"). Within the imaginary of cryotechnologies as technologies that strengthen women's autonomy, women may want to freeze their eggs for many different reasons. They may need to have more time to find a suitable partner or believe that they cannot find a suitable partner before their biological clock runs out. They may need time to complete their education, time to mature and have a career and secure their financial situation before embarking on parenthood. This is echoed in Inhorn et al.'s (2018a) large interview study of North American and Israeli women's reasons for cryopreservation. Inhorn et al. (2018a, 2018b) document that freezing for non-medical reasons is complex, yet all of their female interviewees reify the desire for heterosexual couplehood. Thus, the fact that women have no male partner appears at the heart of the decision to preserve, conceptualized by the authors as "the male deficit problem" (Inhorn et al., 2018a, 2018b). Accordingly, in this imaginary, if women want to cryopreserve their eggs for non-medical reasons, they should then be allowed to freeze their eggs for as long as they want to.

In the imaginary of reproductive autonomy, egg freezing transgresses overall structures of oppression such as exploitation of traditional gendered norms. This is reflected in the marketing of egg freezing in the United States. When the latest egg freezing clinic, Trellis, in New York City re-situates the clinic as a "fertility studio," it simultaneously promotes egg freezing within a rhetoric of "options now, possibilities later." In the process, freezing for non-medical reasons turns into a wellness regimen in which young, attractive, seemingly successful, well-dressed and smiling women gladly turn to the fertility clinic now re-aestheticized as a designer furniture homey space in order to secure their future chances of motherhood. Trellis Fertility Studio encourages women to "own" their fertility, when they say: "Take charge of your fertility" (<https://www.trellishealth.com/2018>). Similarly, on March 8, 2018, International Women's Day, Extend Fertility (also located in Manhattan) conceptualized egg freezing as following in the footsteps of the birth control pill in granting women reproductive choices:

Egg freezing allows a young woman to make choices for herself – whether those choices are to focus on her career, pursue higher education, travel, date without pressure, or any other activity that doesn't involve having babies right now – while preserving the option to have children when she's good and ready. (<https://extendfertility.com/blog/egg-freezing-gender-equality>, 2018)

In the above cases, reproductive autonomy is aesthetically presented in the shape of young, attractive, well-dressed, urban women. While fertility preservation appears to be the goal, the visual material de-emphasizes pregnancy and children and instead re-centers on the young, attractive, fit, individual, autonomous woman.

Although autonomy is also strongly present in media and ethical accounts on egg freezing in the Scandinavian countries, interestingly Scandinavian clinics do not rely on this discourse in their commercial practices. Rather, outlining the possibilities of egg freezing, the Stork clinic, located in Copenhagen, aesthetically uses a photo of a white pregnant woman wearing a wedding ring, to explain that egg freezing is an option to help women delay their family-making plans (<https://www.storkklinik.dk/en/treatments/egg-and-sperm-donation/egg-freezing/>). In this representation, pregnancy and egg freezing visually collide, turning egg freezing, aesthetically at least, into a viable reproductive planning option.

Meanwhile, the Nordic Egg Bank, located in Gothenburg in Sweden, situates itself as a Nordic frontrunner and refers to egg freezing as a “fantastic opportunity to preserve fertility (...) if pregnancy isn’t an option in their present social situation” (https://www.youtube.com/watch?v=-brHAOIE_w8 2018). Similarly, Livio, located throughout Sweden as well as in Norway, situates egg freezing as an ability to help women or couples who want a later pregnancy (<https://livio.se/behandling/aggfrysning/> 2019). In Livio’s online presence, egg freezing is aesthetically presented in the middle of a sunny Scandinavian corn field (<https://livio.se/behandling/aggfrysning/> Retrieved January 2019). Thus, unlike the commercial clamor for reproductive autonomy that is evident in the commercial practices of clinics in the United States, in the Nordic clinical advertisements, egg freezing for non-medical purposes is situated within a more nationalized, collective, albeit autonomous, Scandinavian desire for family planning. This planning involves fairly heteronormative and white family values, such as that of marriage visually portrayed through the wedding ring,⁵ multiple children and, as evident in the Swedish flags portrayed in The Carl von Linné Clinic video,⁶ national pride.

While the Scandinavian countries have a reputation for focusing on women’s autonomy and gender equality, as far as reproductive rights are concerned, these concepts are still debatable. In fact, not only autonomy but gender equality appears at the heart of the issue, when, for example, the Danish Council on Ethics (2013, p. 5) situates egg freezing as potentially contributing to more gender equality. The law on cryopreservation widens the gap between women’s and men’s possibilities of reproducing later in life. This is especially the case in

⁵(<https://www.storkklinik.dk/en/treatments/egg-and-sperm-donation/egg-freezing/>)

⁶In this presentational video, The Carl von Linné Clinic portrays itself as one of Sweden’s oldest IVF clinics (the male scientist gestures proudly and displays two Swedish flags) and as a skilled gardener (visually showing the healthy growing of various different plants throughout the video) including acquiring knowledge on how best to individualize growth and development. Retrieved from <http://www.linne.se/?lang=en>. Accessed on February 2019.

Denmark and Norway where, in the absence of clinical and medical reasons, women can only cryopreserve their eggs for five years. The structural differences between women and men in the labor market and in the educational system make it easier for men – or so the argument goes – to make not only long-term family plans but also career plans. These differences would not necessarily disappear if women had the same opportunity to cryopreserve as men, but could nevertheless increase the equality of opportunities between men and women in important areas of life. In this argument, liberalization of the Danish and Norwegian regulation would benefit women in countering the effects of structural inequality and normative pressures. Thus, in these pro-egg freezing accounts, individualized solutions are seen as better than no solutions at all while also offering more women the chance to enter the workplace or enhance their careers when they want to.

4.1.2. Delay as Socio-cultural Coercion and Market Exploitation.

I do not think that the employer should intervene. The offer should only be present if the state pays. If an employer intervenes in circumstances like that, it could lead to a risk of discrimination of women in the workplace because a woman might feel that she owes the employer something. The power relationship will accordingly be disproportional between employer and employee (more than it already is). (ID163, 24-year-old female Danish law student)

Whereas cryotechnologies, in the previous section, are seen as supporting ideas of women's reproductive autonomy, we now discuss the ways in which cold storage entangles with Scandinavian concerns around capitalist exploitation of women's reproduction. In response to the question of whether Danish employers should be allowed to include egg freezing in their benefit packages, the Danish female law student quoted above disagrees. While she, in her response, in fact remains open to the Danish welfare state funding non-medical egg freezing ("the offer should only be present if the state pays," she situates cryo-employer benefits as adding fuel to an already unequal relationship and potential exploitative practices. ("The power relationship will accordingly be disproportional.") In her response, as well as in the responses of other informants, cryopreservation entangles with a capitalist market and most notably concerns around unequal power relationships.

In this section, we discuss the ways in which freezing for non-medical purposes entangles with concerns around capitalist exploitation. To do this, we turn to the Danish Council on Ethics and delineate arguments made against freezing for non-medical reasons as well as concerns present in the large survey study. Here, autonomy comes to be understood within an imaginary of coercion. For example, the former chair of the Danish Ethical Council, Gorm Greisen, argues against freezing eggs for non-medical reasons and The Danish Council on Ethics situates reproductive autonomy not within individualized forms of empowerment but rather within a larger context of exploitation and coercion. He states: "Women may

experience that they are coerced to delay their reproduction” (Nobel, 2017, p. 3). According to Greisen, autonomy must be understood as freedom from coercion from family, work or other institutions. Similarly, in Norway, the Norwegian Council of Biotechnology connects women’s reproductive autonomy with societal pressures when it writes that: “With increased reproductive autonomy through egg freezing, may follow a social pressure to delay having children, because of, e.g. career reasons” (The Norwegian Biotechnology Advisory Board, 2019, p. 1). Concerns around the ways in which autonomy and larger societal pressures come together are also present in the survey of Danish students. For example, and although recognizing the potential of freezing for non-medical reasons, one student expresses concern, when she says:

I am worried that it (freezing for non-medical reasons) might lead to an expectation that women will take the offer (to freeze her eggs). It could then create a culture in which it is not only an offer but in fact a requirement to keep your job, get the same pay and have the same positions as men. (ID66, 24-year-old male Danish medical student)

Here, reproductive autonomy conversely entangles with gender equality identified by this student as equal pay and equal job opportunities as well as freedom from collective forms of coercion (“a requirement to keep your job”).

In the feminist scholarly debates on fertility preservation a similar understanding of autonomy as “freedom from coercion” can be found. Complicating the discussion, feminist scholars have emphasized how autonomy must always be situated within larger cultural contexts (Martin, 2010). According to Martin (2010), freezing for non-medical reasons medicalizes women’s bodies while simultaneously situating child-bearing and genetic relatedness as key to a healthy family life. As noted by Martin (2010, p. 540): “On top of the reproductive imperative can now be laid the genetic imperative.” In this account, autonomy is understood as freedom from the normative pressures framed as healthy family life. Similarly, Lombardi (2018) contextualizes egg freezing for non-medical reasons in an Italian context and situates cryotechnologies in the light of larger gender inequalities: “If the choice of freezing eggs at 25–30 years of age and to defrost them at the age of 40 or 50 is forced by unfavorable social conditions, then we cannot speak of ‘free choice’ but rather of a choice that goes against women and not to their benefit,” she says (Lombardi, 2018, p. 225).

In further criticism of non-medical freezing in this material, cryotechnologies become imagined as individualizing technologies available only to the women who can afford them. For example, sceptics such as Cattapan et al. (2014) have argued that reproductive autonomy becomes stratified. Thus, supporting freezing for non-medical reasons (e.g., by making it legal or by letting companies pay for it) may, in this imaginary, undermine the autonomy of the many. The individual use of cryotechnologies is seen as potentially shifting attention away from important and lasting changes of the societal structures (e.g., in the workplace) that distinctly disadvantage women. If these changes, for example, are

implemented in the workplace (e.g., more flexible working hours, paid parental leave, equal pay, etc.), in this discourse, women become less restricted by structural changes and more autonomous. Thus, instead of spending time and resources on what here becomes constructed as an overly optimistic biotechnological and individual fix through structural changes, Scandinavian ethical debates suggest that a collective effort is required. Lombardi (2018) echoes this argument as well, when she situates freezing for non-medical reasons not within delayed motherhood but rather within a precarious job market which makes motherhood difficult in the first place. Similarly, Cattapan et al. (2014) argue that shifting the burden to individual women to accommodate the traditional employment model (by using egg freezing) is not preferable to changing the model itself.

In this imaginary, and within the context of the Scandinavian countries, reproductive autonomy becomes heavily entangled with more general moral concerns related to women's autonomy as a whole. The imaginary of autonomy therefore becomes key in the ethical accounts relating to how women's autonomy should be understood. In this imaginary, the fact that patriarchal employment models favor men does not necessarily lead to a call for egg freezing to be illegal (Goold & Savulescu, 2009). Instead, in pro-egg freezing ethical accounts, individualized solutions are seen as better than no solutions at all, while also offering more women the chance to enter the workplace or enhance their careers. Furthermore, in this imaginary, even if activism for social change in the labor market is preferable to individual accommodations to this market, activism for social change is not necessarily eliminated, undermined or overshadowed by allowing access to technology that might remove some of the constraints that women face in the labor market or in their lives as a whole.

As we have seen the argument for liberalization within this critical imaginary of autonomy is complicated by feminist researchers who have argued that freezing for non-medical reasons will increase the inequality between privileged and unprivileged women and their families (Cattapan et al., 2014). This latter argument is entangled with the cost of freezing and depends on whether cryopreservation for non-medical reasons is supported by the social health care services or exists in a free market. While in Denmark, preservation for non-medical reasons is currently paid out of pocket, Swedish companies are increasingly following the example of companies in the United States and offering IVF and freezing for non-medical reasons as employee benefits (Lindroos, 2017). According to Benify, a Scandinavian company that helps companies put together employee benefit packages, "modern" companies may offer fertility packages to their employees including not just IVF but freezing for non-medical reasons (Lindroos, 2017). While the employer packages may be controversial, the survey study of Danish students found less resistance to welfare state-funded packages exists. A welfare state might consider funding cryopreservation as part of the public healthcare system. In that case, the inequality between the financially privileged and less financially privileged would not be widened, but the burden on the welfare state to fund egg freezing would become stronger. Conversely, if freezing for non-medical reasons is limited or even illegal, then only financially privileged Scandinavian women

(notably in Denmark and Norway) can afford to travel to have their eggs cryopreserved in countries (e.g., Sweden) where it is legal. In this way, understandings and arguments around how and whether non-medical freezing enhances or limits reproductive autonomy must be assessed and discussed within Scandinavian configurations of what autonomy or equality might even be.

4.2. Imaginaries of Rightly Timed Kinship

When I was 12, I made myself a list. A kind of life plan. I should have an apartment before I was 22. I should meet the man of my life when I was 24. He was supposed to propose when I was 26, and we would marry when I was 28 1/2. Because according to the statistics that I had read, this was the time when it was the least probable that you would then divorce. (Penny Wayne Claire Kembba in *Baby on Ice* <https://www.nrk.no/dokumentar/xl/forbudt-eggfrysing-1.14508790>)

Whereas the then 12-year-old Norwegian Penny Kembba envisaged having her first child at the age of 29, the documentary *Baby on Ice* reveals the trepidations and concerns related to anticipated future infertility including the cross-national reproductive pathways (Adrian & Kroløkke, 2018) involved when Penny travels from Norway to Sweden. In this section, we suggest that freezing for non-medical reasons can also be understood within imaginaries of rightly timed kinship. Cryotechnologies enable another reproductive temporality: not only are women able to postpone motherhood such as in the case of frozen gametes that can become a child twenty years later, these non-normative reproductive temporalities come to appear morally wrong, as they upset a particular normative temporality and thus produce anxieties about the frozenness of the matter. In what follows, we begin by specifically highlighting the concerns related to the best interests of the child and those of women as aptly understood within an imaginary of the (right) temporality of kinship. Concerns about the potential harm to children and too old mothers are key to Scandinavian medical and ethical debates on cryopreservation for non-medical reasons. We end by returning to the kinship temporalities that, in stories like Penny Kembba's, stress chrononormative understandings of freezing for non-medical reasons.

4.2.1. Kinship Temporalities and the Best Interests of the Child.

In Scandinavia, the best interests of the child play a big role in discussions about the ability to freeze and postpone reproduction (Kroløkke & Adrian, 2013). Feminist scholars have, however, shown how arguments about the best interests of the child function as a smokescreen for the reiteration of more conservative cultural values (Baird, 2008; Hosking & Ripper, 2012; Kroløkke & Adrian, 2013; Liljestrand, 1995). The interests of the child become what Baird (2008, p. 291) calls an "impermeable category," "iconized" as well as "fetishized" (Baird, 2008, p. 293). Based on Swedish empirical material, Liljestrand (1995) points out how what are presumed to be the interests of the child replace children's actual experiences, when she says:

The “child’s best interests” became a powerful argument serving this purpose because of its ambiguity and because it capitalized on existing social values of social solidarity and the social value of the child. (p. 297)

In this section, we discuss the ways in which the best interests of the child unfold in the context of freezing for non-medical reasons. The age of the mother is also a key element in this discussion.

The concern around the best interests of children is frequently divided into two separate issues. One issue is *direct* and concerns the effect that the process of freezing and thawing will or can have on the health and well-being of the future child. Specifically, will cryopreservation increase the incidence of birth defects (Danish Council on Ethics, 2015, p. 8, see also the Swedish National Council of Medical Ethics, 2013, pp. 147–149). The other issue is *indirect* and concerns the alleged harm (often psychological or social in nature) that may follow when children are born to older than average mothers/parents who have delayed having children until they are in their forties or fifties. This issue has to do with the idea that older parents are not as “good” parents as younger parents (e.g., because they may not have the same energy, etc. as younger parents), or that children born to older parents are harmed because they will not have their parents for as long a time as children born to younger parents (Danish Ethical Council, 2015, p. 7). Similarly, the Swedish National Council of Medical Ethics 2013, for example, writes that it speaks against allowing older women to have children because “the risk of a problematic upbringing is increased due to the fact that older women are at a higher risk of death related to disease.” In these accounts, the woman’s age entangles with concerns related to disease and possibly even premature maternal death.

However, with regard to the more direct concern, the entanglements between cryopreservation and child health contrast with clinical evidence (Noyes et al., 2009). Clinical evidence suggests that children born from cryopreserved eggs do not have more birth abnormalities compared to “spontaneous” pregnancies and birth (Noyes et al., 2009). The results from the Noyes et al. (2009) study involving 936 children born from cryopreserved eggs reveal that only about 1.3% of these children had birth defects. (This should be compared with the observation that children with birth defects account for approximately 3% of all live births in the USA.) Additionally, medical evidence suggests that cryopreserving several eggs during a woman’s most fertile years could minimize the risks of genetic abnormalities in the potential child even if she uses them much later in life (Gould & Savulescu, 2009). Consequently, current clinical evidence supports the idea that children born from cryopreserved eggs have fewer genetic abnormalities than children born after spontaneous conception. Moreover, because the preserved eggs are “younger,” fewer genetic abnormalities may exist when they are later retrieved and used by an older woman. This is notably evident in the clinical advertisements, where “younger” eggs are equated with a “healthier” outcome. As noted by the Stork clinic, located in Copenhagen, “freezing eggs can increase

the chances of becoming pregnant at a later date, as healthy eggs are removed and stored as early as possible.”⁷

The material also addresses the concern that children born from cryopreserved eggs may be indirectly harmed by having an “old mother.” Adrian, Kroløkke, and Herrmann (forthcoming) show that older Danish mothers are frequently positioned within an imaginary of monstrosity, according to which older women having children become morally problematic. The monstrous old mother narrative may, however, be problematic from an empirical as well as a moral point of view. For example, Shaw and Giles (2009) document that the well-being of children born to women over the age of 45 is actually better than the well-being of children born to younger women. Women over the age of 45 usually have a better income, greater job security, and are seen as more prepared and more committed to being a parent (Shaw & Giles, 2009). Moreover, women’s increased life expectancy may mean that a woman who brings a child into the world when she is 50 years old will be alive to care for her child for many years. In the Scandinavian countries, average life expectancy for women is over 80 years. However, although it is reasonable to expect that a woman who gives birth to a child when she is 50 will live until her child is well into adulthood, normativities related to the “ideal” age of childbirth still prevail. Similarly, in the large survey study of Danish students, one informant echoed the opinion of several others when she writes: “It is a good choice to have if the woman prioritizes her career, however I don’t think women should be older than 40 when they have a child” (ID105, Danish law student). In the next section and in Chapter 5, we present and discuss in greater detail imaginaries that connect to older women (i.e., women over 40) wanting and having children. Because of the ways in which these normativities are gendered, we turn now to the treatment of age and the best interests of what appears as self-interested women in the material.

4.2.2. Kinship Temporalities and the Best Interests of (Older) Women.

What exactly is it that we (in reference to women over 40) are supposed to do in all these years from when we are 40 till we are 80? (Interview with Rita, 2012)

We argue that the concerns that ageing mothers express can aptly be understood as embedded within the imaginary about rightly timed kinship. The workings of this imaginary are, for example, discussed and analyzed within queer literature on reproduction and temporality (Edelman, 2004; Halberstam, 2004). In this literature, temporality constitutes a powerful orientation device in which reproduction by older mothers appears monstrous, that is, experienced as morally problematic. The best interests of the child therefore come to be understood within a

⁷The Stork clinic offers egg freezing to its clientele positioning eggs from younger women as more attractive than eggs from women over 35; Retrieved from <https://www.storkklinik.dk/en/treatments/egg-and-sperm-donation/egg-freezing/>. Accessed on February 2019.

normative imperative and drive toward young motherhood. In contrast, “old” mothers and especially women over the age of 50 become situated as entering their “grandmother” years.

We argue that the concern about “too old” mothers is rather a concern around Scandinavian women being out of sync with temporal norms of motherhood. Once they become “grandmother potential,” they (unlike their male counterparts) cease to be positioned as having reproductive potential. As noted in the survey study and in response to the ability to cryopreserve eggs:

I think it's a personal choice everyone should be allowed to make, but of course, there are some important factors to keep in mind such as the age. I don't think it's fair to have a child when you are 100 years old. (ID 142, 22-year-old female Danish law student)

These concerns are also evident when Danish medical expert and professor Lone Schmidt says:

It is deceiving people to tell them that women in their mid-30s can freeze their eggs and later on have a child. Only a very small portion of the eggs will result in a live child. (Sørensen, 2013)

Likewise, Karin Erb, Head of the Danish Women's Society, a non-governmental agency, reiterates this concern, when she says:

Social egg freezing deceives women that they can have children at 42 years of age or when they feel ready. It creates a false sense of security, and the woman will have wasted all of her fertile years, because she thought she was secured. (Kvindesamfund, 2017)

This criticism is combined with the desire for information to help women (as well as men) to make what is referred to as “informed choices” about the proper chances of having a child at a certain age. In this context, information is sought to secure that no one sees cryopreservation for non-medical reasons as a complete cryo-insurance (see Chapter 2).

Within this context of ageing mothers, delay itself produces a potentially unhealthy temporal order. For example, an older pregnant woman is put in close proximity to health problems (e.g., Jacobsson, 2004; Molina & Pace, 2017). According to fertility experts from the General Hospital in Copenhagen, maternal mortality increases roughly fourfold over the age of 40 (to 20.6 deaths per 100,000) including higher rates of ectopic pregnancy. A second, and more psychological, concern among fertility experts is based on the fact that because the chances of conceiving a child decrease with the age of the women, failing to achieve a pregnancy may have negative psychological consequences. While these medical concerns are based on clinical research, the ethical concern that older women endanger their own physical as well as psychological health is simultaneously rooted in an understanding of reproductive temporality as following a

particular order. Similarly, from cultural analytical perspectives, old motherhood destabilizes normative understandings of what older women should or should not do. Once women are older, their reproductive desire becomes queer perhaps even, culturally translated, unhealthy.

The imaginary of older mothers and rightly timed kinship can, however, also be contested from moral perspectives that have to do with the acceptance of health risks. The ethical scepticism toward cryopreservation may provoke the following moral question: How much medical and psychological risk should the welfare state accept in order to accept the use of this technology? From an ethical point of view, one way to answer this question is to see how much risk the welfare state already accepts in the area of medicine and reproduction. First, while women over 40 certainly have children as well as access to assisted reproduction, even if this involves an increased risk for women's health, then it seems to follow that the state should also, morally and legally, accept egg freezing for non-medical reasons. Furthermore, if women are informed about the medical and psychological risks and are competent decision-makers and they accept this risk, in accordance with the imaginary of the autonomous woman, then it seems like a good rule of thumb that they are the ones to decide whether or not the risk is acceptable. This is already a common and accepted practice in the Scandinavian countries, when people are asked whether they want an operation or treatment in the healthcare system.

With regard to the imaginary of rightly timed kinship, Scandinavian women like Penny Kembba, in the introductory quote to this section, may go to Sweden in order to freeze their eggs and get their reproductive opportunities "back on track" (Kumano-Ensby, Falch-Nilsen, & Ebrahimi, 2019). In these types of cryo- and reproductive pathways (Adrian & Kroløkke, 2018), Scandinavian women turn egg freezing into an act of "involuntary childlessness."⁸ For example, this is the case for "Andrea," a Norwegian woman who at the age of 35 and because she had no male partner, decided to go to Sweden to have her oocytes cryopreserved. In the news article, Andrea re-naturalizes egg freezing for non-medical reasons by, in a similar way to the Scandinavian clinical advertisements, stressing the attractiveness and naturalness of pregnancy: "It is something that I really felt like doing. For me it means a lot to have fairly good odds of becoming pregnant later in life" (Årrestad & Jevne, 2014). By positioning herself as "involuntarily childless," Andrea makes a claim for legitimacy as far as access and availability of treatment is concerned by repositioning the temporal order as one that provides her with "fairly good odds" of a "later" pregnancy. Similarly, Penny Kembba, in the documentary *Baby on Ice* considers that the possibilities of freezing for non-medical reasons offer her an option of later genetic motherhood, highlighting the injustices involved in having to travel to Sweden: "I can freeze my eggs but not in Norway. I do not understand why this is not my right" (Kumano-Ensby et al., 2019).

⁸Retrieved from https://www.nrk.no/livsstil/_-bor-fa-fryse-ned-egg-i-norge-1.11613007. Accessed on January 2019.

The imaginary of “rightly timed” kinship is, as this section has shown, present in ethical debates, clinical advertisements, popular and student accounts and is also challenged by Scandinavian women who travel to Sweden for freezing. Specifically as far as the Scandinavian countries are concerned, the quest to engage with an anticipatory logic involves responsibly managing, in the welfare state, one’s reproductive future, including the prospects of anticipated future infertility and normative constructions of (good) motherhood (Carroll & Kroløkke, 2017; Martin, 2010).

5. Summary

In this chapter, we have shown how, in the Scandinavian welfare states, two overall sociotechnical imaginaries unfold, focusing on reproductive autonomy as well as the rightful timing of kinship. In the case of the imaginary on reproductive autonomy, autonomy takes on two very different directions: the individualized woman’s right to choose contrasted with the collectivized rights of women to have state protection against what, in this latter imaginary, are seen as inappropriate social pressures. Meanwhile, as evidenced in our second imaginary, the timing of kinship follows very normative understandings of reproductive timing, producing monstrous figures and concerns around the interests of the child and the women in order to discipline women into having children early instead of freezing their eggs. However, the re-labelling of non-medical freezers as involuntarily childless seeks to secure a new position that is both compatible with the interests of the state while also positioning motherhood at the core of the good welfare state citizen.

While this chapter has prioritized freezing for non-medical reasons, it is continuously, in the empirical material, understood in light of its counterpart, that is medical freezing. In contrast to medical freezing which aims to “restore” the ill body and prepare it for the normativities involved in pregnancy and motherhood (Kroløkke & Bach, in review), freezing for non-medical reasons disrupts what can be seen as an already overburdened Scandinavian universal health care system. As noted by the Danish Council on Ethics (2001, p. 18), medical expertise should only be used to fight disease and not to finance elective procedures. As infertility is internationally conceptualized as a disease (Zegers-Hochschild et al., 2017, p. 1795), the battle over non-medical freezing of eggs as a way to preserve fertility highlights the normativities of reproductive ageing and timeliness that together produce the societal response to *anticipated* involuntary childlessness, especially in women. Unlike more neoliberal economies such as that of the United States, in Scandinavia, non-medical freezing finds itself in an entanglement between the welfare state, growing commercial interests, the realities of women’s and men’s reproductive lives coupled with developments within cryotechnologies that provide women (and men) with opportunities to “chill” their reproductive desires.

As illustrated in our theoretical section, the notion of chronobiopolitics focuses our attention on how entire populations are managed and synchronized “not only with one another but also with larger temporal schema” including the ways in which “properly temporalized bodies” are linked to “narratives of movement and change” (Freeman, 2010, p. 4). Reproductive delay is an example of

chronobiopolitics. As evidenced in this chapter, when delay becomes deliberate, from the perspective of the welfare state, it transgresses what are viewed as desirable forms of reproduction and instead becomes a potential moral disruption of reproductive time. Freezing for non-medical reasons can, however, also be theorized as individualized attempts to synchronize one's life and body to, for example, capitalist temporalities (Zaretsky, 1986) along with normative reproductive (Edelman, 2004; Halberstam, 2005) or even romantic temporalities (Carroll & Kroløkke, 2017; Inhorn et al., 2018a). Hence, the legislative and ethical "hurdling" of non-medical egg banking that takes place in Denmark and Norway can be understood as Scandinavian biopolitical attempts to control technology, to restabilize and reinstall reproductive timeliness within a gendered framework of women's "natural time for childbearing" as well as, in the examples of reproductive pathways to Sweden, chrononormative attempts to re-synchronize reproduction to fit that of family planning and genetic motherhood.

Chapter 4

Death and Destruction

1. Introduction

In this chapter, we investigate how cryopreservation radically challenges established notions of reproductive life and death. The aim of this chapter is two-fold. We turn first to how cryopreservation increases the possibility of the posthumous use of men's reproductive cells, which clearly challenges legal, moral, and cultural understandings of reproduction. Second, we discuss how the cryopreservation of embryos (and gametes) similarly challenges conventional understandings of reproduction, when cryopreserved embryos, for example, because of legal time limits for storage, are destroyed. As already reckoned by Radin and Kowal (2017), the potential of cryopreservation lies exactly in its ability to *not* let die. In this light, we wish to discuss the affective economies in which destruction takes place and cast light on what happens when the potentiality of suspended life is demarcated by welfare state regulation.

We start the chapter by outlining the Scandinavian legal landscape including legal controversies related to posthumous use of sperm as well as the Scandinavian regulation on cryopreserved embryos. We then turn to a theoretical presentation highlighting the concepts of latency (Kowal & Radin, 2015; Radin, 2013) and liminality (Squier, 2004) while situating death and destruction in lieu of queer perspectives (e.g., Berlant, 2007; Butler, 2004, 2009; Edelman, 2004). Based on our empirical material (interview studies and ethical arguments), we analytically center two imaginaries: We term the first imaginary the imaginary of Dr Frankenstein's monster. Echoing Mary Shelley's famous 1818 novel about the scientist, who invents life and bypasses death with devastating consequences, we show how the technologies of cryopreservation, especially the potential to procreate after death and to store or destroy life in the freezer, are problematized and feared, most notably by the lawmakers and the Danish Ethical Council. The second imaginary, which we will call the imaginary of families forever, counters the first imaginary of Dr Frankenstein's monster by associating the technologies of cryopreservation, not with monstrous hubris of science gone too far, but with family-making, kinship, and heteronormative order. This imaginary is most

typically employed by individual cryogenic agents to legitimize or, rather, to make sense of their use and/or storage of either, in this case, sperm or embryos: The cryo-technologies seem to, on the one hand, activate a dystopian fearful imaginary about science and man taking the powers of the Gods to make the decisions to (unethically) create/destroy life. And, on the other hand, the technophobic dystopias are encountered by users themselves, who domesticate and “un-monsterfy” the technologies by embedding them in a heteronormative symbolic order of kinship, family, and love.

We discuss how these two imaginaries come into play when, for example, Danish men, who have cryopreserved sperm for potential use after their death, narrate the potentialities in light of “future families” as well as when cryopreserved embryos are affectively embodied by Danish women who have embryos stored in cryo-tanks. By including queer cultural theories (Chen, 2012; Edelman, 2004), we argue that cryopreservation holds radical destructive queer potentialities of death and destruction, yet also, show how these potentialities, in the Scandinavian context, invariably become domesticated and controlled by aligning cryo-technologies with imaginaries of the traditional family.

2. The Legal Framework

When the first Danish Comprehensive Act of 1997 on assisted reproduction was worded, it was done in prohibitive language. The Act clearly intended to regulate a number of potential “monstrosities” made possible by reproductive technologies. These monstrosities included suspended life in the freezer as well as posthumous reproduction. In terms of the requirement to destroy frozen embryos, the act simply followed in the footsteps of the 1991 act on Biomedical Research Ethics Committees which had presupposed a maximum cryopreservation period of 12 months for embryos without giving a reason for the limit (LS9 23 October 1991). In reports by the Danish Council on Ethics leading up to the 1991 Act, however, eggs and embryos had been positioned discursively as vulnerable entities in need of state control and protection.¹ Consequently, the first Bill introduced on Assisted Reproduction included a provision on cryopreservation, which codified this limitation on the cryopreservation of embryos to 12 months.

According to the first version of the Bill, the National Health Board would have the possibility to grant permission to extend cryopreservation “in special cases, where the woman’s health or other critical grounds” spoke in favor of an extension. Meanwhile, no upper storage limit existed in regard to the cryopreservation of sperm. The spokesperson for the Social Democratic Party said: “I find 12 months to be right. To me, there is something unethical about having embryos

¹As explained in Chapter 1, the Danish legislator used the terms “eggs” and “embryos” interchangeably. The early legislation often uses the word “egg” when it actually seeks to regulate embryos. The first regulation of cryopreservation regulated the freezing of embryos, since the freezing of oocytes was not technically possible at the time.

in storage maybe even to have twins in separate pregnancies” (1996/1 LSF 5 debate). The monstrosity of disrupting what appeared as a normative kinship order (“twins in separate pregnancies”) became pivotal in these debates. The Conservative Party’s spokesperson admitted that it was difficult to provide a rational reason for the 12-month limitation,

it is the thought of the artificial that scares me ... after 2 or 3 years in the freezer ... are the embryos in good condition? The foods we freeze have a shorter shelf life. (1996/1 LSF 5 debate)

In this manner, the freezer’s potential for uninhibited storage capacity became questioned.

The perceived monstrosity of posthumous reproduction, in the Danish legal debates, related to posthumous use of stored gametes, posthumous transplantation of ovaries from a deceased donor to a living recipient, and a widowed partner’s use of stored embryos, consequently featured heavily in the Act’s listed prohibitions, along with other perceived monstrosities, such as *inter alia*, reproductive cloning, and the creation of human–animal chimera. Relying on nature as a key organizing principle, the Danish Act sought to align the use of ART with what was perceived as the “natural” reproductive time, and set in place a requirement to destroy gametes upon the death of the depositor.

This understanding of reproduction as taking place within the lifetime of an individual came under siege in a highly profiled 2010 case. Heard by the High Court of Eastern Denmark in 2010 (judgment no. B845009 of 16 December 2010), the case subsequently sparked regulatory change. The judgment granted a widow access to her deceased husband’s sperm even though the Act on Assisted Reproduction in its prohibition on posthumous reproduction made the view of the legislator quite clear. However, since the woman’s husband had made the deposit as a security deposit in a private sperm bank before embarking on cancer treatment (and not in a hospital), the deposit was not considered to be the start of or a part of an ongoing fertility treatment. Consequently, his deposit fell outside the scope of the Act. Because the deposit was made for insurance and not to embark on fertility treatment at the time of the deposit, the depositor had been free to enter into a contract with the sperm bank and consent to posthumous storage and use by contract or written will. The judgment was soon after given as the primary reason by the Minister for abolishing the Act’s prohibition on posthumous reproduction.² The government expressed a desire for uniformity in the regulation of reproductive technology, which is reflected in the amendment Act’s broader scope of application, which meant that tissue centers and sperm banks were now also subject to the Act, as opposed to medical staff only. Danish

²Paragraph 2.4.2 of the general comments for Bill L138 proposed by the Minister for Health on 12 March 2012, https://www.ft.dk/ripdf/samling/20111/lovforslag/1138/20111_1138_som_fremsat.pdf

law had previously excluded certain health professionals from the Act, which had meant that at a certain time when lesbian women and couples were excluded from treatment performed by medical doctors, a midwife could legally perform insemination at her clinic.

The Danish government has subsequently legalized treatment of single and lesbian women and sought to regulate ARTs uniformly, irrespective of which health profession was the provider. However, as a natural continuation of this ambition and in light of the judgment handed down by the High Court of Eastern Denmark it was seen as a logical step to amend the Act in terms of posthumous reproduction. Interestingly, however, this possibility is gendered, as it enables only men to deposit their reproductive cells to be used posthumously.

While our empirical point of departure, in this chapter, focuses on Denmark, briefly, in the case of Norway and right from the adoption in 2003 of the Norwegian Biotechnology Act, sections 2-11 and 2-17, the Norwegian Act required the destruction of gametes and section 2-16 the destruction of embryos upon the death of the depositor. The Swedish Act on Genetic Integrity prohibits use of sperm or eggs from a deceased person. However, following a case with the same facts as in the Danish judgment of 2010, the Swedish Medico-Ethical Council was in favor of allowing use of sperm from a deceased partner if he had consented prior to death,³ however the social authorities and the government found that further deliberations were needed and that it was not the time for regulatory change yet (Lagrådsremiss, 2018). This is in spite of the fact that the Swedish council emphasized good social parents and that the child was informed about its origin. In this manner, the Scandinavian regulation varies in important ways, yet, as will become clear throughout the remaining part of this chapter and in large part due to the legislation on the posthumous use of sperm, the Danish case is especially interesting. While Denmark strictly regulates the storage of eggs and embryos, sperm can be stored indefinitely and even used posthumously.

3. Theorizing Death and Destruction

As already noted in our Introductory chapter, Foucault's framing of biopolitics can aptly be re-theorized in a time of cryopreservation as "cryopolitics." While the concept of biopolitics theorizes the politicization of the body in modern times, which makes modern power most effective when embracing life and not killing, cryopolitics reveals the dramatic impacts that cryopreservation has of making life and not letting die (Kowal & Radin, 2015; Radin & Kowal, 2017). The ability to cryopreserve destabilizes, as echoed in science technology scholarship, the distinction between life and death, the living and the non-living (Radin, 2013, p. 488; Radin & Kowal, 2017). Not only have cryopreservation technologies become critical tools in the management

³http://www.smer.se/wp-content/uploads/2013/02/Smer_rapport_2013_1_webb.pdf

of medically assisted reproduction, the ability to cryopreserve promises to postpone aging and the eventual death of reproductive cells and material. Cryopreservation can be understood, as also reckoned by Kowal and Radin (2015, p. 68), as a deferral strategy in which cold temperatures become a “temporal prosthesis, promising it is never too late to revive an individual, race, or species.” In this section, we present theoretical perspectives relevant to analyzing the ways that cryopreserved sperm and embryos come to exist in latent or liminal states. Cryopreserved sperm and embryos have the potential, as we will show, to challenge cultural understandings of death and destruction. We begin by presenting the twin concepts of latency and liminality, derived from science and technology scholars, prior to discussing the insights that queer cultural analytical perspectives on life and death add to the understanding of cryopreserved reproduction, death, and destruction in the Scandinavian welfare states.

The concept of latency theorizes the ability to pause and interrupt the development of biological cells and matter (Kowal & Radin, 2015; Radin, 2013, 2015; Radin & Kowal, 2017). Whereas cryobiologists such as Luyet and Gehenio (1940) initially framed latency to refer to the ability to pause and restart the growth of cells and tissues (Kowal & Radin, 2015; Radin & Kowal, 2017), Kowal and Radin (2015, p. 74) additionally use latency to critically frame how preservation produces understandings of rightful or wrongful death. In their case study of the preservation of Australian indigenous blood, latency manifests itself as the ability to preserve as well as a justification to let die. As noted by them (Kowal & Radin, 2015, p. 74) and in reference to preserved Australian indigenous blood: “Either the latent life of samples can be harnessed in ways that generate knowledge to benefit those from whom this material was derived, or the samples should be stewarded towards a satisfactory death.” Frozen blood, Kowal and Radin (2015) argue, moves between these two different cryopolitical states: “Latent life” which echoes the need for preservation, and “incomplete death” which naturalizes destruction. In the first cryopolitical state, latency enables the making of new temporalities, creating an understanding of the body as plastic (Landecker, 2005, 2007). With cryopreservation, as Kowal and Radin (2015, p. 69) pose, an “ability to bring biological material “back to life” in another time is made possible, the potentiality that would otherwise ebb with the passing of time is preserved and even intensified.” This is, as we will show, readily exemplified in the context of frozen embryos in which the time of reproduction entangles with generational logics embedded in our kinship systems. This includes, for example, the ability to use sperm after the provider’s death.

In Squier’s (2004) work, liminality is exemplified through the embryo which achieves human status when “adopted” by intended parents as well as, at times, potentiated as distinctly non-human yet instead “rescue material” such as in the case of the stem cell and rejuvenation industries. Liminality entangles with, Squier (2004, p. 26) notes, a

biological and social state of transition from a world in which human beings had a characteristic and predictable life course to a

world in which neither the beginning of life, nor its flow, nor even its end has a foreseeable structure.

In the case of the cryopreserved embryo, embryos are “repurposed” and, by embryo adoption agencies in the United States, animated as “frozen orphanages” (Cromer, 2018, p. 362). As noted by Cromer, in the rhetoric of pro-life accounts in the United States, putting embryos in the cryo-tanks becomes problematized as it denies them their “optimal” storage; namely, that of the warm environment of the uterus. Although not using liminality as a theoretical concept, Cromer’s (2018) research aptly illustrates the ways that the frozen embryo is animated between life and (almost) death. In the aforementioned accounts, cryo exists in close proximity to death.

Queer scholarship has been especially apt at questioning the seemingly clear distinctions between life and death. While some theories departing from Lacanian psychoanalysis argue that *queerness* is a symbolic position of death in opposition to reproductive futurity, the normative imperative of life, to “be fruitful and multiply” (Edelman, 2004). Other queer theories depart from biopolitical theorization (e.g., Agamben, 1998; Berlant, 2007; Butler, 2009; Foucault, 2003; Lemke, 2009; Mbembe, 2003). In these theories, life is not simply considered an ontological fact in opposition to death. Rather, life is understood as a political matter, that can be given and taken not by bodily killing but as recognition of life. The living dead in the death worlds (Mbembe, 2003, p. 40) or the *zoe* or naked life of Agamben (1998) are conceptualizations of living matter not *living*. In opposition to *bios*, naked life is living matter not politically recognized and thus not understood or deemed to be fully human, and thus not in need of state or other forms of protection.

Most famously, Judith Butler (2009) has theorized life, and she argues, that “there is no life and no death without a relation to some frame” (p. 7). In this, she points out that what is considered a life is not the same as what is living (Butler, 2009, p. 8). The production of life and populations is to Butler a political matter that encompasses the (global) organization of life, violence and death. We included these theorizations of life to make the theoretical argument that the ethical, moral, or ontological status of embryos or gametes should not be understood as already given, rather, the status must be understood as an effect of the affective and discursive in the embryonic and gametic matter. How we frame, give value to and conceptualize matter encompasses what kind of matters we understand as living, and, thus, what kinds of material are worthy of protection and affective nurture. Importantly, the demarcations between life and death are troubled by cryopreservation, as Kowal and Radin (2015, p. 68) argue, “biopolitical assemblages make life and let die, cryopolitical ones reveal the dramatic impacts of mundane efforts to make life and not let die.” That surely is the case of the posthumous use of sperm, while the Danish 5-years-rule for cryopreserved embryos complicates the cryopolitical mandate of not letting die. Rather, if the embryos are considered living matter, the 5-years-rule relates to the sovereign power of “making death.” As noted by postcolonial scholar Achille

Mbembe (2003), modern biopower also contains the sovereign power of killing, and making death. According to Mbembe, the biopolitical production of bodies and populations are closely intertwined with the necropolitical power of exposing other bodies and populations to symbolic and concrete death.

In the two cases explored in this chapter, the posthumous use of cryopreserved sperm and the cryopreserved embryos, we draw on these insights by asking how life and death are cryopolitically calibrated in the Danish context: How and when does the cryopreserved matter obtain a status of life? And does the cryopreserved matter enable (gendered) calibrations of living and dying for donors? In order to analyze how matter becomes animated to life, we in particular turn to queer scholar Mel Y. Chen (2012), who investigates how we linguistically animate signs and matter, and how words create life and human/non-human entities. Rather than thinking of life/death or human/non-human as fixed material categories, Chen develops the concept of animacy hierarchies to critically investigate how we linguistically and affectively animate entities in a life hierarchy, where humans are at the top, stones at the bottom – and plants, animals, organic material, and indeed cryopreserved embryos, are somewhere in the middle – left for cultural negotiation and anxieties. By moving the analysis to the very local and micro level, we will show how sociotechnical imaginaries are embodied, lived, discussed, negotiated, and changed, also in the very everyday lives of people. In the following, we investigate how these negotiations and anxieties are played out in the ethical debates as well as in narratives and affective registers of freezers.

4. Imaginaries of Death and Destruction

Cryopreservation raises important ethical and cultural questions. Clearly, the routine destruction of human reproductive material invokes debates. Whereas we, in our analysis prioritize the ways that cryogenic agents negotiate having reproductive cells “on ice,” we briefly turn to the ethical controversies which are, we believe, at the heart of notably the construction of the monstrous Dr Frankenstein imaginary.

As routine as the destruction of embryos or reproductive cells may be, it continues to be fraught with ethical controversy (Steinbock, 2011). This is particularly the case when destroying gametes and embryos either against the wishes of the prospective parents (so-called unwanted destruction, e.g., Douglas & Savulescu, 2009; Pennings, 2002), or in the cases of embryo destruction (Cromer, 2018). Notably, the destruction of gametes and especially embryos is, at times, considered morally problematic, not only because it runs counter to the autonomy of prospective parents, but due to the alleged moral status of the reproductive material itself (Wallach & Robertson, 1987). Echoing this concern, members of the Danish Council on Ethics argue that embryos have “full moral standing”; that is, “the same standing as other humans” (Danish Council on Ethics, 2003, see also 2014). As noted in our theoretical section, life and death categories are not *a priori* given but rather, life and death categories become animated or calibrated to

uphold particular cultural values. This is notably the case when embryos are considered persons (Douglas & Savulescu, 2009). When considered persons, embryos are seen as endowed with special moral rights, claims, and interests. In this imaginary of “embryos as persons,” embryos are afforded the same protections as the rest of humanity and thus, the seemingly routine destruction of embryos becomes problematized (Douglas & Savulescu, 2009; Tonti-Filippini, 1999).

But even if embryos do not have (full) moral standing by virtue of being potential persons, from the perspective of moral philosophy, in the ethical debates, other reasons for granting them moral status exist. One common suggestion, in the debates, is that embryos are humans. The idea here is that even though embryos do not have the mental characteristics that usually ground the special moral status of humans such as rationality, merely being a member of a rational species is considered sufficient for having some degree of moral standing (Douglas & Savulescu, 2009; Finnis, 1995). This idea seems to be well in line with the view expressed by some members of the Danish Council on Ethics, yet it remains unclear why mere membership of a species is sufficient to possess certain rights, when it is clearly not sufficient to possess all rights. After all, children are humans, but they do not have the same rights as human adults, only those that pertain to their particular capacities. Of course, even if embryos neither have moral standing by virtue of being potential persons nor by virtue of being humans, it might still be considered morally problematic to destroy them, similarly to how it is normally considered morally problematic to kill a healthy non-human animal (Douglas & Savulescu, 2009).

Concerns related to the moral status of embryos have, not surprisingly, been at the center of reproductive rights and anti-choice activists. In Cromer’s (2018) ethnographic study, she reveals how the nearly one million leftover embryos, in the United States, are brought back into life by anti-choice organizations such as the Snowflake Embryo Adoption and the Blossom programs. When embryos become conceptualized as “orphans in need of adoption” (Cromer, 2018, p. 374), cryopreservation tanks themselves are made to appear monstrous, potentially storing the embryos indefinitely and thus risking, as Cromer (2018) reveals, the chances of frozen embryos becoming born. In this context, it becomes morally problematic to deprive beings of *the potential* of having a (good) Christian future. While the question of morality or human status is integral to the ways that the destruction of cryopreserved material is managed and debated, it is also fundamental to the formulation of monstrous imaginaries such as the Dr Frankenstein technologies imaginary to which we now turn.

4.1. Dr Frankenstein’s Monstrous Technologies

It is an interruption of the peace of the grave and it can appear a bit morbid. (Birkler, 2012)

With headlines like “When the husband is in the grave and the sperm is in the bank,” the Chair of the Danish Council on Ethics painted, in 2012, a monstrous

picture of the posthumous use of sperm. As reckoned in Kroløkke and Adrian's (2012) analysis of Danish and Australian bioethical debates on posthumous reproduction, when the widow transgresses "natural" procreation stories by using her dead husband's deposited sperm, her reproductive agency becomes problematized ("it can appear a bit morbid"). Whereas the grieving widow, Kroløkke and Adrian (2012) show, in the case of Australia and through her enactment of grief, achieves a certain degree of reproductive agency, in the case of Denmark, posthumous reproduction evoked, during this time period, fears related to the image of an orphaned child as well as that of the necrophilic mother ("it is an interruption of the peace of the grave"). In his debate article, Birkler (2012) puts cryopreservation technologies not only in close proximity to the necrophilic mother; rather, Birkler (2012) uses the imaginary of necrophilia to reposition cryo-technologies as "artificial." In this formulation, male reproductive autonomy is even at stake, when Birkler (2012), in reference to a separation between desire and reproduction, says: "Today, sexuality has, to a large extent, become separated from desire and reproduction. If we maintain this distinction, it would obviously be impossible for a man to fertilize a woman after his death" (Birkler, 2012, p. 273). While Birkler maintains a rather gendered notion of reproductive agency of the man fertilizing the woman, he simultaneously reinvigorates the heterosexual nuclear family. Consequently, the Danish ethical debates, in their ability to destabilize generational and life/death temporalities, cryo-technologies become positioned as potential Dr Frankenstein's monstrous technologies.

The imaginary of Dr Frankenstein's technologies is by no means new. It has consistently involved any kind of technology that threatens to change what has come to be seen as "natural" (Bryld, 2001; Lederer, 2002; Waldby, 2002). For example, in a 1995 report on assisted reproduction, members of the Danish Council on Ethics (1995, 6.2.2) argued that cryopreservation, used as an instrument to support assisted reproduction, was inherently wrong. At that time, the mere existence of the technology raised difficult ethical and legal questions about who should be entitled to these gametes and embryos if the parents were to divorce or die. By not accepting cryopreservation at all, however, the difficult questions centering the use of posthumous gametes and embryos would be avoided altogether. This worry became reiterated in a report by the Danish Council on Ethics (2004, p. 28) which centered the concern that the use of posthumous gametes and embryos would change our understanding of what a family is like. As noted by Herrmann and Kroløkke (2018), cryopreservation produces, in the context of Denmark, monstrous imaginaries related to the disruption of genealogical order as well as the imaginary of the nuclear family that, in the case of posthumous reproduction, becomes disrupted. We turn now to another reading that reveals the elasticity of the Frankenstein narrative when women themselves negotiate reproductive temporality to not threaten but rather strengthen the family. As echoed in the work of feminist scholars such as Susan Lederer (2002), the Frankenstein narrative is highly elastic and supports "multiple, even conflicting, interpretations" (p. 46).

4.2. *When Death No Longer Does Us Part. Imaginaries of Families Forever*

In this section, we turn to how cryogenic agents with sperm deposits or embryos in the bank reflect on the possibility of making use of their gametes and embryos. In turning to these cryogenic agents, we seek to privilege the individuals who have gametes or embryos in the bank. Notably, we highlight the ways in which sperm deposits become latent with affects of love and reproductive futurity while embryos are animated as siblings. While our two cases illustrate very different types of deposits as well as cryopreserved material, they share an imaginary of family formation captured by us in the formulation of families forever.

4.2.1. From the Deposit with Love.

It becomes philosophical now. If I had endless resources, I would send my sperm into space in a space probe, not aiming it at anything in particular.

Then I would know that it could travel around the universe for a billion years and maybe get caught by an unknown species for further examination. (Interview with Lauge, 2018)

As outlined in our legal section, in Denmark, it is legal for women to use sperm from a deceased male partner, in cases where they had written a will. Through interviews with 30 men who all have a sperm deposit in Cryos International (see Appendix), we turn now to their reflections, if any, of what should happen with their gametes after death. Interestingly, most of the men interviewed were not aware that they can make a will that will enable their partner(s) to use the sperm after they have died. However, most of them are positive toward the option and various imaginaries of life after death emerge as the men reflect on the continuation of having their sperm stored and used post-mortem. The imaginaries that appear are very different from the imaginaries of Dr Frankenstein's monstrous technologies as seen in the media debates. Instead they are entangled in love, life, and legacy, and reflect on the making of kin now and in the future. In particular, men who had cancer mentioned that writing a will stating the opportunity for their partner to use the sperm post-mortem would have been an option that they would have liked to have used, not least in case they had not survived the cancer. Bjarne who had cancer, and had a child, explains:

I think it is a good option. I can definitely see the point, and I believe there was no legislation at the time I began my chemo-treatment. If the development had been negative in relation to the treatment, and I had been given a negative prognosis of survival, I think I would have done it back then.

Stine: Made a will?

Bjarne: Made a will for my wife, yes. (Interview with Bjarne, 2018)

As echoed in Bjarne's quote, a sperm deposit and a will becomes a desirable option. The situation of having cancer evokes in itself a situation of liminality. More than becoming an extension of Bjarne, the latency of the sperm deposit, in this quote, becomes a possibility for the wife to still have children with Bjarne, in case cancer treatment failed. In this case, the frozen deposit enables both an imagined and material continuation of their relationship after death. This perspective is also echoed in interviews with men who, albeit not facing serious disease, had made a sperm deposit. While some of these men, for one reason or another, wanted to secure their fertility over time, some had a vasectomy performed and wanted to secure their reproductive abilities in case they regretted their sterilization. For example, Thøger had deposited sperm because he wants to have a vasectomy in the future. To him, a will would also enable his wife to have more children with him in case he died. Death was re-animated during the conversation, as he had just, prior to the interview, lost two of his friends suddenly. This experience impacted on how he reflected on death and posthumous reproduction:

For a person like me, I think it is [the deposit] a way of a lifeline. I think it is smart.

(...)

My current wife would be able to have a child if I died, and this may happen on my way home. You never know. One of my friends was on the train on the second of January from Fuen to Copenhagen [the train that was cut open in an accident with many casualties and deaths]. His funeral took place last Friday. It was not fun. And a great colleague, I have spent a lot of time with him, skiing and so on, his burial is today or tomorrow. I will not go, it will be crowded, but it is things like that you think about. In this way I perceive Cryos and the deposit as a space of time, a pocket of time where you are indecisive. I think it is smart. It is technologically smart and may remove doubt and questions about whether I should do it [the vasectomy] or not. (Interview with Thøger, 2018)

With a sperm deposit, Thøger is allowed what he describes as a space of time or a pocket of time. It enables both liminality and latency. As he describes, the deposit allows him a space to be "indecisive" in his decisions. With a deposit he can keep his fertility and control his reproduction. Moreover, the latency of cryopreservation that is inherent in the depositing of sperm enables him to begin to remove his doubt regarding whether he should have carried out the vasectomy that he hopes to have done in the near future. Moreover, the deposit does something to time, as not only does it secure fertility after sterility, it even enables his fertility after death. A potential of his wife having more children. A death that, as he is very much aware, is uncontrollable. Not least the above-mentioned catastrophic train accident where his friend died, which had illustrated to him the fragility of life, and which may be overcome partly by his sperm in the freezer.

Eric, who had already had his vasectomy carried out, had, in contrary to Thøger, been well aware of the option of writing a will, enabling posthumous reproduction. He explains that he was not clearly told by Cryos, but as he has a background in law, he realized the option as he read through the standard conditions of the contract:

No, I don't think most people would know. I was not told or informed by Cryos directly, but you know how lawyers are. Before I decided to have a deposit at Cryos, I read the standard conditions as I decided to set up the deposit at Cryos, and I saw there was an option of establishing a will in case death would take place. Otherwise sperm or what they call gametes would be destroyed. I read it and thought about it and thought: "Okay, what do I want in case I die?" I know of course most people when they die, they know they will not have more children. But since I have frozen my sperm, I will not force anyone, but if the women who are close to and loved by me wish to have children, I find it a good opportunity to give it to them, as it is both ethically and legally possible, why not do it? (Interview with Eric, 2018)

Eric had decided to have the vasectomy as he found it was his only way to control his reproduction, deciding not to have children. He was, as illustrated, very engaged in setting up the will. As he had two women he loved, who did not know of one another – and should not know about each other – he had paid for two deposits at Cryos to secure both of them the possibility of having children with him in case he died. A possibility he found should not be missed as it was "both ethically and legally possible" and could be a help to the women in case they wanted children. Asked why he wanted children in case he died but not as he lived, he replied:

I am an atheist. I believe when we die we are dead. There is no more. So after my death, to be honest, it is not very important to me what happens after my death. I think it is more in relation to them [the women]. They will not know anything before I potentially die. I just make the possibilities of them having the choice at a later time, if something would happen But to me it is really not If what you think of is – I can answer you directly, I have no need to think that my genes need to be passed over to the next generation, it is not at all my motivation. (Interview with Eric, 2018)

At the same time as Eric wants to control his reproduction through a vasectomy, having a sperm deposit enables having children either if he changes his mind, or after his death. With his death, he would not have to care for the children and be faced with responsibilities, however the technology could at this time enable the women he loved to have children with sperm from his deposits. This understanding of the sperm technology reconfigures his views on kinship as a result of his atheist understanding of life and death. It is his atheist perception on

life and death that makes posthumous use of his sperm possible and more relevant for him, than reproduction in life, where he would face paternal responsibilities. Being a (literally) dead dad would, on the contrary, not involve his presence but show care for his two lovers. In this way, the latency of the deposit becomes a gift of life for the women that may dream of children that Eric in life had refused them.

Eric's perception of death and posthumous reproduction did, however, differ significantly from most of the men, who did connect the sperm with their legacy and preferred fathering of children alive. Several mentioned, that if they were not alive, they did not think the use of their sperm would be in the interest of their partner. They hoped she instead would find another loving man to have children with. Posthumous use of sperm was, however, not only about leaving matter for love. Some of the men had imaginaries of how their sperm could be used posthumously in the development of personalized medicine. Sperm cells were, to several of the men, particularly important cells. Lauge, as mentioned in the introductory quote, moreover does not reflect upon the potential of posthumous children, instead, he situates his cryopreserved sperm as potentially transgressing not only temporal but spatial boundaries. ("Then, I would know that it could travel around the universe for a billion years and maybe get caught by an unknown species for further examination.") In this manner, posthumous use of sperm after death, as here described by Lauge, extends beyond the making of children into the legacy of the deceased man making marks in the universe across time and space. Time and space that is already altered through the cryopreservation of sperm stored in Cryos' banks.

In summary, interviewing men with sperm deposits about posthumous use of their sperm evoked a number of imaginaries. The latency enabled by the cryotechnologies is central in how imaginaries emerge. However, while Dr Frankenstein's monster is a prominent figure in debates on posthumous reproduction in the media, the imaginaries that are evoked by men having sperm in the freezer are quite different. They mainly focus on love, kinship, and legacy, in relation to the potentiality of having children after death. However, the rich imaginaries of how sperm in the future could be used through scientific investigations, even in outer space, are making an even more potent narrative of a hu(MAN) life after death.

4.2.2. Latent Siblings, Liminal Life.

It is like instant noodles... I have like this, that it is a mini child laying there. It is like a little seed in a pot of earth, it just needs a little water, then it is a new life. (Interview with Karen, 2018)

Turning to the experiences of Danish women, who have cryopreserved embryos, all of the interviewees had extra embryos after having had at least one child as a result of the treatments. As noted in the introductory notes, the interview study included interviews with 12 women. It specifically sought to understand what kind of moral and ethical status the embryos have, including how women felt about the embryos? Whether embryos are, from their perspectives, living matter? And why or when should they be destroyed, if ever?

When we asked if the women considered the cryopreserved embryo as alive or holding any value in itself, all the women quite rapidly, in different ways, answered that the embryos are only cells with no moral value as life in itself. In Denmark, abortion is generally seen as a fundamental reproductive right and very few people oppose free abortion. Raising the concern about the status of the embryo activates arguments from debates about abortions, as the moral status of the embryo has historically been used in anti-abortion arguments and campaigns, and to consider the embryo as holding a special value seemed to remind the women of this. All women very vocally opposed anti-abortion and positioned their opinions about their frozen embryos as different to their opinion about abortion.

But when asking the women to unfold the ways they thought about the embryos, the narratives became more complicated and ambivalent. On the one hand, they all rationally understood the material as “only cells, nothing but cells” (interview with Louise), but as the story of Karen, who after one successful pregnancy had one cryopreserved embryo left, reveals, there is something more going on:

I got pregnant and got Valentin and after that, the embryo has just haunted me! [...] I feel like this, when I look at Valentin, I often think, oh my, you have a twin brother or sister waiting for you [...].
(Interview with Karen, 2018)

In the quote, Karen is trying to make sense of the latency of the embryo. On the one hand, it is nothing in itself, but a seed or a given set of possibilities. As echoed in the beginning of this section, Karen also animates the frozen embryo as being close to life. The embryo only needs “a little water” before becoming a new life. It’s like “instant noodles,” already made and fixed. The liveliness of the embryo is already kinned, as the new life is put into kinship as the latent twin sister or brother of her already born child. In this way, Karen is also navigating and making meaning of the liminality of the embryo, that is how the embryo is both “a mini child” and nothing but a “seed” at the same time.

Reading this animation of the embryo through the concept of animacies (Chen, 2012; Cherry, 1992), we notice that the embryo is animated linguistically: In the first sentence of the quote, Karen tells us that the embryo haunts her. Linguistically, the embryo becomes the subject of a transitive verb, which means that the embryo not only becomes the subject who can do something (“to haunt”), it can also haunt *someone*, which means the embryo’s actions has effects on the other subjects (which linguistically are objects). In this way, the embryo is given life, or rather, becomes animated as not only a vibrant matter (Bennett, 2010), but a matter with agency. The matter seems to almost have a will of its own, and thus, the embryo moves up the “animacy hierarchy” (Chen, 2012, p. 26) as it becomes more human. We can notice the same linguistic animation in the words of Dorte, when she says, albeit metaphorically, that the embryo “is calling [her] in the night.”

It is also worth noting how the embryos are animated not only through grammatical transitivity, but also *affectively* through the kinning of the embryo from

matter into family. The linguist John Cherry (1992) has noticed how we, across different languages, animate in hierarchies, meaning that we linguistically animate adults over non-adults, male over female, higher/larger animals over smaller animals and insects. And familiar (kin/named) over unfamiliar (non-kin/unnamed). In the quote by Karen, we see how Karen kins the embryo as a twin sibling to her already born child and thus, she animates the embryo up the animacy hierarchy as a family member. As noted by Sara Ahmed, the investment of affect in different objects makes affect circulate and accumulate much like the accumulation of value in Marxist theory (Ahmed, 2004, pp. 45–48). In this way, we can see how the kinning of the embryos enables an affective investment in the embryonic matter, which circulates affect between the matter and the subjects and makes the embryonic matter increasingly affectively charged, and even moves position from the (material) object to the (kinned) subject. The matter is animated linguistically, through kinning, affectively and by circulation of affective investment.

In the case of the interviewee Karen, she is economically and socially not able to have another child, and due to the Danish legislation, which only allows the cryopreservation of embryos within five years, she is forced to choose between destroying the embryo or donating it to science. When asked about what she would do, she answered:

Because I have all these feelings for it [the cryopreserved embryo], it would be very difficult for me, that it would be used for ... in some laboratory somewhere, where they should do something to it Actually, I think it would be gruesome and crazy [laughs] [...]. Because I have feelings for it! It is Valentin's brother or sister! I really feel like that. (Interview with Karen, 2018)

Michael continued to ask Karen about the status of the cryopreserved embryo, if the logic of her feelings was that the cryopreserved embryo should be regarded as life and thus morally, if not legally, protected. She answered:

I don't think it is a child. Rather I think it is a precursor of a child. What I also keep thinking about is that the doctor, she said, it is a really strong and good blastocyst. It wasn't one of those at the low scale, it was all the way at the top! It was the same with Valentin, he was also like that. I really feel it is a little gold egg laying up there [at the hospital]. When I cycle by the hospital, I usually wink to it. (Interview with Karen, 2018)

As noted by Thompson (2004, p. 265), the categorization of embryos as “good” or “bad” by the medical staff in the clinics and hospitals positions the embryos as either life or waste. In Karen's story, the categorization of the embryo as “strong” seems to equate the characteristic of her already born child, as he is also “strong.” The metonymic connections between the laboratory categorization of the embryo (now cryopreserved) and the characteristics of the child (already born) remind us of how the embryos are further animated by the re-categorization from simple

cells to latent life in the clinic, and as noted by Thompson (2004, p. 265) and Chen (2012, p. 44), this animation and re-categorization are biopolitically invoked by a more “sentized mapping of normalities” (Chen, 2012). This means that the promise and latency of a normal future free from “abnormalities” seems to animate, whereas the presence of “undesired conditions” seem to de-animate the embryonic matter to waste.

The circuits of animation through linguistics and affects, through humanization and kinning, escalate in Karen’s story. The animation of the matter leads to affective accumulation, which further animates the embryonic matter up the animacy hierarchy from cells to vibrant matter, to matter with agency, and to kin/child.

Women are habitually reminded of their decision to potentially destroy the frozen embryos. The women who have embryos cryopreserved at private clinics often get a letter every year asking them if they want to keep the embryo cryopreserved or if they want to “destroy” the embryo. The women who have embryos cryopreserved in public clinics do not get such a letter every year, but they are very well aware of the five-year limit. Mette, who was pregnant with twins at the time of the interview, said:

Dagmar, the child I have now, she is two years old, and she was the second egg. The first egg didn’t stick. And then they looked at my eggs, and those that were good, they asked, should we freeze them? At that moment, I thought, I am just having Dagmar, so whatever! Just freeze. Then I think one first realises when you get the letter, once a year, and the letter says, ‘should we destroy your eggs or should we continue to freeze them?’ I think you get a feeling of ownership. I thought: ‘hell no, you must not destroy my children!’ [...] And I feel like that way of formulating it... I actually think that was what triggered it for me [to want to have another child]: The letter and the wording of destroying. I mean, I see it as my children or some kind of finished creatures, just on frost. (Interview with Mette, 2018)

Later in the interview, the interviewer returned to the letter and asked how Mette felt about abortion when she articulated embryos as being little humans. She responded:

I think the unborn life becomes more precarious when you are in fertility treatment. Because you need so many little miracles. It is a fragile process, you think, just the egg, you are like uuuuuuh! All this, you don’t think about it in an ordinary intercourse. Then it is just menstruation. In treatment, it becomes very biological, very chemical, you feel like a ... it’s very laboratory-like. I mean you can see it all on the monitor! ‘Now we take one more egg.’ And when you have the egg inserted again: ‘Look! Here’s the egg.’ It is all petit-small. You just get this... human precarity in a completely

different level when you are in fertility treatment. (Interview with Mette, 2018)

Mette is articulating the ways in which the embryonic matter becomes animated and affectively charged. First, the letter sent from the clinic about destruction seems to intensify the animation of the matter. Mette, as well as many other interviewees, do not like the word “destruction” in relation to the embryos. The alignment of not using the eggs and the word “destruction” seem to activate a feeling of responsibility to the embryos, which pushes the women to want another pregnancy, rather than destroying the embryos. The letter further reminds the women about the 5-year time limit which also seems to accelerate the feeling of time and the investment in not destroying the embryos. Interestingly, Mette also reflects on the different ways the embryo becomes a valued matter of life: It is the treatments which remind Mette about how difficult it is for her to become pregnant as well as the disaggregation of the eggs and embryos from the full pregnancy process (Nebeling Petersen, 2019). The eggs are counted, monitored, categorized, and visually enlarged, both when retrieved and when inseminated. These visual technologies, combined with the medical and categorizing technologies, animate the eggs as precarious matters of life.

It is in the context of these various circuits of animation that we are to understand the cryopreserved embryonic matter. The women are trying to fixate meaning to the liminal matter, to categorize it as either purely matter (as in the case of abortion) or as latent valued kin (as in case of the cryopreserved embryos). The meaning seems to slide between matter, objects and subjects, which accumulate even more meaning and affect to the matter. The “good” embryo holds a promise of a desirable future, in which the embryonic matter is categorized as latent life and linguistically and affectively animated by the medical staff and potential parents.

5. Summary

Lee Edelman (2004) reminds us that the promise of the future is held symbolically by the child. The social order of reproductive futurity is affirmed and authenticated by the child remaining “the perpetual horizon of every acknowledged politics, the fantasmatic beneficiary of every political intervention” (Edelman, 2004, p. 3). In this queer line of thought, the future is organized as reproductive futurity in which desire and queerness are domesticized and made conservative in the sense that reproductive futurity maintains social order above all and eradicates any transgression of normality. If we think of the valuation of the embryonic matter into a child in this vein, we could wonder if the embryonic matter is animated to a child to avoid the queerness of the future. That is, the liminality and latency of the embryonic matter appear as a queer intervention into temporality: The matter seems to fold both the past (the making of the embryo fixated in the past by the cryopreservation) and the latent future (what the embryo might be when no longer cryopreserved) into the present (in which the women are asked to make sense of the matter).

Further, cryopreservation seems to make a queer intervention into kinship: Is the frozen matter a twin to the child? Can one be related to what is not yet a human? Can I give birth to what was conceived a long time ago? In this way, cryopreservation of embryos seems to destabilize the heteronormative structure of reproduction (that reproduction is the natural fruit of heterosexual intercourse). Following Edelman (2004), these queer interventions into temporality and kinship are fundamentally destroying or, rather, queering the social order. And thus, we might feel a strong normative desire to annul these interventions into normality and social order by effectively ordering the chaos in the futurity of the symbolic child. Whereas Edelman would advocate destroying the child, to stay in the queer presence, the interviewed women with stored cryopreserved embryos are stressed by the threat of destruction and the liminal presence of queerness.

In this way, the liminality of cryopreserved embryos between living/non-living, purely matter/vibrant matter, past/future is felt as a queer destabilization of the symbolic order, or it is felt and discursively framed in the ethical and legal debates within the imaginary of Dr Frankenstein's monster, like the posthumous use of sperm.

But in the life of the cryotanks, the liminality of the cryopreserved matter is tamed and domesticized and thereby un-queered by affectively charging the matter and embedding it within a heteronormative social order of reproduction: The sperm cell is safely placed in the marriage, and becomes a will of the continuation of the heterosexual marriage and "its fruits." Likewise, in the case of the women with stored cryopreserved embryos, the liminal matter is domesticated by the latency of the matter to become a kin, a sibling, a child. The cryotanks' discursive and affective reframing of the matter from being embedded within the imaginaries of Dr Frankenstein's technologies to one of (latent) families forever enables the freezers to make sense of the liminality of the cryopreserved matter and to reorganize the queer potentialities of cryopreservation "back" to heteronormative symbolic order, even though the technologies continue to destabilize exactly that order. However, briefly returning to the ethics of destruction, even if embryos do not have moral standing by virtue of being potential persons nor by virtue of being humans, it might still, as also evidenced in our empirical material, be morally problematic to destroy them (Douglas & Savulescu, 2009). The supposed right of embryos (and gametes) against being destroyed, however, would seemingly have to be weighed against other competing rights or considerations, such as the rights of prospective parents. Unless, of course, the right of embryos against being destroyed trumps all other rights, but this is implausible considering that embryos, at least in the Scandinavian context, do not qualify as persons.

Chapter 5

Disturb

1. Introduction

As cryopreservation technology disrupts reproductive temporality and enables various forms of delay, fertility preservation at times disturbs or, at a minimum, challenges the very way we think about or imagine the possibilities of human reproduction. In this chapter, we will focus on three possible areas of disturbance. The three areas are: 45+-year-old mothers, the reorganization of generational time, and finally, fertility preservation in transgender individuals, which transgresses traditional conceptualizations of gender and parenthood. We are well aware that there are many more uses of cryopreservation technologies that have caused and probably will continue to trouble the way we think about and act towards assisted reproduction.

In this chapter, we place at the center what historian Susan Stryker (2006, 2007) calls the “transgender phenomena.” Originally defined as “anything that disrupts or denaturalizes normative gender, and which calls our attention to the processes through which normativity is produced and atypicality achieves visibility” (Stryker, 2007, p. 60), the concept has been broadened to concern matters that have the potential to radically alter our beliefs about, for instance, embodiment, kinship, and motherhood (Stryker, Currah, & Moore, 2008). Importantly, it is not the trans* phenomena or the 45+-year-old mother that we wish to call attention to as always already being disturbing. Rather, our focus is on how such transgressing phenomena become disturbances and how the controversies around them can be used to illuminate the normative structures and institutional boundaries within which fertility preservation is coproduced as an emerging sociotechnical option (Stryker, 2006, p. 3). We have chosen to include the three examples of ageing, generational relationality, and gender, as these social categories are part of imaginaries central to the ways in which assisted reproduction is organized and regulated in the Scandinavian countries. Through our analyses, we illustrate how these sociotechnical constructs are shaped in and through the entanglements of technology, politics, ethics, and biological matter. Our

examples include the ethical debates on reproduction in which women over the age of 45 become pregnant and give birth as well as the ways that cryopreservation has the potential to disturb the generational order including the ability, for instance, for a woman to give birth to what is genetically speaking her grandchild or her sibling. Finally, we turn to the ways that fertility preservation emerges as an option for transgender individuals to discuss the disturbance of normative understandings of who can and should procreate as well as of the gendered connotations of gametes.

In what follows, we continue with a short description of the Scandinavian legal landscape and then turn to a theoretical overview including an interrogation of our choice of terminology, specifically how and why we use the term “disturb” to characterize these cryopreservation practices. In the three sections under Section 4, we present and discuss some of the imaginaries connected to each of these examples of “disturbance” and end the chapter with a brief summary reconnecting the three examples.

2. The Legal Framework

The potential for cryopreservation to disturb what is perceived as “natural” boundaries in reproduction was a key concern in the first Scandinavian regulatory instruments. In particular, Danish regulation initially capped cryopreservation of embryos at 1 year in order to “control retrieved eggs,” although no reasons for this limit were initially included in the wording of the law but presupposed in the comments included in the Bill (L59/1991). As the cryopreservation limit was codified in the 1997 Act on Artificial Reproduction, parliamentary debates demonstrated a safety concern as well as revealed the concerns about the potential of cryopreservation to disturb. The parliamentary discussions over the coming years demonstrated a persistent and perceived monstrosity connected to the “unnatural” both in terms of it being biologically unnatural for women to conceive in middle-age and it being unnatural for parenting to come at an age where there was an increased risk of the parent dying before seeing the child through to adulthood (Adrian, Kroløkke, & Herrmann, 2019). As a result, Danish law prohibits the use of ART for women over 45 years of age (see Table 1 in the Introduction). In contrast, Danish men are able to reproduce even posthumously with prior consent (as also discussed in Chapter 4), demonstrating a very gendered perception of what comes to count as a disturbance of reproductive age. As also demonstrated in Table 1 in the Introduction, maternal age is also addressed in Norway and Sweden, although here rather framed as a medical issue left to individual medical assessment rather than a normative legal limit.

Danish parliamentary debates and regulation technologies also invoked other monstrosities. The Parliamentary debates recognized that cryo produces a potential disruption related to which generation gives birth to which generation. This was, however, understood as a monstrosity disrupting what appeared to be a normative kinship order (“twins in separate pregnancies”). This concern became in fact pivotal (Herrmann & Kroløkke, 2018). In a parliamentary debate in 1995, a

spokesperson for the Social Democratic Party viewed separating “twins” as morally suspect, even though no reasons were given for why it seemingly appears unethical:

At present no eggs are frozen, but technology may catch up. I find 12 months to be right. To me, there is something unethical about having embryos in storage, maybe even to have twins in separate pregnancies. (Bill no. 22/February 23, 1995)¹

In a proposition, another leading Danish politician stated in reference to the cryopreservation of embryos that it was offensive to have “the family in the freezer,” calling for a maximum two-year cryopreservation period.²

Not only age and kinship order but also fertility preservation in transgender individuals has to be understood in light of the way in which transgender is and has been understood and conceptualized both socially, culturally, and perhaps especially medically. Because fertility preservation in trans youth and adults is of particular interest in this chapter, we go into more detail outlining its legal and historical context within the Scandinavian countries. The access to (or lack of) fertility care cannot, however, be separated from the ways in which the concepts of “transsexualism,” “gender incongruence,” “gender dysphoria,” and the like have been produced by Western biomedicine since the late nineteenth century. As part of a general medicalization of gender and sexual “deviance,” “transsexualism” (along with “homosexuality”) emerged as a psychiatric *disease* in the first half of the twentieth century. As described by historians such as Stryker (2017), medicalization in general involved a decriminalization of gender non-conforming people (however, as described by Holm, 2017, p. 232, from 1913 to 1967 “cross-dressing” was criminalized in Denmark where “men” who wore what was perceived as women’s clothes in public could be arrested). However, medicalization also comes at a price. As argued by many trans rights activists, the psychopathological stigma contributes to the deprivation of self-determination and, especially in the Scandinavian welfare states, to the restriction of access to healthcare (e.g., Amnesty International, 2016; TGEU, 2019b). In 1965, “transvestism,” an early term for what is today often conceptualized as transgenderism or gender incongruence, was incorporated into the section on mental disorders in the ICD-8, the international classification manual of the WHO (in ICD-9, 1975, “transvestism” was replaced by “transsexualism.” cf. Drescher et al., 2012).³ Similarly, the American Psychiatric Association adopted the diagnosis of transsexualism in the

¹Debate on Bill no. 200 of 23 February 1995 printed in Folketingets Forhandling, p. 4055, http://webarkiv.ft.dk/?/samling/19951/lovforslag_oversigtsformat/l200.htm

²Debate on Bill no. 200 of 23 February 1995 printed in Folketingets Forhandling, p. 4055, http://webarkiv.ft.dk/?/samling/19951/lovforslag_oversigtsformat/l200.htm

³As described by Drescher et al. (2012), until Hirschfeldt in his influential work from the 1920s started distinguishing between homosexuality and transgenderism, these were often conflated. Thus, homosexuality features in the ICD-6 from 1948, but was removed from the ICD-10 which was launched in 1980 (Dresner et al., 2012, p. 570).

Diagnostic and Statistical Manual of Mental Disorders (DSM-III) of 1980, also using the term Gender Identity Disorder. In DSM-V from 2013, the diagnosis was changed to “gender dysphoria.”

In the Scandinavian region, gender affirmation surgeries have taken place since the late 1940s, with world-famous American Christine Jorgensen being the first known to undergo successful surgery in Denmark in 1949.⁴ Characteristic of the Scandinavian countries, gender affirmation treatment has been centralized in the public health system. In Denmark this, for instance, resulted in the monopolization of trans healthcare in the Sexological Clinic, which was established in 1986 within the psychiatric chapter at the University Hospital in Copenhagen. According to Bremer (2011, p. 26), Sweden became the first country in the world to grant trans people a right to publicly funded gender affirmation treatment in 1972. However, with the new access to treatment followed a castration requirement in order to obtain a legal sex change (Bremer, 2011). In Denmark, the castration requirement had been applied to transgender individuals since 1951 (Holm, 2017, p. 37), and in Norway administrative practice had set the same requirement (Norwegian Directorate of Health, 2015). Importantly, sterilization and castration laws also reflect a darker side to the history of the Scandinavian welfare states in which eugenic sterilization laws were formulated and widely used. From 1929 in Denmark and 1934 in Sweden and Norway, the state was allowed to sterilize citizens who were understood as unfit for parenthood, for instance, due to low IQ (a new biomedical tool of the early twentieth century) or mental illness (including sexual offenders) which in reality correlated with being poor (see, for instance, the work of Koch, 2014, for more on the Danish case).⁵

However, in 2013, as we elaborate on in Section 4.3, after several proposals to change the law, the Swedish regulator decided to remove the castration requirement. This meant that neither was surgery needed to apply for a legal sex change, nor was being diagnosed as mentally ill required (though still necessary to have the surgery in Sweden at the time). Similarly, Denmark removed the castration requirement in 2014 (Act 752/2014), and Norway in 2016 (74 L 2015-2016).

⁴Denmark became world-famous when Christine Jorgensen, a former US marine, underwent a so-called sex change in Copenhagen. As one of the first successful operations in the world, Jorgensen had the world press watching as she returned to the US after the procedure was done (Holm, 2017; White, 1952). As Jorgensen became an international celebrity, Denmark was granted a place in transgender history even though allegedly Jorgensen originally planned to go to Sweden where the procedure had been attempted before (Danmarkshistorien.dk). According to Holm (2017, p. 36), following the public attention, the Danish Ministry of Justice in the following years received numerous applications from foreign nationals, as well as from an increasing number of Danish citizens, even though the option had immediately been removed for non-Danish citizens.

⁵In Denmark, both men and women who were regarded as promiscuous and mentally underdeveloped were institutionalised on small and isolated islands, Sprogø and Livø. One of the only ways to leave the islands were to be sterilised (Holm, 2017, p. 203).

These changes preceded a 2017 judgment from the European Court of Human Rights that found castration, as a condition to legal gender recognition, a violation of human rights (*A.P., Garçon and Nicot v. France*, 2017). With the castration demand removed, Sweden in 2014 began to offer fertility preservation in relation to gender affirmation treatment to both transwomen (sperm) and transmen (eggs, embryos, or ovarian tissue). As we will describe in more detail in the analysis this followed several years of debate. Today, in Denmark and Norway, only sperm preservation is possible for reasons we will elaborate on in the analysis.

In 2017, as the first country in the world (Holm, 2017), Denmark removed the diagnosis of “transsexualism” from the list of psychiatric disorders. A similar change has since taken place in WHO’s ICD-11, launched in 2018, where “transsexualism” is deleted from the section on mental health disorders and the diagnosis of “gender incongruence” has been added to a new chapter on “sexual health conditions” (WHO, 2018). To secure access to the public healthcare system, in Denmark, the diagnosis was replaced by two new diagnostic codes intending to be non-stigmatizing (DZ768E1-4 which specifies “contact due to transgenderism” and “due to gender identity conditions,” cf. The Danish Ministry of Health, 2017). Following this re-conceptualization, trans healthcare has been re-established outside of psychiatry in The Centre for Gender Identity and new guidelines have been issued. Importantly, where the former guidelines mentioned options for fertility preservation in transmen, the new guidelines state that there are currently no options. In 2018, as part of a longer process adopting principles of informed consent in Denmark, it was further decided that as of 2018 in relation to castration due to gender affirmation surgery, permission no longer had to be obtained from the Danish Health Board (Act 1688/2017 and the preparatory remarks listed in L60/2017).

Having sketched the socio-legal contexts in which 45+-year-old women and transgender individuals emerge as cryogenic agents as well as the framework that regulates “intergenerational reproduction” in the Scandinavian countries, we now wish to turn to the notion of disturbance. In the next section, we discuss what we mean when we use the term “disturb” and why we find it important to include analysis of the way cryopreservation technologies cause controversy.

3. Theorizing Disturbance

Because our analyses in this book is founded in law, ethics, cultural studies, feminist studies and STS, what comes to be regarded as disturbing or problematic is not given nor static. Rather, assisted reproduction, including the use of cryotechnology, is a stellar example of how ideas and perceptions change over time as well as of the ways that moral standpoints co-exist and entangle in everyday practices around cryo-technologies.

Due to the interdisciplinary approach of the book, we discuss disturbances from several angles. From a bioethical and cultural analytical point of view, disturbance is often connected to revulsion, which can be a central element in moral judgement. This is because strong emotional reactions arise to activities or people that is found to be disgusting or disturbing, a perspective also investigated by feminist scholars such as Sara Ahmed (2014). While feminist affect theory is more

concerned with the performativity of disgust, and what disgust does, in critical bioethics, the central question concerns how disgust distorts and unduly exacerbates moral judgement. This is a central issue in relation to understanding how cryo-technologies disturb and, as we will demonstrate throughout the chapter, have continuously caused controversy. These debates are central to the technologies that have been applied and developed – perhaps especially within the public healthcare systems of the Scandinavian welfare states. We will elaborate more on the matter of disgust as we theorize the bioethical concept of the yuck factor later in this section.

In light of the framework of sociotechnical imaginaries and our concern with how fertility, preservation practices have developed in the entanglements between cryo-technologies, cultural values and the socio-political contexts of the Scandinavian welfare states, we first turn to deconstructivist thinking to theorize how cryo-technologies cause controversy and usually also yuck responses. From this perspective, disturbance spurs from practices and possibilities that challenge fundamental structures and conceptualizations of reproduction including the troubling of social categories central to the social organization of family life. Consider, for instance, as mentioned in Chapter 4, creating children using gametes of a deceased spouse, giving birth to your own grandchildren (or a biological sibling), or having a “family in the freezer” (Herrmann & Krøløkke, 2018).

Feminist thinking invites us to examine how social categories such as “old mother,” “brother” or “transsexual” are produced and become part of the social forces through which subjects come to live and in relation to which practices, such as fertility preservation, are conceptualized and organized. As Staunæs (2004) has highlighted in her work on gender and ethnicity, social categories are a sort of tool we use to orient ourselves. They are sorting mechanisms used to connect and disconnect, to include and exclude the appropriate and the deviant and, thus, they are central to the production of normative hierarchies (Staunæs, 2004, p. 60). This means that social categories, such as man, woman, old or infertile cannot be approached as “a consequence of the body,” nor as a solid and stable variable. Rather, social categories are social products with a fluid and changing content. Importantly, social categories are also productive and have material consequences on human lives working as structuring principles for human interaction and the social organization of our societies. Consequently, in this perspective, we approach the controversies evolving around fertility preservation as cryo-technologies destabilize central social categorizations of age, generation and gender, and not least the notion of what is natural.

In particular, the work of Foucault has centered on destabilizing the regimes of thought by turning to historical and genealogical analyses of how a phenomenon has been made meaningful and understandable within broader contexts in a specific historical moment or period of time. Indeed, Foucault has argued that the work of an intellectual is:

to question over and over again what is postulated as self-evident, to disturb people’s mental habits, the way they do and think things, to dissipate what is familiar and accepted, to re-examine rules and institutions. (Foucault, cited from Foucault & Kritzman, 1988, p. 265)

To Foucault and the genealogical method, the object of an analysis has often been to destabilize our habitual ways of thinking. The task has been essential to not only poststructuralist thought but also to, for example, bioethicists and STS scholars. Either by revealing what forms of meaning have been left out of the discourses due to the hegemony of other systems of meaning (Laclau & Mouffe, 1985), or by using troubling concepts to move the analysis in surprising ways. Within feminist poststructuralist studies, the habitual analysis within a given field can be troubled by using concepts from other fields (e.g., using words from biology to understand the production of meaning like the Deleuzian concept of rhizome) or by excluding overdetermined words/concepts like man and woman in the analysis, like Søndergård has done in her work on gender (Søndergård, 2000, 2002).

Deconstruction is, thus, fundamentally about troubling: Rather than examining a phenomenon in itself, deconstructionism invites us to look at the meaning-making of a phenomenon by including its binary opposition. That means that a sign is never self-referring, but always haunted by its opposition. To Derrida, meaning is structured in binary oppositions which are always hierarchized. For example, heterosexuality is only meaningful in relation to homosexuality, what is heterosexual is what is not homosexual (Fuss, 1991). And this relation of signs both hierarchize heterosexuality over homosexuality, as well as it leaves heterosexuality always troubled by the haunting nature of its opposition. The deconstruction of the hetero-homosexual binary has greatly inspired queer theories which have studied the continuous construction of sexuality and normality. Likewise, in her seminal book *Gender Trouble*, Butler (1999) troubles our ways of thinking about gender by suggesting a radical other framework, including the deconstruction of the binary opposite gender and sex. Butler (1999) shows how “it would make no sense, then, to define gender as the cultural interpretation of sex, if sex itself is a gendered category” (p. 11).

Troubling is not solely an analytical strategy. It can also be an empirical phenomenon that occurs differently than expected or differently than the empirical patterns. When, for example, Butler troubles our ways of thinking about gender, she additionally, through her own readings, suggests a subversive strategy for change. She asks us to see how apparently marginal ways of doing gender (like the drag queen) reveal how gender is being construed in a more general way. Similarly, we suggest that applying a deconstructivist perspective on how cryotechnologies “disturb” opens up for new perspectives which may interfere in the very way fertility preservation comes to be imagined and conceptualized, politically, legally as well as socially.

While feminist and queer scholarship have been concerned with the processes through which certain technologies and their interrelated subject positions are shaped, including how they become problematized and stigmatized, moral philosophy applies a different take on disturbances. In the field of bioethics, it has been theorized that new biotechnology often causes disturbances by evoking disgust responses, in particular, with regards to perceived transgressions of the natural. In this way, it has been theorized that disgust responses often drive, guide, and distort moral judgements, often in disguise of other professed moral reasons (Kelly, 2011).

alone, such as vaccinations, smartphones, and public transportation. Similarly, there are many things that are arguably natural yet morally objectionable, such as adultery, infanticide, and murder. In short, no direct relationship between nature and morality can, from these perspectives, be made (Moore & Baldwin, 1993; Ridge, 2018). Even if there was such a direct relationship, one could argue that there is nothing more natural for human beings than using technology to transform the human experience.

To sum up, we suggest, in this chapter, that the cases to which we now turn tell us something about the potential of cryo-technology to disturb naturalized social categories as well as our moral sensibilities. Consequently, in what follows, we turn to the ways that cryo-technologies trouble societal understandings of motherhood, kinship, and gender. Going into three examples, we re-emphasize that these are examples are chosen, not because the practices or individuals themselves are disturbing. Rather, the conceptualization and the organization of fertility preservation, for instance, in relation to women who give birth at the age of 50, highlight central sociotechnical imaginaries concerning parenthood and how gendered bodies have raised responses that find novel use of cryo-technology disturbing. Conversely, while incorporating law material, ethical council guidelines as well as individual experiences, the Chapter aims to de-center specific individuals as always already figures of disturbance. This is done in order to re-center the normative structures of fertility care and the systems of meaning and categories on which it is founded as what is being disturbed (Raun, 2014; Staunæs 2004, p. 71; Stryker, 2006).

4. Imaginaries of Disturbance

In the following sections, we discuss three different empirical settings in which controversies around what should be allowed have occurred. The controversies highlight important aspects of how cryo-technologies and fertility preservation come together to disturb core imaginaries about the correct as well as “natural” connection between age and reproduction, generation and kinship and gender, disorders and parenthood. We first turn to a discussion of the ethical debates around post-menopausal women having children with the use of cryopreserved eggs or embryos. We then examine the ethical dilemmas connected to the possibility inherent to cryopreservation of reorganizing generational time. Due to the lack of Scandinavian examples tied to the strict legal regulation in the region (see introduction), we turn to a Canadian example in order to illustrate how kinship disorder is produced and ethically delimited. The last, and lengthier, example concerns transgender fertility and how (some) transgender individuals came to be seen as reproductive citizens within the Scandinavian context. We delineate how central aspects of the legal framework regulating reproduction and family life are significantly challenged by depathologization along with easier access to legal gender recognition. In this final analytical case, we discuss how the acknowledgement of trans people’s reproductive rights invites for new terminology and categorization around fertility preservation and reproduction in general.

4.1. Disturbances of Reproductive Time – Old Mothers

Cryopreservation enables postmenopausal women to reproduce, using their own reproductive material, as gametes and embryos can be cryopreserved over several decades. There is no doubt that when especially older women (defined in Denmark as 45+ years of age) give birth, motherhood becomes represented as disturbing, yucky, or even monstrous (Adrian et al., 2019). The Danish Council on Ethics (1995, section 6, p. 6) has, for instance, argued that it is against the interest of the child to have a mother that is 45+ at the time of birth, as the child then cannot expect to have its mother around for as many years as children with younger parents. In 2018, for example, a public furor arose, when Benedikte Kiær, a Danish politician and mayor of the city Elsinore, announced that, at the age of 48, she was pregnant with her second child conceived with embryos that had been stored in Spain to avoid the restrictive Danish system (see also Chapters 1 and 3). Benedikte Kiær has been very public about how she had met a lot of resistance due to her age. For instance, she received a letter in which a lot of negative comments were written, such as: “we recommend that you immediately abort the child. A woman shall absolutely not conceive a child at that age.” (Iversen, 2018).

It is tempting to interpret such resistance as arising (at least partly) from feelings of disgust or yuck responses that have simply not caught up with the technological reality. Motherhood in old age has been associated with disease and illness. Although medical advances such as egg donation or the cryopreservation of one’s own reproductive cells exist, the imaginary of the old mother continues to evoke feelings of disgust and generate moral judgement. In sharp contrast, media representations of older fathers emphasize their virility underlining their desire as well as naturalizing their reproductive choices. As noted by one such father identified as a 56-year-old male with “wind in his hair”: “we have children because we can” (Munch, 2017). In the imaginary of the disturbing old mother, we trace two arguments that are especially salient in the Danish context; namely, that of the interest of the child and the best interests of women themselves.

The interests of the child figure prominently in the Danish Council on Ethics. To the Danish Council on Ethics, the interests of the child speak in favor of not letting women over the age of 45 have access to assisted reproduction in Denmark (see also Chapter 3 for other references to this worry). More specifically, it speaks against the interest of the child to have a mum that is 45+ at the time of birth, as

[...] it is in the interests of the child to grow up under the best possible circumstances, and this implies that ... the child will have the best possible chance of its parents being alive until at least adolescence. (The Danish Council on Ethics, 1995, section 6, p. 6)

Although this is the only passage in which the Danish Council on Ethics, in their many reports and papers, mention and try to argue in favor of the age limits for women using assisted reproduction, there are, of course, other imaginaries in the debate. However, before presenting them, a few critical remarks are in order.

First, if we take the argument at face value, an age limit should also exist for men, as this would increase the chance that the child will have parents that are alive during its childhood and adolescence. Alternatively, one could also argue for the idea that we could have a combined age limit, according to which the age limit for a couple may not override, say, 90 years for a couple of two. But, to our knowledge, no one has argued in favor of this proposal. However, among the Scandinavian countries it is only Sweden that has an age limit for men (no access to ART if you are above the age of 56). Furthermore, one could just as well argue for the view that the age limit for men should be lower than for women, as the average lifespan of women, in the Scandinavian countries, is longer than that of men. But again, we have neither heard of a politician nor a member of an ethics council who has convincingly argued that men's legal access to assisted reproduction, because of age limits, should be narrower than women's. Second, it follows from this way of reasoning, that it would be better for the child if the parents were 15 years of age than if they were 25. As by having parents as young as possible, it will increase the chance that one of the most important things in terms of the interests of the child is fulfilled. Namely, that its parents will be alive until at least adolescence (Petersen, 2014).

Another example of combining the interests of the child with a rejection of letting women over 50 have legal access to assisted reproduction is the former chair of the Danish organization "The Interests of Children" (Børns Vilkår), John Halse, who has argued "[...] with all respect it is only very few [women] at the age of 50 who have children who have the same energy as a parent who is at the age of, for instance, 30 years" (Halse, 2007). This type of argument is flawed in several ways. First of all, the important thing child rearing is not that you, in order to be a good parent, should have the energy level like the average person at the age of 30. The important thing is that you have sufficient energy to take care of your child and that you prioritize the energy you have, so that your child benefits from the energy you have. Second, if it is the energy level of parents that is decisive for getting access to assisted reproduction, then lazy or people low on energy compared to the energy level of the average 30-year-old person, should not have access to assisted reproduction. However, nobody would argue in favor of such severe state intervention. Moreover, the energy of parents is not all that matters when we take into account the interests of the child. As we mentioned in Chapter 3, the parent's job and financial situation is typically more secure and their level of education and self-knowledge is typically better when they are older, than when they are in their 20s. Finally, if a parent has a higher than normal risk of dying before their children have reached adulthood, it should then be made illegal for healthcare professionals to help people at risk of early death with assisted reproduction (such as smokers, obese individuals, or soldiers). Unlike age, however, none of these risk categories produce legal restrictions in terms of ART. Finally, even if children born by women above 45 years (or between 15 and 25 years) had worse lives than children born by mums between 25 and 35 years (which there is some evidence for), they would still have lives that are well worth living (Myrskylä & Fenelon, 2012).

Interestingly, a more positive attitude toward letting women 45+ years old have access to assisted reproduction can be observed in the Swedish National Council on Medical Ethics (SMER, 2013) when they write that “the Council finds it inappropriate to state a general age limit for people seeking assisted reproduction, as people age individually” (p. 201). Here, aging becomes an individualized experience enabling, in this imaginary, some women (women who do not act or look their age) access to ART. Similarly, Adrian et al. (2019) highlight how “*not* looking one’s age” enables women older than 45 an escape from yuck responses or monstrosity in clinical practices. And complicating this perspective, in the biomedical imaginary, risk assessments are bountiful. The risk of pregnancy complications increases, in this imaginary, with age, raising the potential for yuck responses associated with (pre-eclampsia, ectopic pregnancy and perinatal diabetes, see, for example, Vincent-Rohfritsch, 2012). In this biomedical imaginary, then, pregnancy complications are combined with a low live birth rate for women over 40 who through IVF use their own eggs to have offspring. At 41 years, the chance of giving live birth is 9.5% per cycle, while it decreases to 2.7% per cycle when the women reach 45 (Lockwood, 2012). However, as we argued in Chapter 3, it would be a fallacy to let this biomedical imaginary determine that women over 45 should not have legal access to assisted reproduction. For even if the above-mentioned risks are higher for older mothers than for younger mothers, it may still be preferable for older women to accept these risks compared to the imaginary of having no children.

As noted, the monstrous imaginary that old mothers find themselves in entangles with various yuck responses. One indication of this is that the judgement of elderly mothers, for example, through the imaginary of the best interests of the child, does not seemingly rest on consistent moral beliefs, but rather appears to be an ad hoc rationalization. Of course, much more could be said in the discussion above, but it would surely not be the first time moral judgement against women was rooted in biases, as Martha Nussbaum (2009) reminds us.

4.2. Disturbing the Generational Kinship Order

Another potential disturbance, or potential cause of yuck responses, relates to the cryopreservation time period and the generational order in which reproduction is seen as “naturally” taking place. For instance, cryopreservation technologies make it technically possible for a woman to give birth to a child that can be seen as her own child and at the same time also her sibling, for example, if she uses frozen embryos of her parents. By the same token, cryopreservation technologies also make it possible for a woman to give birth to a child that is in some sense older than herself, for example, if the embryo was created and frozen before the woman was born. While legally not possible in the Scandinavian countries, such arrangements raise feelings of disturbance and/or cause yuck responses. Cryotechnologies materialize what may have, at earlier times,

appeared as fictional imaginaires of someone giving birth to the brother of her own grandparent or someone fathering the daughter of his own great-grandmother. Disrupting generational order produces uneasiness. In this section, we unfold the ways that generational orders may be disrupted by yuck responses and turn to a rather exceptional Canadian story, which made headlines in the Danish media (e.g., “Canadian girl may give birth to her own half-sister”; Ytzen, 2007), highlighting how normative understandings of kinship can be disturbed by cryopreservation.

In its broadest sense, kinship refers to the myriad of ways individuals are related to each other through descent and affinity. Kinship is, however, not a unified term. On the one hand, kinship can be seen as something “given by birth and unchangeable.” On the other hand, however, it can also be, as reckoned in social scientific theorizing, seen as “shaped by the ordinary, everyday activities of family life, as well as the ‘scientific’ endeavours of geneticists and clinicians involved in fertility treatment or prenatal medicine” (Carsten, 2004, p. 6). To showcase how the frontiers of cryopreservation technologies shape, as well as disturb, imaginaries of kinship, we turn to a case from outside Scandinavia, which aptly shows some of the concerns about “genealogical bewilderment” that are bound to rise from various uses of cryopreservation in the coming years. With increased access to cryopreservation technologies, and increasing trends of fertility migration, we take it that this case is a sign of what is to come in terms of how cryopreservation will challenge and disturb notions of generational and kinship order in the future.

In the above mentioned Canadian case from 2007, a mother received permission from the Canadian ethics committee to donate her frozen eggs to her seven-year-old daughter. The daughter suffered from Turner syndrome, which among other things destroys the eggs, leading to early menopause. Due to difficulties preserving the daughter’s own reproductive material (in part related to the daughter’s age), the mother therefore wanted to help her daughter by giving her the option to use her eggs in the future, and thus potentially give birth to a child that was then, in a more traditional biological understanding, her own half-sister or -brother (Fleming, 2007; Gidoni et al., 2008). The case naturally stirred debate and controversy. Whereas the ethical committee noted that the mother donated her eggs out of love and that she was guided through altruistic intent, they also noted that it would be up to the daughter and future partner whether the eggs should be used, which they considered sufficient to secure the daughter’s autonomy in the deliberation. Moreover, the committee used a speculative argument when they remarked that “ethical considerations change with time. Who knows what the ethics will be in 20 years from now” (Roberts, 2007, p. 26)?

In contrast to this more liberal approach, critics were worried that the psychological welfare of the future child had not been taken sufficiently into account. According to Roberts, an ethics professor: “Such a baby would be a sibling of the birth mother at the same time as the direct genetic offspring of the grandmother donor.” Continuing, “in psychiatry we are hearing more and more of children

suffering from identity problems, and specifically a condition called 'genealogical bewilderment.' Could it possibly get more bewildering than this?" (Roberts, 2007, p. 26). Thus, the critics align confusion and identity problems with the disruption in kinship genealogy, establishing an imaginary in which "bewilderment" is both undesirable as well as problematic.

Thus, critics invoked the recurring imaginary of the best interests of the child. That is, critics argued that the psychological welfare of the future child would be endangered by this disturbance of the usual genealogical relations. Whether this would be the case is, of course, an empirical question combined with a view on what constitutes a sufficient or acceptable level of welfare for the future child. However, even if this indeed would endanger the psychological welfare of the future child, this does not necessarily mean that it would be morally wrong. From a moral perspective, the question remains about how much (or little) risk of harm we should accept when it comes to future children?

Briefly, within bioethics, three moral principles have been suggested in this regard: the maximum welfare principle, the minimum threshold principle, and the reasonable welfare principle (Pennings, 1999). Because the maximum welfare principle suggests that we should only bring children into the world under optimal circumstances, this principle seems to rule out arrangements such as the above. It also seems to rule out many other instances of fertility treatment that are usually considered acceptable, such as helping poor or disabled parents to conceive children. In contrast, on the minimum threshold principle, a lot more risk of harm can be accepted. As long as the child has a life worth living, there is no problem from a moral point of view if we accept the minimum threshold principle. This implies that whereas children should not be brought into the world with debilitating diseases, there is no moral problem as long as they would not have been better off having never been born. Contrary to the maximum welfare principle, then, the minimum threshold principle appears to be much too wide, in the sense that it allows too much. Consider, for instance, someone who has the choice between conceiving now and possibly having a child with a birth defect, or conceiving in six months and having a child with a much lower risk of any abnormalities. On the minimum threshold principle, there would be no moral grounds for waiting six months, assuming that the birth defect in question would not make life outright unbearable, but this seems like the wrong answer.

The reasonable welfare principle has been proposed as an intermediate principle that can avoid the counter-intuitive implications of the principles above. On the reasonable welfare principle, circumstances do not need to be optimal in order for someone to bring a child into the world. It is enough that the circumstances are reasonable – in the sense that the child will have a life that is reasonably happy. On the other hand, prospects for the child should be better than a life just barely worth living. Although this idea is difficult to spell out more precisely, it is not difficult to understand. In order to live a reasonably happy life, some scholars emphasize "the abilities that are required for an individual to enjoy a normal range of opportunity in his society," while others refer to a life adequate in the "major respects that generally make human lives valuable and worth living," or

“some conception of [...] normal functioning” (Pennings, 1999, p. 1148). These descriptions are all fairly vague, but they seemingly capture some important core in a happy life.

The genealogical bewilderment that the Canadian case so aptly illustrates is, by the Canadian Ethical Council, resolved through an imaginary of love (for the ill child) as well as firm belief in technological progress narratives. Meanwhile, the critics upheld a maximum welfare perspective reiterating the interests of the child, an imaginary which has also traditionally enjoyed a prominent role in discussions on the frontiers of fertility treatment by the Danish Council on Ethics. As already noted in Chapter 4, the interests of the child are frequently co-opted to naturalize particular, and frequently quite normative, world views. In this regard, it is also worth recalling that yuck responses have seemingly driven a range of discriminatory policies throughout history, often disguised as benign and genuine moral judgement.

4.3. Disturbing Gendered Reproductive Categories

In this chapter's last example, we turn to a more detailed analysis of fertility preservation in transgender individuals.⁶ While transgender people's (lack of) access to healthcare has increasingly been debated in the Scandinavian region for the past decade and the regulatory framework has changed significantly, as described in the beginning of the chapter, reproductive rights and sexual health have not gained much public interest. And in contrast to especially (cisgendered) women's attempts to preserve their change of motherhood later in life (see this chapter and Chapter 3), fertility preservation in transgender individuals has not received much social scientific scholarly attention. Internationally, however, biomedical professionals working on transgender healthcare have called attention to the issue (e.g., Coleman et al., 2011; De Sutter, 2009; De Sutter, Kira, Verschoor, & Hotimsky, 2002; Greenman, 2004). As we will demonstrate in this chapter, fertility preservation has also been a topic in the political debates on the creation of a new legal framework for transgender people in the Scandinavian context.

In the international guidelines for Standard of Care from WPATH, World Professional Association for Transgender Health, which the Scandinavian countries all follow to some extent, reproductive health is highlighted as an important

⁶In this book, we work with a wide concept of transgender. Consequently, transgender is not a specific identity, nor a specific bodily state. As a concept, transgender refers to people who do not identify with the gender they were assigned by birth. Importantly however, how trans people live their lives, dress and identify differs. Similarly, trans identity cannot be reduced to a wish of hormonal or surgical treatments. Not all transgender individuals want hormones or surgeries. Importantly, following the work of Stryker (2017), we do not understand transitioning as a movement from one specific point (or gender) to another. However, since the topic of this chapter is fertility preservation, the context of our discussion is primarily one of gender affirming treatment, and this means that we primarily discuss trans in relation to hormones and surgeries as they impact on (future) fertility.

aspect of transgender healthcare (Coleman et al., 2011, pp. 196–197). While not all transgender or gender non-conforming people wish to have children, the effects of treatment on fertility need to be discussed, Coleman et al. (2011) argue, in order to make an informed choice. Notably, both hormonal treatment and surgery have effects that can be irreversible. However, research has indicated that the ovaries seem to be less sensitive to testosterone than the testicles are to oestrogen (e.g., Coleman et al., 2011, p. 197; Weirckx et al., 2012). While most transmen experience regaining their menstrual cycle if they stop taking hormones, many transwomen have trouble producing viable sperm samples when going on oestrogen. Besides this, many transgender individuals also experience a significant discomfort, and even dysphoria, related to coming off of hormones (e.g., Armuand, Dejhne, Olofson, & Rodriguez-Wallberg, 2016).⁷ This can also be enhanced by inducing other types of hormones (e.g., oestrogen to increase the maturation eggs necessary for fertility preservation). As highlighted in the Standards of Care (Coleman et al., 2011) as well as by Swedish healthcare professionals (Armuand et al., 2016), this speaks to the importance of discussing fertility preservation with transgender patients *before* they start any treatment.

Technically, fertility preservation techniques do not as such differ between cisgendered and transgendered individuals. The fact that only certain trans people are offered to preserve fertility speaks, however, to the politicized nature of the topic. It is only in the Swedish context that transgender fertility preservation is actively conceptualized as “medical freezing” (see SFGO 2015), even though the freezing of sperm is also free in relation to gender affirmation treatment in both Denmark and Norway (The Danish Health Ministry, 2017, The Norwegian Ministry of Health and Care Services, 2017). In the following section, we examine the imaginaries that enabled specific practices and disabled others, paying specific attention to the national differences between Sweden, Denmark and Norway. Thus, comparing the Scandinavian countries reveals how specific and national understandings and regulations of gender and kinship produce normative boundaries regulating who becomes eligible for fertility preservation and whose reproductive citizenship is supported and protected by the welfare state.

4.3.1. From Sickness to Reproductive Citizenship in the Welfare State?

The patients are pouring in and I don't believe we have seen the top yet. If so, you can wonder if quite a few people have lived in hiding and shame, where, today, they dare to come forward, to a greater extent, and say 'here I am'. Before, many people have probably gone under the radar and have sought help abroad. (Dr Med Astrid Højgaard, Centre for Gender Identity, in Demark, in *Kristeligt Dagblad*, Shelde, 2019)

⁷These types of experiences are also increasingly documented on YouTube in so-called Vlogs in which the experiences of transitioning and living as a trans person is documented, shared and discussed (see also the work of Raun, 2012, 2014).

As outlined in the section on the medico-legal landscape of transgender rights and healthcare (Section 2), the laws regulating medical and legal transition have changed significantly in the past decade in Sweden, Denmark, and Norway. Following the above-mentioned legal changes, all of the Scandinavian countries have seen a significant increase in the number of individuals who seek trans-related health care services. As illustrated in the introductory quote from the head of the Centre for Gender Identity at Aalborg University Hospital, Denmark, this increase in the number of patients is ascribed to a more general de-stigmatization of transgender people in Danish society. Despite the fact that the Scandinavian healthcare systems have been heavily criticized by trans activists and in Denmark also by Amnesty International (2016) for monopolizing trans healthcare and restricting access by applying narrow and very binary understandings of what it means to be transgender, a wider imaginary of inclusion exists as well. This is further mirrored by the way Denmark, for instance, has been written into international transgender history by being the place where US citizen Christine Jorgensen in 1949 went through what became known as “the world’s first successful gender affirmation surgery” (Holm, 2017; Stryker, 2017; White, 1952). Likewise, the award-winning Hollywood drama *The Danish Girl* (2015) is about a Danish girl called Lili Ilse Elvenes, better known as Lili Elbe, who was among the first to receive gender affirmation treatment, including surgery, in Germany in the 1930s. Unfortunately, Lili Elbe died from complications in relation to the experimental treatment that aimed to enable her to become pregnant (Holm, 2017, p. 285).

In the Swedish context, the offer to preserve fertility in transgender people, especially in transmen, is similarly positioned within a storyline of Sweden being progressive. For instance, in an abstract for the 2014 conference of the American Society for Reproductive Medicine, a team of Swedish doctors’ motives in their presentation of a study of oocyte freezing in transmen are as follows:

OBJECTIVE: Lesbian, gay, bisexual, transgender (LGBT) rights in Sweden have been regarded as some of the most progressive in Europe. In 2013, a previously valid requirement of sterilization for legalization of gender change was ruled unconstitutional in court. Hence, transsexuals may now be included in clinical programs of fertility preservation (FP) before sex-reassignment surgery. Our aim is to report a pilot experience with counseling and performance of FP in transsexual men, as standards of care for FP in this clinical setting are lacking. (Rodriguez-Wallberg et al., 2014, p. e160)

Emphasizing the frontrunner status of Sweden, both in terms of its LGBTQ rights and their own contribution to providing the first clinical standards of care, Rodriguez-Wallberg et al. contribute to the production of the positive storyline not only of themselves as medical pioneers, but also of a more overall move toward inclusion of transgender people and other LGBTQ minority groups into Swedish society. However, as emphasized by feminist scholars such as Jaspir Puar (2007) and Michael Nebeling Petersen (2012) in their discussions of homonationalism,

such narratives of “exceptionalism” are also political tools which are often used to render invisible other suppressive policies and the marginalization of minority groups (see also our Conclusion). Notably, fertility preservation in transgender individuals cannot be disconnected from the Scandinavian histories of forced sterilization and their origins. As demonstrated, the Swedish abstract does acknowledge the previous sterilization requirement. However, the narratives of a contemporary national exceptionalism readily make invisible how the castration requirement has been normalized and sought to be upheld by many politicians, also in Sweden. Notably, the Swedish government, in contrast to Danish and Norwegian States, has publicly pardoned and offered a financial compensation to transgender individuals who underwent forced sterilization between 1972 and 2013 (Kammarkollegiet, 2018). Nevertheless, the narrative of Scandinavian progressiveness downplays the normative imaginaries of gender and kinship that still affect the regulation and organization of trans fertility. Especially, it overshadows the difficulties with putting preserved material to use within the Scandinavian laws on assisted reproduction which is, arguably, the main argument not to preserve eggs from transmen in Denmark and Norway.

One aspect of how these normative imaginaries of gender operate can be illuminated through a closer look at an evaluation of the 1972 Act on Sex Change (which gave access to publicly funded gender affirmation treatment) that was ordered by the Swedish government in 2006 (SOU 2007:16). Interestingly, despite advising to uphold a sterilization requirement, the report recommends that transgender individuals obtain access to fertility preservation. About upholding the sterilization requirement the commission writes in the summary, that they:

find it to be reasonable to demand that a person who is assigned female does not have male sex glands and vice versa. Even though it appears to be an extreme exception, we want to obviate the possibility that a person registered as male gives birth to a child. (SOU 2007:16, p. 15)

Arguably, in this framework in which transgender reproduction becomes imaginable through the proposal of fertility preservation, the sterilization requirement works as a way to uphold a normative order between gender categories and reproductive capacities: men should not be pregnant.

Moreover, in legitimizing the sterilization requirement, which has been heavily criticized as inhumane, the commission annotates that from their point of view, “in principle all of transgender individuals” wish to have their sex glands removed (p. 15). Also, they add that, from a medical point of view, it can be risky to keep the original gonads when starting on hormonal treatment (SOU 2007:16). In this way, sterilization is constructed as an obvious part of transitioning, which, of course, it also is for some people. Yet, the assertion that all transgender individuals wish to have their glands removed is founded in a binary understanding of gender that is also sought to be maintained through a specific ordering of transitioning bodies so that they can still be sorted into boxes that fit a normative understanding of “men” and “women.” In this understanding, which has shaped the organization of trans

healthcare in the region in general, being transgender always involves being born “in the wrong body” and therefore wishing to belong to “the opposite sex.” However, as emphasized by much trans scholarship, this is not always the case and there are many ways to identify as transgender which affect to what extent one wishes to medically and/or legally transition (e.g., Gottzén & Staube, 2016; Stryker, 2017; Stryker et al., 2008).

In their extensive report, the 2006 committee proposes that while the original intention with the castration requirement was that transsexuals should not have “their own children” after transitioning, as this would cause “a disturbance of the kinship structures” (p. 170), their wish to uphold the requirement is not based on a wish to deny transgender individuals children. Rather they (re)produce a family-building imaginary as they emphasize that:

building a family and living with children - biological or not is for many people an important part of life. The right to build a family is, in accordance with domestic laws, also included in the list of rights and freedoms covered by the European Convention. This right has already in the past years been expanded in the Swedish law in comparison to 1972. (...) With the demand that today exists in the act on sex change, some individuals are forced to renounce future parenthood solely because of their gender identity. In our view, this is unsatisfactory. (SOU 2007:16, p. 184)

Again, activating an imaginary of progress, the 2006 committee, in this way, reinstalls transgender individuals as citizens with reproductive rights, pointing to fertility preservation as a way to secure this right to reproduction. In emphasizing this re-conceptualization, the 2006 committee also notes how, in the 1972 commission’s preparatory work, transgender reproduction was not only undesired, transgender fertility was also imagined as “a theoretical and peripheral issue” (SOU 2007:16, p. 181), because all transgender individuals were expected to display heterosexuality after transitioning (meaning that they would not engage in sex that could enable pregnancies). The 2006 committee further annotates how, in the imaginary of the 1972 commission, already having children also made a person’s “transsexualism” questionable. Positioning this as an old-fashioned view, the 2006 committee importantly conceptualizes transgender fertility within an imaginary of same-sex desire as normal and natural as they write:

However, it has turned out that among transsexuals, exactly like in the general population, are heterosexuals, bisexuals and homosexuals. Thus, it is not uncommon that a transsexual is together with a person who belongs to the same sex as he or she does after the sex change. (SOU 2007:16, p. 181)

In this way, the 2006 committee actively disconnects transgenderism from a previous connotation of being a sexual perversion and abnormality. Notably, the diverse couplehood relations that can be imagined also call for considerations in

relation to how to practice fertility preservation, especially in light of new reproductive technologies. The 2006 committee highlights that there might be some issues in using the stored gametes that could collide with, for instance, the regulations on double donation and/or surrogacy (pp. 187–188). However, in contrast to the Danish and Norwegian contexts, to which we turn shortly, this does not cause the commission to discourage the cryopreservation of eggs from transmen, but rather to suggest some important precautions, especially in terms of parental categorization which we will return to in the next section. In comparison with Denmark and Norway, as we also discussed in Chapters 1 and 3, Sweden has in general had a less restrictive approach to egg freezing and performed egg freezing more extensively and from an earlier point in time (Rodriguez-Wallberg et al., 2015). This is a technological aspect which cannot be disregarded, as this also means that egg freezing in general is less available in the Danish and Norwegian context.

Turning to the Norwegian and Danish context, we wish to highlight how it is primarily fertility preservation in transmen that is perceived to be particularly troubling. That is, after the castration requirements were abandoned in, respectively, 2014 and 2016, the preservation of sperm in relation to gender affirmation treatment quickly became an offer alongside gender affirmation treatment (and, thus, publicly funded) in both countries (The Danish Ministry of Health, 2014; The Norwegian Ministry of Health and Care Services 2017, p. 33). Interestingly, in the first guidelines that were issued in Denmark after the castration requirement was abolished, preservation of eggs was also listed as an option to be discussed in relation to a more overall discussion with the patient of the effects of treatment on fertility (The Danish Health Ministry, 2014).

However, shortly after, in the updated version of the guidelines that followed the reconstitution of trans health outside of the psychiatric system in 2017, this possibility disappeared. In accordance with the WPATH Standards of Care (Coleman et al., 2011), the patient information sheets, however, still inform about the effects of treatment on fertility, including hormonal therapy, but the guidelines now state that “currently no offer to preserve eggs for later is available” (The Danish Health Ministry, 2017). The interesting aspect is that while it is technologically possible, even though our fieldwork shows not a lot of unfertilized eggs are preserved in the Danish health care system, egg freezing in transmen does not count as medical freezing in the Danish context. Illustrative of this point, in an email correspondence we had with the Centre for Gender Identity, egg freezing is framed as expensive and the correspondence notes that currently, only women with cancer are offered the chance to preserve their eggs. It is further mentioned that egg freezing might not be necessary since the ovaries are easy to stimulate, even after many years on testosterone, meaning that if a transman keeps his reproductive organs, he will be able to have children later in life — even with state-financed assisted reproduction as we will return to. Finally, the correspondence highlights the matter of the (il)legality of surrogacy that the Swedish committee also pointed to. While altruistic surrogacy is not illegal in Denmark, it is not supported by the legal framework. For example, a notion of intended parents, and, important in relation to trans fertility, it is not legal for healthcare professionals

to assist in gestational surrogacy (§ 13 Act on Assisted Reproduction). While the Danish law was changed in 2018 to allow double donation on medical indication (Act 1688/2017), the overall point is that the current framework does not support transmen becoming genetic parents using preserved eggs.

The Norwegian case is further illustrative of how the normative understanding of kinship and gender shapes the practices of assisted reproduction and comes to shape transmen's access to assisted reproduction. Already in 2012, a few years before the abolishment of the castration requirement, the Norwegian Biotechnology Advisory Board wrote to the Norwegian Ministry of Health. After a dialogue with one of the influential Norwegian trans organizations, the board unanimously recommended to offer transgender individuals cryopreservation of gametes before gender affirmative treatment. In highlighting fertility preservation as a matter of equality, they write:

The Biotechnology Advisory Board regards it as self-evident that no individual is discriminated against because of their sexual orientation or gender identity. Paragraphs 2-11 and 2-17 of the Act on Biotechnology regulates the storage of gametes (gender cells in Norwegian). Sperm can be stored without limitations other than that it cannot be used for reproduction after the death of the depositor. Egg cells and ovarian tissue can be stored *in case a woman has to go through treatment which can damage fertility*, and gender corrective surgery must be said to fall within these circumstances. Transsexuals have the same right to medical treatment as any other person, and this dictates that transsexuals should be able to store their gametes before treatment that can reduce their reproductive capacity. (The Norwegian Biotechnology Advisory Board, 2012, p. 1)

Again, we see how, through progressive principles of equal rights to healthcare, the Norwegian Biotechnology Advisory Board positions transgender individuals as obvious candidates for fertility preservation. Additionally, they conceptualized fertility preservation in transgender individuals as belonging to the category of medical freezing (see Chapter 2 for a more detailed discussion of the notion of medical freezing).

Following this statement, the advisory board turns to the matter of the castration requirement. First, they point out that “for many years, transsexuals have met prejudice and discrimination” (p. 1) and that this is, among other things, is connected to what is experienced as an obligation to have surgery to obtain legal transitioning. In emphasizing that they look forward to an upcoming debate on castration practices following an approaching law proposal on discrimination of transsexuals, the Biotechnology Advisory Board then, surprisingly, points out that the castration requirement is actually not stated by Norwegian law. Instead it is “based on a custom at the national register” (p. 1) indicating that, in similar veins as in the Swedish case, castration is used to uphold a specific order between legal gender categories and the reproductive capacities of bodies.

Notably, on the one hand, the Norwegian Biotechnology Advisory Board problematizes the restriction of transgender people's reproductive rights, yet simultaneously emphasizes specific limitations as to how this right can be realized, at least for some trans individuals. The problem is, as the letter states, that some "reproductive strategies require the participation of a third party, for instance, a donor or a surrogate" (p. 2) and that these strategies are not legal in Norway. Thus, while initially supportive of fertility preservation, they conclude:

To the extent that transsexuals are dependent upon a type of assisted reproduction which is illegal in Norway, cryopreservation of gametes and tissue should be defined. Cryopreservation should also be denied even if the law might be subject to change during the storage time. (p. 2)

Similar to the 2006 Swedish committee, the Norwegian Biotechnology Advisory Board does not want fertility preservation in transgender individuals "to contribute to a legalization of surrogacy" (p. 2).

In 2016, the same year as Norway changed the practice on legal gender recognition, the Norwegian biotechnology law was evaluated by the Norwegian Ministry of Health and Care Services (The Norwegian Ministry of Health and Care Services, 2017). In the evaluation, the government proposes to uphold that sperm can be stored in relation to gender affirmation treatment, a practice that had been instigated by the Directorate of Health by means of interpreting the Biotechnology Act (The Norwegian Ministry of Health and Care Services, 2017, p. 33). While the matter of preservation of eggs in transmen is not directly mentioned, the evaluation addresses how the lift of the castration requirement has an impact on how to interpret § 2-2 of the biotechnology act which states that assisted reproduction can only be performed on *women* (who are married or living in a stable relationship). In spite of the recommendations of a majority of the Biotechnology Board to ease trans reproduction, the government suggests upholding that assisted reproduction is done on the basis of the legal sex (The Norwegian Ministry of Health and Care Services, 2017, p. 33), which means that, in Norway, transmen who legally transition are excluded from assisted reproduction, even if they do not medically transition. In contrast to this, the Danish Parliament decided to amend the health legislation so trans individuals would still have access to gender specific healthcare (such as breast cancer screening, etc.), including upholding the access to insemination and IVF through defining a woman as a person with a uterus or ovarian tissue (Bill 198/2014). However, the prospect of pregnant men also caused controversy among some politicians who, in the debates, pointed specifically to the troubling of reproductive categorization as a reason not to change the law.

The examples illustrate how securing options for genetic parenthood after transitioning are limited for transmen in Denmark and Norway, while Sweden, at least in principle, allows them to preserve eggs. That is, a more recent Swedish evaluation report, problematizes that the Swedish clinics only offer fertility preservation to patients who are diagnosed with "transsexualism," disregarding

that a number of other trans diagnoses exist in Sweden (SOU 2017:92, p. 586). In contrast, preservation of sperm is less complicated, testifying to the argument we made in Chapter 1, that frozen sperm is more easily imagined as mobile as well as easier to be disconnected from the social category of fatherhood (e.g., in the case of donor sperm). While this previous section has highlighted the ways that transmen and women emerge, in the welfare states, as reproductive citizens, in our next section, we elaborate on how the cryopreservation of trans fertility reorganizes parental categorization and how this troubles the normative gendered order of reproduction in the Scandinavian welfare state.

4.3.2. Where Is the Mother? Troubling Reproductive Categorization.

If a person, who has gone through a sex change, becomes the parent of a child after transitioning, he or she will be denominated in accordance with the current law, despite whether he or she contributed with sperm or egg. (Preparatory work for a new Swedish law, SOU 2007:16, p. 187)

As illustrated in the previous section, an important aspect of regulating transgender reproduction, especially in the Swedish context, has involved upholding, and thus reorganizing specific categorical orders of reproduction. Arguably, frozen sperm from transgender women has been less problematized as all countries already have rather permissive frameworks for donor sperm and increasingly also for assisted reproduction among non-heterosexual couples. This means that transwomen can use their sperm with a female partner or “donate” it to another woman whom they wish to parent with. However, as the Swedish 2006 evaluation points out, transgender reproduction requires a new attention to parental categorization. As the quote above suggests, it will be necessary, in order to avoid disturbing kinship structures, that a transgender individual who becomes a parent using preserved sperm will be parentally categorized according to their legal sex. According to the Swedish report, this is easy with transwomen, as the legal framework already includes the category “parent” which is used for the non-biological mother in a lesbian couple (SOU 2007:16, p. 188). Similarly, it is asserted that if a transman provides the egg for a pregnancy in another person, a solution that, as emphasized, was not legal in Sweden at the time of the evaluation, the transman should be categorized as the father (SOU 2007:16, p. 187). Since then, a new law in Sweden has, as of January 2019, made double donation and embryo donation legal (SOSFS 2009:30), which should, at least in principle, ease genetic parenthood of transmen who have cryopreserved eggs.

Besides curtailing surrogacy, an important issue in the Swedish 2006 evaluation was also, as already mentioned, to prevent a future in which men would become pregnant (SOU 2007: 16). To some this is, of course, an overall dystopian scenario following a more liberal approach to legal gender recognition. Following Staunæs (2004), the pregnant man can be regarded as a border figure, that is, someone who challenges the fundamental ordering of meaning and transgressing social categorization that is fundamental to our social practices. On the political

and cultural level, the pregnant man demonstrates the ambivalence of what is natural, as well as, from a moral perspective, what is right. Additionally, this disturbance illuminates the social production of the gendered structures along which our societies are arranged.

In 2008, the image of a pregnant man troubled the heteronormative categories of reproduction as international headlines broke that US citizen Thomas Beatie had announced that he was pregnant in the US LGBT magazine *The Advocate* (Beatie, 2008). Within a sensationalizing narrative, Beatie is often ascribed to be the first man in the world to become pregnant, which arguably made invisible that transmen have always had children, though not being legally recognized as men. Nevertheless, Beatie's bold act to go public with his story created a lot of public attention. Having transitioned a few years earlier, Beatie had not had modifying therapy on his reproductive organs since this was not important to his sense of self and because he always wanted children. Initially intending to use a surrogate, Beatie ended up deciding to carry the pregnancy himself as his partner Nancy could not because she had had a hysterectomy due to endometriosis a decade earlier. In his own account, Beatie (2008) describes how their choice to have him carry the pregnancy caused a lot of confusion in people as well as how it made medical professionals reject them, apparently activating the yuck factor.

Following the abolishment of the castration requirement, similar stories have surfaced in the Scandinavian context. Since the removal of the castration requirement, both Denmark and Sweden have seen several cases of people with male ID numbers who have become pregnant. In the context of the Scandinavian welfare state, male pregnancies cause a specific kind of problem as the public healthcare system is organized around a social security number that, in all of the countries, is gendered. Through having a digit that signals whether you are male or female, transgender men have had problems with being registered within the prenatal care system, as this only allows for female ID numbers (e.g., Carlén, 2015; Dam, 2018; Erichsen, 2018). Overall, the Scandinavian healthcare systems have been found not to be specifically inclusive of people who do not adhere to conventional norms of heterosexuality and nuclear families (e.g., The Aids Foundation, 2017; Klittmark, Garzon, Andersson, & Wells, 2019; Røndahl, Bruhner, & Lindhe, 2009; Tved, 2019). As the following quote from Mikkel, a transman, illustrates, it is not necessarily easy to be a pregnant man in the Danish health care system:

My experiences with the healthcare system have been mixed. I have met a doctor who was insecure and scared when he talked to me about the pregnancy, and then I am treated with respect and curiosity by the midwife who follows me. And curiosity is perfectly fine, if it means that you ask questions and do not treat me like a freak. I understand that I am different from what they are used to. But I still want to be treated with respect. (Mikkel, in Danish Newspaper Politiken, Erichsen 2018)

Mikkel's account illuminates how the pregnant man is often infused with a monstrosity, in similar ways as the 50+-year-old woman who becomes an old

mother using cryopreserved eggs. Pregnancy in men also challenges the very fundamental connection between gender and birth as it fundamentally destabilizes the cultural imaginary that everyone has a mother – an imaginary already destabilized through gay men’s surrogacy practices. However, trans fertility imposes a new situation in which a baby can have no mother, and also *not be born* of a woman – to rephrase the title of Adrienne Rich’s (1976) influential feminist book on motherhood.

Until 2019, where Sweden, again as a first in Europe, changed its law, all of the Scandinavian countries have ascribed to the *mater semper certa est* principle (TGEU, 2019a, The Swedish Justice Department, 2018). Not specifically aimed at transgender people, this principle states that the woman giving birth is always the mother of the child (ACT 1981-04-08-7 (NO); Act 1257/2018).⁸ As also pointed out by Bremer (2011, p. 192), this means that, according to the law, a pregnant man is not possible and trans people have been categorized as parents in relation to their reproductive organs. The trans exclusive nature of these conceptualizations has already been problematized by several trans people who have brought action against both the Danish and the Swedish states to have their legal gender recognized by the state in relation to their children. Interestingly, in Sweden, where the gender trouble trans reproduction would produce was recognized already in the 2006 evaluation, there has not been political support to change this part of the legal framework until 2018 (brought into effect in 2019).

The debates around parental categorizations testify to how, even though trans fertility destabilizes specific relations between gender and reproductive capacities, transgender reproduction can rather easily be legally reorganized to fit normative frameworks of kinship in which men are fathers and women are mothers. As long as trans reproduction is practiced in relation to a binary understanding of gender, it does not as such challenge the gendering of parenthood, though it does disturb certain notions of the normal and the natural. Entangled with cryopreservation, trans fertility clearly also holds a normalizing potential where transgender individuals become culturally intelligible through their participation in reproduction (Dahl, 2018; Edelman, 2004). On the other hand, as a cyborgian border figure, the reproductive transgender person is also, as Staunæs (2004) points out, a resource of imagination that enables the reimagination of a field. As cryopreserved eggs come to constitute genetic fatherhood, and frozen sperm is stored to be used in a future female partner, the gendered connotation of gametes will be significantly challenged. Notably, in the Scandinavian languages, gametes are often referred to as “gender cells,” which, according to Holm and Bülow (2011), is interrelated with the role early endocrinologists in the Scandinavian countries believed them to have in the hormonal production. As also highlighted by Armuand et al. (2016) in their aim to establish new standards of care for fertility preservation in transgender individuals, the reimaging of trans people as

⁸Obviously, the *mater semper certa est* principle also impacts the use of surrogacy in the Scandinavian countries, that consequently do not operate with the idea of intended motherhood.

reproductive citizens calls for a new language of reproduction and the bodily parts and processes involved. Transgender reproduction can be disturbing to societal norm, but being enrolled in the cisnormative structure of fertility care can also be disturbing to the trans individual. In order to ease the gender dysphoria and distress related to this, Armuand et al. (2016) stress that:

it is important to use non-gendered words as far as possible, such as “bleeding,” “gametes” and “pelvic examination” instead of “menstruation,” “eggs” and “gynaecological examination,” and to use the right pronoun. The latter can easily be achieved by simply asking the individual which pronoun is preferred. (p. 388)

In this way, the biomedical community is taking part in the reconceptualizing and de-gendering of the social world of reproduction and fertility preservation.

5. Summary

In this chapter, we have discussed how cryopreservation technologies come to disturb specific social categorizations and moral understandings of how the world ought to be. By centering phenomena that transgress the normative boundaries of age, generational kinship order, and gender, we have sought to tease out the normative frontiers of cryopreservation technologies and fertility preservation. Through examples that cause controversy and ethical debate, such as reproduction in postmenopausal women or women who preserve embryos to enable their children to have children, we have illuminated and critically discussed how various cultural values and biases render these practices meaningful or wrongful in various settings.

Through our discussion of transgender fertility, we have further tried to underline how these disturbances of the social order are not only producing judgement and regulation, but also creating a space where reordering and re-conceptualizing takes place. This points to how the ability to reorganize reproductive time offered through cryo-technologies has monstrous potentiality, destabilizing and challenging our sense of what is (un)natural, of what is morally acceptable and who, from a legal point of view, should have access to fertility treatment by means of cryopreservation.

Conclusion

We conclude by returning to the Scandinavian sociotechnical imaginaries on cryo-technologies and the cryopolitics of reproduction, as they unfold in our material and within the Scandinavian context. As noted in our introductory chapter, the concept of sociotechnical imaginaries helps reveal how technological accomplishments are always embedded in particular practices as well as within a “reservoir of norms and discourses, metaphors and cultural meanings” (Jasanoff & Kim, 2009, p. 123). To highlight the ways that Scandinavian cryo-practices (law, ethics, clinical practices, popular culture, marketing material, user accounts, and medical expertise) entangle to produce different sociotechnical imaginaries, we return to our introductory quest and highlight our response to the following question: How do the values embedded within our empirical material produce different sociotechnical imaginaries on cryo-technologies in the Scandinavian countries?

While the Scandinavian countries share a somewhat common history, the responses to cryo-technologies have, as we have shown, by no means been uniform. In the case of Denmark and Norway, for example, the cryopreservation of Danish and Norwegian women’s egg cells for non-medical reasons, as we have explained in Chapters 3 and 5, continues to evoke troublesome imaginaries. Meanwhile, in the case of disease or in the exporting of Danish sperm, cryo evokes national pride and protection (see Chapters 1 and 2). Moreover, contingencies in the regulatory developments establish very different reproductive practices and pathways. In the case of Denmark, regulatory developments initially sought to regulate the medical clinical practices and inadvertently, therefore, made room for the development of commercial sperm banking and global exporting (Chapter 1). Meanwhile, Norway has continued to reiterate, in its strict legal framework, a technology to be tamed perspective (Melhuus, 2012). Thus, Scandinavian nation state responses to reproductive technologies reveal very different sociotechnical imaginaries framing and shaping how reproduction should or should not take place. Throughout this conclusion, we first provide a brief summary of our key findings and then, engage in the ways that cryo invokes different national imaginaries and collective responses.

But first, a brief outline of the ways that cryo-technologies and frozen matter, in the five chapters, achieve value. Clearly, cryo-technologies engage, as we have shown, Scandinavian imaginaries very differently. In Chapter 1, we revealed how

a gender-stratified market in cryopreserved reproductive cells has emerged. In sharp contrast to cryopreserved Danish “Viking” sperm, which has emerged as an export commodity, Scandinavian women’s eggs are kept “at home,” domesticated and at times even disciplined as inherently belonging to the woman that they come from (notably in the case of Norway). Scandinavian women’s egg cells are regulated differently than men’s sperm cells, enabling Danish sperm, unlike Danish women’s eggs, to entangle with globalized consumer logics. For an overview of the time limits set for reproductive material, according to the different laws of the Scandinavian countries, see Figure 1 in the Introduction to this book.

Whereas Chapter 1 delineated the legal and cultural normativities involved in the making and non-making of a market in cryopreserved reproductive cells, including the ways that a global market in cryopreserved sperm has been produced in Denmark, in Chapter 2 we turned to fertility preservation as a cryo-technological response to disease. The chapter featured analyses of both the old cryo-technologies of sperm depositing, as it is undertaken by primarily Danish men, as well as new technological practices involved in the cryopreservation of young girls’ and women’s ovarian tissue. Narrated within imaginaries of technological progress and possibilities, sperm deposits and frozen ovarian tissue became a form of cryo-insurance, positioning the individual as having a (reproductive) future and reinstalling their reproductive choices. In this chapter, what we discussed as “the good life” got interwoven with new biomedical practices of anticipation and risk prevention as well as with normative understandings of always working toward having a reproductive future. While frozen cells and tissue have reproductive potential, the frozen matter additionally, in Chapter 2, gained potentiality when seen as (re)establishing particular gender identities such as that of “feminine” women and “masculine” men. As exemplified in Chapter 2, cryopreserved ovarian tissue and reproductive cells entangle with normative understandings of individuals desiring future genetic offspring, and thus, cryopreservation becomes an anticipatory and gendered practice associated with reproductive futurity.

In Chapters 2 as well as 3, we critiqued yet, paradoxically perhaps also maintained the distinction between medical and non-medical freezing. While we, in large part, considered this distinction problematic (see Chapter 2), and in many ways in itself a sociotechnical imaginary, we nevertheless argued that this division, within the Scandinavian welfare states, is a productive and important analytical distinction. Whereas freezing for medical reasons is paid for by all of the Scandinavian welfare states, freezing for what is seen as non-medical reasons is, at times, conceptualized as “unnecessary,” becoming instead animated, in particular, in the case of Denmark and Norway, as an individualized reproductive (consumer) choice. As such, freezing is, in the context of Denmark and the preservation of eggs, limited to a five-year cryopreservation period while, in the case of Norway, not possible at all. In Chapter 3, we in fact prioritized the imaginaries that freezing for non-medical reasons invoked, such as understandings of reproductive autonomy as well as concerns related to market coercions that might capitalize on women’s reproductive desires and uncertainties. While we chose to label the chapter “Delay,” we also remained critical of this terminology and discussed the ways that the cryopreservation of women’s

reproductive cells deconstructs a normative temporal kinship order. Not only may older women, if they have cryopreserved their oocytes, opt for motherhood at an advanced (potentially monstrous) age (see also Chapter 5), in the imaginary of rightly timed kinship, women who freeze were seen as bringing their reproduction “back on track.” In this manner, traveling to Sweden (where egg freezing for non-medical reasons is not illegal), for example, to freeze one’s oocytes becomes exemplary of engaging in a reproductive and perhaps even responsible anticipatory logic.

Our final two chapters centered, in more detailed ways, on the ways that cryotechnologies, in the Scandinavian context, become cryopolitical interventions. Cryotechnologies enable individuals to preserve the latency of reproductive tissue and cells yet simultaneously, also coproduce various forms of disturbances which we illuminated through the legal, political, ethical and social controversies they cause. Notably, in Chapter 4, cryotechnological interventions were discussed in light of the use of sperm posthumously as well as in the case of the destruction of cryopreserved embryos. While the chapter discussed how life and death, through the lens of these two cases, become calibrated, Chapter 4 also highlighted how sociotechnical imaginaries of Dr Frankenstein, in practice, reconfigure imaginaries of families in the freezer. Meanwhile, Chapter 5 elaborated on the notion of disturbance and how fertility preservation challenges central social categorizations with respect to reproductive age, the generational order of kinship and gender. Through an elaboration of the discussion of reproduction in postmenopausal women (also addressed in Chapter 3), the chapter highlighted the ethical arguments that have shaped the Scandinavian attempts to restrict assisted reproduction within a woman’s “natural” reproductive lifetime. Similarly, the chapter examined the legal and ethical discussions that form the basis for prohibiting generational kinship disorder enabled by the ability of cryotechnology to, for instance, allow a mother to preserve embryos for her own children to carry. While reproductive aging and generational disorder have been contained in the Scandinavian context, in Section 4.3 of Chapter 5, we delineated how transgender individuals have emerged as reproductive citizens in need of fertility preservation. This is in spite of the imaginaries in which trans reproduction destabilizes the symbolic order between gendered categories and reproductive practices. In critically discussing how imaginaries of progressiveness and reproductive autonomy have supported the conceptualization of trans individuals as cryogenetic agents, within the Scandinavian welfare states, we further highlighted the values and normative regulations that have eased the preservation of sperm from transgender women. The regulations concerning the preservation of eggs and ovarian tissue from transmen are, as we revealed in this chapter, complicated and even restricted in Denmark and Norway. As a consequence, in Chapter 5, we argued that while much of the legal and conceptual work undertaken around transgender reproduction has sought to restore normative binary logics of gender and parenthood, transgender reproduction also subverts the traditional meaning of important social categories in ways that significantly destabilize traditional imaginaries of “natural” correlations between gender, reproductive cells, and parenthood.

Having briefly summarized our key findings, we turn now to a discussion of Scandinavian reproductive cryopolitics including the ways that cryo, in particular, entangles with Scandinavian ideals on family formation.

1. Scandinavian Repro-Cryopolitics

As noted throughout this book, cryopolitics engages in a “critical reflection” (Radin & Kowal, 2017, p. 4). It involves contextualizing cryopreservation in lieu of the “intensification of the management of life” (Kowal & Radin, 2015, p. 68) and what Friedrich (2017) calls the “economy in cold” (p. 65). This involves cryotherapy chambers, cooling containers, transportation networks; liquid nitrogen, dry ice, clinical expertise as well as the circulation of global capital and the development of biobanks (Bravo, 2017; Friedrich, 2017; Parry, 2004). These are technologies that help produce modern and “cooled states” (Bravo, 2017, p. 29) along with markets and cultural imaginaries of ice as rescue technologies. For example, cryopreserved gametes enable IVF treatments to unfold without the delicate synchronization of provider and recipient bodies, while cooling technologies are at the core of the global trade in reproductive cells, organs, and tissues. As evidenced throughout the different chapters, however, the Scandinavian countries differ in important ways. In this first part of the section discussing Scandinavian cryopolitics, we return to the key distinction between freezing for medical and non-medical reasons, and then continue our discussions with considerations related to an imaginary of family formation.

In the moral distinction between freezing for medical and non-medical purposes, medical freezing becomes articulated as morally more important than freezing for non-medical reasons. In line with this way of thinking, people who suffer from an illness are culturally understood as worse off than others through no fault of their own. Within the context of the Scandinavian welfare states, this gives these individuals a claim to compensation on account of “justice,” a claim which those who are not sick do not have access to. As argued by, for instance, Lamont and Favor (2017), in a welfare context, people who are worse off than others, through what gets framed as at no fault of their own, have a claim to compensation. Consequently, people who need fertility preservation for medical reasons are seen as not themselves responsible for the risks associated with losing their fertility. This is in contrast to people who do not currently have what, in this imaginary, becomes a medical reason to preserve their fertility. In contributing to the reiteration of this distinction to be meaningful, the Danish Council on Ethics (2015, p. 7) states and in reference to what they see as non-medical freezing: “It is to a larger extent a matter of personal choice” compared to freezing due to sudden disease.

In this Scandinavian imaginary, the state is seen as having a stronger obligation to help patients as opposed to non-medical freezers. However, from a moral point of view, this does not preclude that the state could have some obligation to aid non-medical freezers. Especially considering the fact that in a welfare state with publicly funded ARTs, people who opt for “non-medical” freezing, and end up using their frozen eggs in fertility treatment down the line, will end up paying for some part of their fertility treatment compared to patients with less foresight

who will not end up paying for treatment (Mertes & Pennings, 2012). According to Mertes and Pennings (2012), if freezing for non-medical reasons receives partial coverage, then the health care system only gets involved when a medical problem immediately presents itself. At this point, the patient is indistinguishable from other patients requiring fertility treatment. While this model may appear logical and morally unproblematic, it is arguably not fair toward the individuals who opt for freezing their eggs, as they end up paying for some parts of their fertility treatment that other patients in fertility treatment do not have to pay for, merely because they had the foresight to freeze their eggs (Mertes & Pennings, 2012). What might instead be offered as a full coverage model increases equality and fair access to cryopreservation technologies, but clearly, in the context of a welfare state, lays claim to valuable public resources.

The distinction between medical and non-medical freezing persists as a dominant imaginary in all of the Scandinavian welfare states, and the material additionally reiterates and draws upon an imaginary of Scandinavian exceptionalism. Because of the ways that ideas of a gender-equal and technologically progressive Scandinavia persist in the material, we also wish to embed these imaginaries critically within feminist theorizing of “exceptionalism” (e.g. Nebeling, Petersen, Kroløkke, & Myong, 2017; Puar, 2007). Briefly, whereas Browning (2007) shows how the concept of “exceptionalism” has become integral to the construction of a Nordic brand, feminist scholars such as Puar (2007) document how nations can be “exceptionally” heteronormative and xenophobic, even as they claim to be “exceptionally” tolerant. According to Puar (2007), claims to exceptionalism are frequently loaded with normative understandings related, for example, to gender, sexuality, and race. In Chapter 5, for example, we discussed how fertility preservation in relation to gender affirmation treatment becomes culturally intelligible only when transgender reproduction is (re)organized along normative lines of specific relations of binary gender categories. Accordingly, exceptionalism can be seen as a discursive framework as well as a smokescreen for the re-enactment of normative values associated with who, how and when individuals can reproduce (Loftsdottir & Jensen, 2012; Nebeling, Petersen et al., 2017). A similar understanding or critique of Nordic exceptionalism is present in Loftsdottir and Jensen’s (2012) analysis of postcolonialism and whiteness in the Nordic countries. To them, exceptionalism illustrates the ways that the Nordic countries are made to appear exceptional (epitomized as peace-loving and gender-equal nations, for example) yet, through this filter of exceptionalism, also blind as well as resistant to self-examination of the ways that, for example, legal frameworks stipulate normative understandings of, in this case, reproduction.

While the Scandinavian cryopolitics have been guided by the above distinctions, embedded in an imaginary of Scandinavian exceptionalism, reproductive technologies have consistently been conceptualized and organized through politico-legal processes that privilege and uphold the imaginary of family formation as a social good. This is notably the case in Parliamentary debates yet also co-opted amongst other cryogenic agents such as prospective parents who simply wish to be able to start their “own family.” Briefly, and as also documented in a more historical account of the welfare state, the welfare state first saw family

building as nation building when conceptualized as a social-democratic project. The introduction of free education, free healthcare, and a rights-based social welfare system was costly and created an interest in the “quality” of the nation’s population (Koch, 2006). The 1930s saw the introduction of coercive eugenic legislative measures introduced with support from the full political spectrum but also the first reproductive freedoms. While abortion was generally viewed as morally repugnant, abortion, in the case of fetal disease or malformation, became legalized — even discursively conceptualized as morally sound and a civic duty. Making healthy, able and self-reliant families then became the normative basis for the welfare state. For example, in the 1970s, even though autonomy and emancipation was at the forefront of public debate, the government’s main reason for legalizing on-demand first trimester abortions, given in the Bill’s supporting comments, was to safeguard women. The government recognized that abortions took place, but in clandestine and unsafe conditions, thus putting women and families at risk of losing their mother. The first trimester limit is even legitimized with data material from the 1960s which had shown that the medical risk for the woman undergoing the surgical abortion procedure increased after week 12 (Herrmann, 2005).

During this time period, the legalization of abortion then became an act of a moral state — a caretaker of families. The focus on family formation became, early on, key to the regulatory model on reproductive practices. As assisted reproductive technologies entered the clinics in the late 1980s/early 1990s, the use of donated sperm by clinicians aligned itself along another family formation logic. During those early years, sperm donation was anonymous and untraceable; a 1992 working group set up by the Danish Ministry of Health reiterated the fundamental arguments behind the practice of anonymity in their report (1992), that considered it timely to discuss if anonymity was still an appropriate principle to uphold in Denmark since the adoption of a new law in neighboring Sweden in 1985 giving the child a right to any information about the donor recorded in the medical files. The reasoning behind anonymity in donation was tied to the purpose of providing insemination as a fertility treatment. It was, however, also to reiterate an understanding that a child’s upbringing, and place in the family, ought to mirror what, at that time was considered, as normal and natural a way as possible (Herrmann, 2013). Making families as an argument was cemented as anonymity was enshrined in the first Danish Act on Artificial Reproduction in 1997.

Against this historical backdrop, making families has similarly been employed as a key sociotechnical imaginary as far as cryopreservation is concerned. The making of the nuclear family was key to arguments aimed at lengthening the Danish Act’s cryopreservation limit for eggs and embryos in 2006 to 5 years. This lengthening was aimed to allow couples enough time to come back and use stored eggs and embryos effectively in the creation of the nuclear family (Herrmann & Krøløkke, 2018). Similarly, the making of “own” families is, as we have shown, at the heart of interviews with Danish women and men who have deposited their reproductive cells or tissue. Meanwhile, although family formation has also been at the center of Norwegian practices and regulations, the concerns of technologies to be tamed have led to more rigid regulatory responses. We saw this, for

example, in the accounts detailing women traveling to Sweden for elective egg freezing (Chapter 3) as well as in the material with Norwegian men going to Denmark for sperm deposits (Chapter 2). It is noteworthy, however, to reckon that the Norwegian welfare state came into being two decades after neighboring Sweden and Denmark. As a result, in the case of Norway, collective and individual interests entangle very differently. Whereas the social welfare state has provided Scandinavian citizens with a foundation for individual autonomous reproductive desires and wishes to unfold, the state is also moralistic or moralizing, positioning assisted reproductive technologies, in this case cryo-technologies, to be tamed. Meanwhile, concerns related to gender equality and a deeper trust afforded to the medical scientific community characterize, as we have shown, the Swedish case. This is notably the case with freezing for non-medical reasons as well as in the case of fertility preservation for transmen, where Sweden has taken a more liberal approach by viewing cryo-technologies as enabling women as well as transmen the ability to preserve their reproductive cells (Chapters 3 and 5).

Theorizing the in-betweenness produced by cryopreservation we have, throughout the book, shown how cryo de- and re-stabilizes normative understandings of reproductive temporality as well as, at times, invigorates in particular Danish debates associated with Dr Frankenstein or the monstrous potentialities of new technologies. This was readily the case in Chapter 2, when ovarian tissue preservation becomes seen as a rescue technology enabling young women to fulfill their (rightful) desire for maternity while it, in the case of posthumous reproduction, produced concerns related to Dr Frankenstein's technologies. Meanwhile, our qualitative studies reveal how individuals themselves negotiate cryo-technologies to fit within quite normative understandings of reproductive citizenship including the reproduction of genetically "own" children. In Chapter 4, for example, women negotiated their cryopreserved embryos to fit within quite normative family kinship hierarchies conceptualized as siblings rather than a collection of cryopreserved reproductive cells. By imagining the technologies within a heteronormative symbolic order of kinship, family, and love, the technologies (and the concrete embryos) are domesticated and the dystopias of Dr. Frankenstein are bypassed. Clearly, cryopreservation produces, as we have shown throughout the book, suspense and moral drama. In transgressing boundaries between life and death, cryo-technologies engage in liminal politics. They are tamed, albeit differently, throughout the Scandinavian region. Whereas a domestic as well as international market in sperm, in Denmark, for example, naturalizes the ways that cryopreserved sperm moves transnationally, in the case of cryopreserving eggs for non-medical freezing, imaginaries of reproductive autonomy co-exist with cultural and political concerns related to the rightful timing of kinship as well as fertility preservation in relation to gender affirmation treatment.

The notion of cryopolitics has, throughout this book, assisted us in theorizing the political and regulatory attention in which reproduction, in the Scandinavian countries, finds itself. Because cryo-technological intervention is highly contextual and thus, intervenes differently, the concepts of liminality and temporality help to reveal the ways that the imaginaries of cryo-technologies are constantly negotiated and re-negotiated. While this is not surprising, of-course, in centering

Scandinavian repro-cryopolitics, we have prioritized particular cultural contexts. Notably, as we also revealed in our introductory chapter, the Scandinavian welfare states are redistributive and provide a wide range of benefits and services as citizens' entitlements with the aim of creating a more egalitarian society (Leira, 2002, p. 32). This includes, but is not limited to, paid parental leave, affordable childcare centers, child support to single parents or lower-income families as well as free education, healthcare and financial provision for students, pensioners and the unemployed. The welfare state is thus based on a fundamental contract of mutual financial support between the different generations organized through a system of redistributive taxation; grand-parents have paid for education, childcare and healthcare for their children who in turn support them in retirement through the world's highest taxes. Cryopreservation potentially disrupts this generational temporality. Such disruptions are understood as monstrous. As noted by Cooper (2008), in the welfare state, women must dutifully manage their reproductive abilities in order to reproduce not only the family but, in fact, the nation. This logic is similarly apparent in how generational temporality and reproductive order entangle in the welfare state. Domesticating the technologies, thus, includes reframing and re-ordering repro-cryopolitics within the generational contract, the family and the structural gendered order of heteronormativity.

2. Final Thoughts on Methodology

To acknowledge the differences amongst the Scandinavian welfare states as well as the complexity of our empirical material, we briefly expand upon our comparative method (Jasanoff & Metzler, 2018). As noted by Jasanoff and Metzler (2018, p. 7) in what they develop as "comparative problematization," engaging a comparative method furthers analyses of the ways that technologies and technological practices emerge as well as become contested:

This approach presumes that nation-specific imaginaries of ordered state-society relations (alternative constitutionalisms) come most sharply into view when the matter in question is not simply how to apply extant rules to a novel constellation of facts but to determine whether rules are needed at all and, if so, which ones apply in the particular context. (Jasanoff & Metzler, 2018, p. 7)

Similarly to Jasanoff and Metzler's (2018) goal of comparing different rules and practices related to reproductive matter, we have prioritized the ways that cryotechnologies produce different legal, commercial, and ethical responses within the Scandinavian countries. Yet, unlike their approach, we have, throughout this book, gone beyond state-society relations and prioritized ethnographic and large interview accounts that detail cryogenic user accounts which help reveal the juxtaposition between more official or macro-level concerns like those found in the legal regulations and, at times, articulated by different ethical councils related

to cryo-technologies, compared to the ways that cryogenic agents make sense of cryo-technologies as promissory technologies of future genetic kinship.

Accordingly, we have methodologically followed how different imaginaries concerning family formation emerge and effectively, at times, reconfigure, circulate and shape the everyday practices and legal regulation of fertility preservation. The comparative approach has, in this regard, been useful. It enables analysis of how imaginaries emerge and change as technologies and practices develop as well as how they inform what becomes seen as desirable or even prohibited. The shared focus on imaginaries has provided us with the ability to engage in analytical incisions, centering how collective imaginaries become entangled in norms, cryo-technologies, regulations and ethical debates.

Clearly, sociotechnical imaginaries circulate across different empirical arenas from the development of regulations, ethical and political debates to the practices involved in the medical freezing of gametes and tissue. In her own work, Jasanoff centers empirical material such as legislation and political debates, which would typically be perceived to be macro-level. Throughout this book, we have sought to illustrate what can be gained by pushing the conceptual use of the term *sociotechnical imaginaries* to also include analysis of imaginaries at what might be referred to as the micro-level. While cryo-technologies are indeed regulated at the macro-level of the state and markets, they also, in very physical and concrete ways, entangle with bodies that freeze as well as those who have bodily material stored.

In our choice to center different forms of cryogenic agency, a focus on this micro-level is necessary for other reasons as well. Not only does it help reveal how three similar welfare states end up developing very different policies and practices over time, but it also tells us something about how the users of cryo-technologies experience and think about these techniques. Furthermore, this approach speaks to our initial interdisciplinary methodology. We believe that competencies in law, ethics, sociology, cultural studies, feminist studies, and STS are all necessary in order to get a fuller understanding of what is at stake as cryo-technologies of human gametes and tissue are developed and implemented in, for our purposes, the Scandinavian welfare states. This is also why we have methodologically included and ourselves produced very different empirical material such as interviews with women and men that have cryopreserved and stored eggs, sperm, embryos, and ovarian tissue, legal briefs, media debates, reports from ethical councils, commercial material, webpages and more. In this manner, our interdisciplinary contribution goes beyond the specific analytical incisions of disease, delay, death, and disturb. In elaborating on Jasanoff's notion of sociotechnical imaginaries as unfolding at both the macro- and the micro-level, we broaden the scope of this methodology and reveal the importance of micro-level perspectives on cryo-technologies.

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Appendix: Empirical Work

In this appendix, we describe in more detail the empirical studies and sources upon which the analyses in this book are based. While the empirical data transcend several disciplines and research fields, we commonly rely on what can be conceptualized as more interpretative approaches. This means looking into how meaning is produced and negotiated in, for example, legal documents, white papers from national parliaments as well as advisory ethical councils and news media. Additionally, the book features new qualitative studies centering the accounts the people who cryopreserve their reproductive materials as well as ethnographic observations in different clinical settings in Denmark. The following sections specify the approach, within the different strands of empirical research, while a more overall discussion of the value of interdisciplinary analysis can be found in the introduction and the conclusion of the book.

1. Empirical Work and the Legal Dogmatic Method

In the case of our legal analyses, we employ a legal dogmatic method to identify the relevant legal sources that regulate the freezing and use of reproductive cells (identification of the legal Acts and regulation which apply to the facts before us). In the case of Denmark Bills, Acts, preparatory comments, Ministerial Orders, and guidelines have been identified by use of the official databases for legal resources www.retsinformation.dk and www.folketinget.dk. Public consultation documents; that is, early versions of Bills and public consultation responses can be accessed via <https://hoeringsportalen.dk/>. White papers have been accessed via <https://www.foxylex.dk/betaenkninger/> or in their printed book form. Bills, Parliamentary readings, and adopted Acts dating from before digitalization have been accessed via the printed publication *Folketingets Forhandlinger*. We have been granted access to unpublished parliamentary documents through a visit to the archives of the Library of the Danish Parliament. Judgments are not published in an official database; all Supreme Court judgments and a selection of High Court judgments are published in the weekly law journal *Ugeskrift for Retsvæsen*. Judgments from local city courts are not published. We have been granted access to a number of relevant unpublished judgments; possible bias in this respect is that we have relied on media coverage and professional networks to make us aware of relevant cases before the Courts. Likewise, decisions and public administrative files that are not publicly available have only been accessed in so far as we have been aware of their existence and granted access to them under freedom of information decisions.

Norwegian legal sources have been identified through the databases <https://www.retsdata.no/> and <https://lovdata.no/pro> with the latter being the publication channel for all Norwegian Supreme Court and High Court judgments but only some local city courts judgments.

Swedish parliamentary documents, Bills, and Acts have been accessed via the official databases <https://www.riksdagen.se/sv/Dokument-Lagar/> and <https://lagrummet.se/>. Not all judgments are published, but those that are can be accessed via <https://pro.karnovgroup.se/>.

One of the most widespread methods in comparative law methodology is functionalism which focuses on the ways in which different legal systems resolve the same legal problem (Zweigert & Kötz, 1998). However, there is an inherent potential for sample bias when conducting comparative legal analyses or identifying the law and administrative practices of a foreign legal system. In the words of Geertz (1983, p. 216)

a comparative approach to law becomes an attempt to formulate the presuppositions, preoccupations, and the frames of action, characteristic of one sort of legal sensibility in terms of those characteristics of another. Comparative law should ideally not only be based on the law in books but also on the law in action.

Despite, being a relatively homogenous region with legal systems that belong to the same legal family, there is none the less the potential for sample bias in that a legal scholar from a different jurisdiction will only reach the “law in the books” level and not the “law in action” level. Herrmann has been responsible for the legal contributions assisted by law students Stephanie Nazalee Lynn-Atife and Laura Danielsen.

2. Empirical Work in Applied Ethics

When we identify, systematize and reconstruct the ethical attitudes and arguments, that can be found in many of the imaginaries concerning cryopreservation, we collect material from a wide variety of sources:

First, we identify and, for example, critically discuss attitudes and ethical arguments that are based on the reports of the national ethical councils in Denmark, Sweden, and Norway, that has to do with assisted reproduction and cryopreservation. Our focus for these councils is narrowed down to the period 1995 until the time of writing, primarily because little easily accessible and internet based material exists before 1995. Assess to the Danish reports that have been used in this book is from the following website: <http://www.etiskraad.dk/>. Although some of the reports from the Danish Council on Ethics is translated into English (<http://www.etiskraad.dk/english>), unfortunately none of the reports that deals with the ethical attitudes and arguments that we present and discuss in this book are translated. From Norway we have used material from The Norwegian Biotechnology Advisory Board (<http://www.bioteknologiradet.no/temaer/assistert-befruktning/>), again little material has been translated into English and those reports that have been translated, are of no direct interest for our work on this book (<http://www.bioteknologiradet.no/temaer/assistert-befruktning/>). Material from Sweden is based on reports from

the Swedish National Council on Medical ethics (<http://www.smer.se/>), again little material has been translated into English and those reports which have been translated are of no direct interest to our book (<http://www.bioteknologiradet.no/temaer/assisteret-befruktning/>). Second, some of our discussion on different imaginaries are based on our own empirical studies concerning, for example, attitudes on maternal age or social freezing. Third, we have taken into account research literature within applied ethics and bioethics. We have here used the database Philosopher's Index and Google Scholar — our keywords/phrases have, for example, been “ethics and money/markets,” “ethics and social freezing,” and “ethics and older mothers.” Finally, we have made use of attitudes and arguments in the public debate. The material from the public debate, is in no way representative, but we have often used it as cases in order to make an illustration of ways in which one can imagine cryopreservation.

Moreover, in critically analyzing the moral values and moral principles embedded in the sociotechnical imaginaries on cryopreservation, in the analysis of ethical documents, Petersen and Hansen have relied on John Rawls' methodology called “reflective equilibrium” (Daniels, 2011; Petersen, 2016; Rawls, 1999). This methodology says we have a reason to accept moral intuitions and moral principles if they enter into a coherent system with each other and relevant background theories – theories which in the context of this book include research from, for example, applied ethics, cultural studies, medical science, law, sociology, and economics. In taking this approach, Petersen and Hansen have worked to create coherence or equilibrium between (i) general normative principles, (ii) considered moral intuitions, and (iii) the relevant background theories

3. The Qualitative Studies

The book draws on empirical data from three comprehensive qualitative studies on respectively sperm depositing (Chapters 2 and 4), embryo storage (Chapter 4), and the cryopreservation of ovarian tissue (Chapter 2).

3.1. Sperm Deposits and Banking

The sperm deposit study was conducted by Adrian between November 2018 and February 2019. Through a newsletter sent to 770 sperm deponents by Cryos International, Adrian conducted interviews with 30 deponents. The focus of the interviews was an inquiry to why men deposit sperm, the deponents' reflections of having sperm stored, and the practices of establishing the deposits. The interview took between 20 minutes and 120 minutes. Most of them were conducted through phone or Skype, while six interviews took place either at Adrian's office or the deponent's workplace. Data collection and storage were approved by the Danish Data Protection Service through Aalborg University. All the interviewees have been anonymized through the application of new names. Moreover, Adrian has conducted observation of the preservation of testicular tissue at the Laboratory of Reproductive Biology in Copenhagen.

The sperm deposit study followed two ethnographic studies that partly took place at Cryos International. Both of these studies have implicitly been used not the least in chapter 1. They were carried out by Adrian between 2002–2003 and 2011–2013. While the first study was on Danish and Swedish fertility clinics and sperm banks, the latter focused on sperm banks and fertility traveling to Denmark. Both studies were multi-sited ethnographic studies (Adrian, 2006, 2010, 2016, 2019; Adrian & Kroløkke, 2018).

3.2. Embryo Storage

The study about women's storage of cryopreserved embryos was conducted by Nebeling Petersen. Eleven women in the age group from 28 to 42 were interviewed during the summer of 2018 in urban areas in Denmark. All interviewees had cryopreserved embryos stored as surplus embryos from fertility treatments that, at the time of the interview, had ended. All but one interviewee had one or more children. The interviewees were recruited through a call on social network platforms (Facebook and Twitter), which was posted on fertility clinics' Facebook pages and within Facebook groups for and by people in fertility treatments. The interviews were all conducted in the homes of the interviewees and lasted between 25 and 55 minutes. All interviews were conducted as semi-structured interviews, followed the same interview guide and have been anonymized through the application of new names.

3.3. Ovarian Tissue Freezing

The study on ovarian tissue freezing involves a multi-sited ethnographic study conducted by Bach and Kroløkke combining observations in clinics, laboratories and at scientific events, document analysis and qualitative interviews. Both Bach and Kroløkke have done ethnographic fieldwork at the Laboratory of Reproductive Biology in Copenhagen, including interviews with the research staff, and participated at international scientific conferences on fertility preservation in respectively Switzerland and Austria.

This empirical study further includes document analysis of patient information provided by the Danish hospitals online as well as in paper handouts. In Chapter 2, we also draw on an archive of biomedical scientific articles on ovarian tissue freezing. The archive comprises 89 medical on autotransplantation of cryopreserved human ovarian tissue, including 15 articles with Danish scientists on the list of contributors. This collection departs in a reference list provided in November 2017 by medical student Sofie Elise Gjellert who in relation to research done at the Laboratory for Reproductive Biology in Copenhagen conducted a search in PubMed for all article between 2000 and 2017 on autotransplantation of cryopreserved human ovarian tissue. To these articles have been added a number of more recent medical articles concerning the use of frozen ovarian tissue specifically as menopause treatment as well as concerning other aspects relevant to the discussions in this book, such as more general discussions of fertility preservation strategies.

The patient interviews centered in this book were conducted by Bach in 2017–2018 in Denmark. All of the interviewees had ovarian tissue cryopreserved in relation to being treated for serious disease; the majority had cancer. Thirty one of the interviewees had had tissue transplanted, and ten had only tissue preserved. The interviewees were aged between 22 and 52 at the time of the interview and had been between 15 and 41 years old when they had ovarian tissue preserved. The interviewees were recruited through Danish cancer patient organizations ($N = 11$) and through the national registry at The Laboratory of Reproductive Biology at the General Hospital in Copenhagen where all tissue is stored in Denmark. Letters were sent out to all transplanted patients in the register ($N = 92$) after permission had been obtained from the Danish Patient Security Authority (interviews = 30). The semi-structured interviews lasted between 90 minutes and three hours. Written informed consent was obtained from all participants. Data collection and storage were approved by the Danish Data Protection Service through the University of Southern Denmark. Ethics Committee approval is not required in Denmark for voluntary qualitative studies. All of the interviewees have been given new names and due to the limited number of patients in Denmark, biographical specifics have been blurred in order to protect their anonymity.

4. The Danish Survey on Fertility Preservation

The survey of Danish students was conducted in 2019 at three Danish higher education institutions located in two of the larger Danish cities (Copenhagen and Odense) by Kroløkke and with the research assistance offered by Caroline Wraa Rasmussen as well as in collaboration with Israeli collaborators Yael Hashiloni-Dolev and Amit Kaplan. The survey resulted in a total of 508 student responses consisting of 125 medical students, 20 economics students, 35 law students, 65 social science students, 45 computer science students, 9 business students, 99 engineering students, and 102 humanities students. Over half of the students (55.7%) were female and the majority of the students were between 21 and 27 years of age. Students were given the survey in class and asked about their attitudes related to fertility preservation for medical as well as non-medical reasons. While the survey predominantly focused on women's ability to freeze their reproductive cells, it also asked more general questions related to fertility preservation in the wider context, including the welfare state's involvement, if any, and provided the students with a qualitative component where they were able to write their opinions. Notably, student responses to the following two questions have been included in this book: (1) Think of a 30-years old woman with no children. The state offers her to fund egg freezing as a way to preserve fertility. What do you think of the offer? (2) Think of a 30-years old woman with no children, working full-time in a large corporate firm. Her employer offers her to fund egg freezing as a way to preserve fertility. What do you think of the offer? Thus, while the survey granted us an overview of students' attitudes toward cryopreservation, included in this book, is the more qualitative responses to these two questions. All responses were anonymized yet age and study background were included to help contextualize the responses.

5. Other Empirical Materials

Throughout the book, we include a diverse range of news media sources, medical articles and marketing materials selected to provide illustrative examples and provide our arguments with empirical evidence. In this section, we briefly reflect on these materials and their limitations.

Chapters 2 and 3 rely additionally on marketing material from a diverse range of fertility clinics in the Scandinavian countries as well as the international company Legacy which markets sperm deposits for an international market, including to Scandinavian men who wish to establish a deposit in a private context. The marketing material has been accessed through the websites of the clinics available to the public. Yet, these analyses do not rely on an exhaustive study of all available clinical sites.

In the section of Chapter 5 on fertility preservation in relation to transgender treatment, we draw on a wide selection of materials concerning fertility preservation in transgender individuals in the Scandinavian context as well as in the international debates, including national white papers and clinical guidelines as already accounted for in the above section on legal dogmatic method. The section draws on medical articles on the topic and news media accounts. Yet, as transgender fertility preservation primarily serves as an example among others to illustrate how cryotechnologies come to disturb social categorizations and medico-legal demarcations, a systematic review of news media accounts or biomedical articles has not been conducted and thus, the data gathering process cannot be regarded as an exhausted analysis. Overall, the topic of fertility preservation in transgender individuals calls for more thorough social scientific inquiry.

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Abstract

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Authors Charlotte Kroløkke, University of Southern Denmark, and Janne Rothmar Herrmann, Copenhagen University of Copenhagen.

Title “Regulating Kinship. Feminist Legal Rhetoric as an Analytical Framework and Its Potential to Identify the Law’s Performative Effects” [“Slægtskabsreguleringer. Feministisk retsretorik som analyseramme og dens potentiale for at identificere lovens performative effekter”].

Abstract Involuntary childlessness is a well-known phenomenon, and in Denmark, every twelfth child is born through the use of assisted reproduction. Denmark is currently positioned as one of the key global actors both as far as the use of in-vitro fertilization (IVF) is concerned as well as within the global market in sperm and reproductive technologies. In this article, the authors develop a feminist legal rhetorical framework to discuss how the Danish law and ethical guidelines on adoption and assisted reproduction rhetorically produce different master plots on “natural,” “artificial,” and “monstrous” forms of kinship. The authors conclude with a discussion of the potential that a feminist legal rhetorical framework holds, including its ability to analyze how rhetorical figures and metaphors legitimize certain types of kinship as well as the ability to raise new and provocative questions related to gender equality within the law.

Keywords feminist legal rhetoric, assisted reproductive technologies, reproductive law, critical adoption studies, feminist rhetoric.

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Charlotte Kroløkke og Janne Rothmar Herrmann:

Slægtskabsreguleringer

Feministisk retsretorik som analyseramme og dens potentiale for at identificere lovens performative effekter

Ufrivillig barnløshed er et efterhånden velkendt fænomen og i Danmark bliver hvert tolvte barn i dag født ved hjælp af assisteret reproduktion. Danmark indtager i dag en nøgleposition både, hvad angår antallet af børn, der fødes efter et besøg på en fertilitetsklinik, og som aktør på det globale marked i sæd og reproduktive teknologier. I artiklen udvikler forfatterne en feministisk retsretorisk analyseramme og belyser, hvordan det danske lovmateriale om adoption og assisteret reproduktion samt Det Etske Råds redegørelser konstruerer meget forskellige rammefortællinger om "naturlige", "kunstige" og "monstrøse" måder at få børn på. Afslutningsvis diskuterer forfatterne den feministiske retsretoriske analyserammes potentiale herunder dens evne til at kunne fremanalysere retoriske figurer og metaforer, der (il)legitimerer bestemte typer af slægtskaber, samt dens mulighed for at forholde sig til kønsligestilling i loven.

Med overskrifter som "Kunstig befrugtning bliver betalt af staten, mens adoption koster forældrene 200.000"¹ og appeller til følelserne som "Hjælp et barn til et bedre liv i Danmark"² er måder at få børn på blevet et omdiskuteret emne. Hvor adoption længe har været reguleret af staten, er regu-

1 Larsen, Pelle. Medlem af Etsk Råd: Adoptivforældre bliver forskelsbehandlet. 20.03.2014. Hentet fra: <https://jyllands-posten.dk/indland/article6575526.ece>

2 Kommentar fra Thomas Ploug tidligere medlem af etisk råd gengivet i artiklen: Medlem af Etsk Råd: Adoptivforældre bliver forskelsbehandlet. 20.03.2014. Hentet fra: <https://jyllands-posten.dk/indland/article6575526.ece>

leringen af assisteret reproduktion af noget nyere dato. Begge måder at danne familie på har dog i lige stor målestok påkaldt sig lovgivningsmæssig interesse. I artiklen udvikler vi en feministisk retsretorisk analyseramme til belysning af denne lovgivning og stiller spørgsmålene: Hvilke fortællinger om biologi og slægtskab italesættes i det danske lovgivningsmateriale og i Det Etske Råds redegørelser om assisteret reproduktion og adoption samt hvilke retoriske forestillinger om det ”naturlige,” det ”kunstige” og det ”monstrøse” producerer de?

Formålet med artiklen er dobbelt: Vi ønsker at udvikle en tværfaglig retorisk og juridisk analyseramme – en udvidelse af det retsretoriske felt – samtidig med, at vi illustrerer analyserammens potentiale ved at anvende den på udvalgt lovmateriale. Helt grundlæggende anskuer vi lovmaterialet og redegørelserne fra Det Etske Råd som retoriske rammefortællinger.³ Bjerggaard Nielsen definerer den retoriske rammefortælling på baggrund af Walter Fishers teori om det narrative paradigme.⁴ Rammefortællingen er, siger han, ”dét masterplot, der i en given tekst indtager en styrende rolle”.⁵ Hvor Bjerggaard Nielsen kort eksemplificerer tilgangen i en analyse af Rachel Carsons debatbog *Silent Spring* fra 1962, overfører vi begrebet på udvalgt lovmateriale og redegørelser. Vi beskæftiger os derfor både med loven og dens forforståelser såvel som med de retoriske figurer og strategier, der er med til at producere lovens mening og ”ånd”. Jura og retorik er, argumenterer James Boyd White, tæt forbundet. Som White argumenterer vi for, at love og nationale forfatninger kan ses som et sæt retoriske tekster, der etablerer ”a set of speakers, roles, topics or occasions for speech”.⁶ Juraen og retorikken er på den måde kulturbærende såvel som kulturskabende.

Vi indleder artiklen med en udvikling af feministisk retsretorik og viser dernæst dens anvendelse på dansk adoptionslovgivning og assisteret reproduktionslovgivning fra de kongelige adoptionsbevillinger i 1815 til i dag. Vi anskuer lovgivningen som biopolitisk forstået som statens måde at regulere bestemte typer af relationer og slægtskaber på. For at få indsigt i de forforståelser, som lovgivningsarbejdet bygger på, bruger vi de kilder, som jurister under anvendelse af den juridiske metode bruger for at fastslå hvad gældende ret er på området (love, lovforslag med tilhørende bemærkninger og betænkninger), men vi har også valgt at inddrage tre redegørelser fra Det Etske Råd. Det Etske Råd er interessant, fordi det blev grundlagt med det specifikke formål at rådgive Folketinget samt bidrage til debat om nye bio- og genteknologier.⁷ I artiklen sætter vi fokus på tre redegørelser (fra henholdsvis

3 Bjerggaard Nielsen, Esben. ”Den retoriske rammefortælling. Det styrende masterplot i funktionelt orienteret narrativ kritik,” *Rhetorica Scandinavica* 74 (2017), 72-91.

4 Bjerggaard Nielsen, ”Den retoriske rammefortælling,” 72-91.

5 Bjerggaard Nielsen, ”Den retoriske rammefortælling,” 73.

6 White, James Boyd, ”Law as Rhetoric, Rhetoric as Law: The Art of Cultural and Communal Life,” *The University of Chicago Law Review* 52 (1985), 684-702.

7 Det Etske Råd blev grundlagt i 1987. Rådets arbejde er blandt andet tydeliggjort på hjemmesiden <http://www.etiskraad.dk/>

1995,⁸ 2001⁹ og 2004¹⁰), fordi de knytter sig til efterfølgende lovændringer og dermed udgør de første overvejelser om emner, som Folketinget efterfølgende har taget stilling til. Rådets redegørelser giver sjældent enstemmige anbefalinger til Folketinget, men allerede i rammesætning og sprogbrug udstikkes nogle bestemte forståelser og betegnelser, der får betydning for forståelsen af de underliggende forhold.¹¹ Samlet ønsker vi at illustrere, hvordan dansk lovgivning og de etiske debatter om adoption og assisteret reproduktion producerer bestemte forståelser af ”naturlige” (gode), ”kunstige” (problematisk) og ”monstrøse” (dårlige) former for slægtskab.

Udviklingen af en feministisk retsretorisk analyseramme

Artiklen henter sit teoretiske og analytiske ståsted fra feministisk videnskab og i mødet mellem feministisk retsteori og retorik.¹² Feministisk retsvidenskab muliggør et kritisk syn på retten, der tager udgangspunkt i køn¹³ og kan derfor placeres i den bredere kritiske retsvidenskab, hvor de værdier, som retten baserer sig på og udtrykker, synliggøres og analyseres.¹⁴ Feministisk retsvidenskab stiller i forlængelse heraf spørgsmålstejn ved de mest grundlæggende udgangspunkter for forståelsen af retssystemet og fremanalyserer, hvordan retten legitimeres, og hvilken funktion og relation retten har til mennesker.¹⁵ Tilsvarende argumenterede den tidlige feministisk retoriske forskning for at indlemme kvinders kommunikationsformer og –måder i

8 1995-redegørelsen var i høj grad grundlaget for den første lov om kunstig befrugtning fra 1997.

9 Nogle af 2001-redegørelsens overvejelser blev medtaget i dette efterfølgende lovforslag http://webarkiv.ft.dk/samling/20031/lovforslag_som_fremsat/1187.htm

10 2004-redegørelsen ledte op til lempelsen af ægdonationsreglerne <http://www.ft.dk/samling/20051/lovforslag/1151/index.htm>

11 At det retlige sprog har betydning for forståelsen af de underliggende forhold påvises også af Petersen, Frank Høgholm, ”Det retlige sprog som virkelighedsskabende – graviditetsvært kontra surrogatmoder”, *Tidsskrift for Familie- og Arveret* (2018) 1, 2-10.

12 Condit, Celeste Michelle, *Decoding Abortion Rhetoric, Communicating Change* (Urbana and Chicago: University of Illinois Press, 1990); Condit, Celeste Michelle, *The Meanings of the Gene. Public Debates about Human Heredity* (Madison: University of Wisconsin Press, 1999a); Condit, Celeste Michelle, ”Crafting Virtue: The Rhetorical Construction of Public Morality,” i *Contemporary Rhetorical Theory: A Reader*, red. by Lucaites, Condit, Caudill (New York: The Guilford Press, 1999b), 240f. Mary M. Lay, Laura J. Gurak, Clare Gravon, and Cynthia Myntti, ”Introduction: The Rhetoric of Reproductive Technologies” i *Body Talk. Rhetoric, Technology, Reproduction* red. Lay, Gurak, Gravon og Myntti (Madison: University of Wisconsin Press, 2000), 308f.; Eva-Maria Svensson, *Genusforskning inom juridiken*. (Stockholm: Högskolaverket, 2001). https://www.kultur.gu.se/digitalAssets/835/835965_genusjuridik.pdf (downloadet 2018.02.14); Briggs, Laura, *How all Politics Became Reproductive Politics. From Welfare Reform to Foreclosure to Trump* (University of California Press, 2017).

13 Svensson, Eva-Maria, *Genusforskning inom juridiken*. (Stockholm: Högskolaverket, 2001) https://www.kultur.gu.se/digitalAssets/835/835965_genusjuridik.pdf (downloaded 02.17.2018).

14 Ketscher, Kirsten, ”Mod en argumentativ ret,” *Jussens Venner* 5-6 (2000), 272-87.

15 Svensson, *Genusforskning inom juridiken*, 12

den retoriske tradition.¹⁶ På den måde ser feministisk retsteori og feministisk retorik et potentiale i at udfordre såvel som ændre de værdier eller magtstrukturer som både retten og retorikken hviler på. I dette afsnit skitserer vi først kort den eksisterende kønsforskning, der kobler køn og slægtskab i en dansk kontekst, for dernæst at udvikle en feministisk retsretorisk analyseramme.

Kønsforskere har allerede vist, hvordan de danske politiske debatter om reproduktive teknologier re-installerer heteronormative fortællinger om det gode, naturlige forældreskab.¹⁷ For eksempel tydeliggør Mette Bryld og Nina Lykke, at reproduktive teknologier udfordrer fortællingen om den ”naturlige” familie. Tilsvarende viser Michael Nebeling Petersen i en diskursanalyse af Folketingets forhandlinger om assisteret reproduktion i 2006, hvordan lesbiske og enlige kvinders adgang til assisteret reproduktion bliver sat i scene gennem en ansvarligheds-, en rettigheds- og en liberalistisk diskurs. I en analyse af den skandinaviske velfærdsstat illustrerer Christel Stormhøj, hvordan hetero-forældreskaber bliver legitimeret og siger: ”The heterosexual norm becomes increasingly precarious, when challenged by transformative forces in- and outside the scientific field in the late modern period”.¹⁸ Vi bygger ovenpå den eksisterende kønsforskning samtidig med, at vi udvider det empiriske felt til at rumme lovgivninger, debatter og materiale fra Det Etske Råd om både adoption og assisteret reproduktion.

Kritiske slægtskabsstudier fungerer endvidere i artiklen som et teoretisk bagvedliggende tæppe. I antologien *Critical Kinship Studies* anskuer forfatterne adoption og assisteret reproduktion som et sæt reproduktive teknologier, der med det samlede formål at skabe forældre, ofte (re)producerer kulturelle værdier, slægtskabsøkonomier og globale uligheder.¹⁹ Den nordamerikanske kritiske adoptionsforsker Laura Briggs understøtter det perspektiv. Ifølge Briggs er den velkendte adoptionsrammefortælling ”Hjælp et forældreløst barn” fremtrædende i vestlige forståelser af transnational adoption.²⁰ Ikke alene er rammefortællingen ofte decideret forkert, argumenterer Briggs, men den reproducerer en hierarkiseret virkelighed, hvor første verdenen (de hvide kommende forældre) helt modigt redder de, i

16 Kroløkke, Charlotte og Karen Foss, ”Sørg hellere for en solid tremmeseng, Feministiske udfordringer til retorikken, *Rhetorica Scandinavica* 42 (2007), 4-19; Karlyn Kohrs Campbell, ”The Rhetoric of Women’s Liberation: An Oxymoron” i *Contemporary Rhetorical Theory. A Reader* edited by Lucaites, Condit, Gaudill. (New York & London: The Guildford Press, 1999).

17 Condit, *Decoding Abortion Rhetoric*, Lay et al., *Body Talk*, Bryld, Mette & Nina Lykke, ”Cyborgbabyer og den politiske debat om ’det naturlige’ i G. Balling (eds.). *Homo sapiens 2.0* (pp. 195-215). København: Gads forlag, Petersen, Michael Nebeling, ”Fra barnets tarv til ligestilling. En queerteoretisk undersøgelse af Folketingets forhandlinger om kunstig befrugtning”, *Kvinder, køn & forskning* 2, 2009, 30-42, Petersen, Michael Nebeling, *Somewhere, over the rainbow. Biopolitiske konfigurationer af den homoseksuelle figur*. Ph.d. afhandling, 2012, Stormhøj, Christel, ”Queering the family. Critical reflections on state-regulated heteronormativity in the Scandinavian countries”. *Landa Nordica*, 1-2, 38-56.

18 Stormhøj, ”Queering the family”, 39.

19 Kroløkke et al., *Critical Kinship Studies*.

20 Briggs, *Somebody’s Children*.

fortællingen, ”stakkels” (og ofte brune) tredjeverdens børn. Lene Myong og Michael Nebeling Petersen deler den kritik, når de dekonstruerer transnational adoption som ”indlysende” til barnets bedste.²¹ Også den kritiske reproduktionsforskning har haft fokus på, hvordan slægtskab er til forhandling og bliver naturliggjort. Kroløkke og Hvidtfeldt Madsen bruger respektabilitet som retorisk begreb til at indfange mødet mellem intenderede forældre, økonomi, marked, teknologi, rugemødre og børn,²² mens Markens skitserer konkurrerende retoriske rammefortællinger forbundet med rugemoderskab i USA.²³ Samlet set indskriver kritiske slægtskabsstudier derfor den feministiske retsretoriske analyse i en bredere social orden.

I denne kontekst argumenterer vi for, at feministisk retorik kan fungere som en kritisk analytisk linse. Vi placerer således reproduktion indenfor retorikkens faglige rammer.²⁴ Den feministiske retoriker Celeste Condit understreger netop værdien af at analysere reproduktionsspørgsmål retorisk, når hun i analyser af abortretorik i USA viser, hvordan retoriske figurer og metaforer producerer forskellige (og ofte kontrasterende) forståelser af fostret (som celler og som liv) såvel som divergerende tilgange til kvindens krop og hendes reproduktive rettigheder (eller manglen på samme).²⁵ Med et tilsvarende sæt af retoriske værktøjer fremanalyserer Kroløkke og Hvidtfeldt Madsen fem forskellige retoriske figurer om den hvide, vestlige fertilitetsrejsende og surrogatmoderskab: Den fertilitetsrejsende som patient, helt, turist, forbruger eller skurk.²⁶ Kroløkke og Hvidtfeldt Madsen viser, hvordan hver enkelt figur trækker på bestemte retoriske strategier og konstituerer forskellige problem- og løsningsstrategier.²⁷ I en norsk kontekst, eksemplificerer Merethe Flatseth desuden metaforanalysens evne til at kunne udfolde, hvordan abort i norske stortingsdebatter bliver konstitueret som et etisk problem såvel som en etisk praksis.²⁸ Vi lægger os i forlængelse af denne feministiske retoriske forskning og argumenterer for, at retorikken med dens fokus på relationen mellem form og indhold samt fokus på stil er et produktivt analyseredskab til at forstå, hvordan fænomener som biologi, slægtskab samt det naturlige, det kunstige og det monstrøse bliver til og får retlig legitimitet. Disse forforståelser kan være medkonstituerende for det vi her vælger at kalde ’lovens ånd’ (dens mening og hensigt), ligesom man ved at kaste lys på metaforer og talefigurer, kan synliggøre de værdier, som retten baserer sig på, eller vise, at de rammefortællinger, der strukturerer lovgivningen, netop ikke altid er i over-

21 Myong, Lene og Michael Nebeling Pedersen, ”(U)levelige slægtskaber. En analyse af filmen Rosa Morena”, *K&K Kultur & Klasse* 113 (1) (2012), 119-132.

22 Kroløkke, Charlotte og Karen Hvidtfeldt Madsen, ”Også respektabel? Retoriske konstruktioner af fleksible (u)frugtbare kroppe”, *Rhetorica Scandinavica* 56 (2010), 31-48.

23 Markens, Susan, *Surrogate Motherhood and the Politics of Reproduction*. University of California Press, Berkeley. 2007.

24 Briggs, *How all Politics Became Reproductive Politics*.

25 Condit, *Decoding Abortion Rhetoric*.

26 Kroløkke og Hvidtfeldt Madsen, ”Også respektabel?”, 31-48.

27 Kroløkke & Hvidtfeldt Madsen, ”Også respektabel”, 31-48.

28 Flatseth, Merethe, *Førende forestillinger i Fosterpolitikken. En metafor- og diskursanalyse av abort og fosterdiagnostikk*, (Bergen: Universitetet i Bergen, 2009).

ensstemmelse med retssystemets mest grundlæggende normer om frihed og lighed.

Når vi vælger at udvikle en feministisk retsretorisk analyseramme, er det fordi, vi mener, at den både bidrager teoriudviklende og rammesætter lovgivningsmaterialet analytisk. Retsretorik er ikke en ny analytisk praksis men snarere en samlebetegnelse for et diffust felt,²⁹ der overvejende tager sigte på den praktiske retsanvendelse, dvs. som juridisk argumentationslære ved domsforhandling af juridiske sager. Retskilderne er i dette perspektiv, som den retoriske topik, steder, man kan argumentere ud fra med den forskel at retskilderne er en formel form for topik, hvorfra man *skal* hente belægget for sin argumentation.³⁰ Maria Louise Staffe peger således på, at *doxai* i retlig argumentation findes i to hovedformer, som formelle topoi (retsreglerne, der er nedfældede, kodificerede værdidomme i det samfund, hvor de er vedtaget) og som uformelle topoi (vage værdidomme og antagelser, som også findes i samfundet, og som ligesom de kodificerede retsregler er med til at præge argumentation og afgørelser).³¹ Jack M. Balkin bruger eksempelvis topikken som metodisk greb, der gør juristen klogere på selve det pågældende retsområde, fordi man ved at katalogisere retsområdets argumenttyper får udledt dets grundlæggende retlige figurer.³² Tilsvarende Balkin, bruger vi retorisk figur ikke i en traditionel og konventionel stilistisk forstand, der henviser til form uanset indhold. I stedet bliver begrebet anvendt som en trope eller et narrativt undertema. Til forskel fra en traditionel retsretorisk analyse, der kan vise, hvilke retoriske virkemidler, der kan være medafgørende for udfaldet af en domsforhandling,³³ eller en katalogisering af et retsområdes argumenter som metodisk greb til at forstå selve retsområdet, så kan denne tilgang 1) synliggøre de forforståelser, som retskildematerialet baserer sig på og belyse, hvordan lovgivningen legitimerer sig, 2) vise de retoriske strategiers kommunikative og performative effekter³⁴ – altså hvordan regulering af måder at få børn på retorisk skaber bestemte slægtsskabsfortællinger samt normative rammer om (il)legitime slægtskaber – samt 3) forholde sig til ligebehandling i loven.

Med udgangspunkt i den retoriske rammefortælling som begreb,³⁵ vil en feministisk retsretorisk analyse ikke alene kunne skitsere lovgivningens mest fremtrædende masterplots, men også påvise, hvordan den overordnede fortælling strukturerer kønnede, seksualiserede, nationale og racialiserede fortællinger. Vi vender os derfor nu mod lovstoffet og redegørelserne fra Det Ethiske Råd. Vi forholder os

29 Gabrielsen, Jonas, "Rationaler og potentialer i moderne retsretorik. En kortlægning af feltet", *Rhetorica Scandinavica* (75) (2017), 55

30 Staffe, Maria L., *Retsretorik* (København: Karnow Group 2008), 49.

31 Staffe, *Retsretorik*.

32 Balkin, J.M., "A Night in the Topics: The Reason of Legal Rhetoric and the Rhetoric of Legal Reason," i *Law's Stories. Narrative and Rhetoric in the Law*, red. Peter Brooks og Poul Gewirtz (New Haven: Yale University Press, 1996), 211 og Gabrielsen, "Rationaler og potentialer i moderne retsretorik", 61

33 Staffe, *Retsretorik*.

34 Berg, Kristine Marie & Sine Nørholm Just, "Når kultur sættes til debat—argumenter for et diskursivt kulturperspektiv i retorisk kritik", *Rhetorica Scandinavica* 69, 2015, 42.

35 Bjerregaard Nielsen, "Den retoriske rammefortælling", 72-91.

delvist kronologisk til materialet og diskuterer først iscenesættelsen af ”kunstige” og ”ægte” biologiske slægtskaber i den første regulering af adoption for dernæst at vise, hvordan nyere redegørelser fra Det Ethiske Råd rammesætter den reproduktive teknologi som potentiel ”monstrøs”, mens adoption undslipper sig den teknologiske rammefortælling og i stedet bliver etableret som ”humanitære slægtskaber”. I det sidste analyseafsnit vender vi os mod vederlag og værdighed og diskuterer her, hvordan monstrøsitet nu ikke i samme grad knytter sig til reproduktive teknologier, men i høj grad klistrer til økonomiske transaktioner.

Kunstige slægtsforhold og ægte (biologisk og genetisk) slægtskab

Hvor reproduktive teknologier er af forholdsvis nyere dato, har adoption en noget længere historie. Vi præsenterer derfor kort lidt baggrundsmateriale inden, at vi fremanalyserer den tidlige italesættelse af (fremmed)adoption. Før kongelig resolution af 13. december 1815 skete adoptioner gennem kongelige bevillinger på baggrund af kongelovens artikel 3, der gav kongen uindskrænket lovgivningsmagt. Adoption var imidlertid blevet så udbredt, at man mente, der måtte en administrativ omlægning til. Med resolutionen af 1815 kunne kancelliet nu udfærdige bevillinger på egen hånd – forudsat, at adoptanten ikke havde livsarvinger i forvejen. Adoptionsbevillingen kunne således kun være en administrativ ”ekspeditionssag”, hvis adoptanten ikke havde en ”ægte” (defineret som biologisk) slægtning i nedstigende linje (barn, barnebarn, oldebarn). Ønskede man at adoptere, selvom man havde livsarvinger, var det altså en noget alvorligere sag, som krævede Kongens bevilling. Adoptionens almindelige retsvirkning var, at barnet fik stilling som adoptantens ægtebarn, medmindre der var taget særlige forbehold i bevillingen i forhold til arveret eller familienavn. Selv om bevillingspraksis i tidens løb udviklede sig på en sådan måde, at bevillingerne blev udfærdiget efter ganske bestemte retningslinjer, fandt lovgiver det utilfredsstillende, at et så vigtigt område af familieretten ikke var kodificeret og dermed tilgængeligt for offentligheden. Dette hang sammen med, at antallet af bevillinger var steget fra 5-10 bevillinger årligt i midten af 1800-tallet til 3-400 bevillinger årligt omkring 1900.³⁶

I 1913 afgav familieretskommissionen på grundlag af nordisk samarbejde sin betænkning om adoption. Betænkningen bestod i et lovudkast,³⁷ som den første adoptionslov (lov nr. 87 af 26. marts 1923 om adoption)³⁸ udtrykkeligt baserede sig på.³⁹ Lovens udgangspunkt (§ 15) var, at barnet fik status som adoptantens ”ægtebarn”, dog således, at der ikke skete nogen forandring i forholdet mellem adoptiv-

36 Frost, Lis, *Fremmedadoption. Retshistorisk belyst* (København: Jurist og Økonomforbundets Forlag, 2005), s. 3.

37 Udkast til Lov om Adoption med tilhørende Bemærkninger udarbejdet af den ved Kgl. Resolution af 25. juli 1910 og 19. juni 1912 nedsatte Kommission. København, J. H. Schultz a/s, 1913.

38 Optrykt i *Lovtidende* 1923 afdeling A1, s. 409-412.

39 Forslag til lov om adoption fremsat i Landstinget den 4. oktober 1922, Rigsdagstidende, tillæg A, samling 1922-23 I, spalte 2641-2652.

barnet og dets ”naturlige” (forstået på det tidspunkt som genetiske og biologiske) slægt, og at adoptionen ikke bevirkede nogen retlig familieforbindelse mellem den ene part og den andens ægtefælle eller slægtninge og heller ikke mellem adoptivbørn indbyrdes.

Det fastslås i disse bestemmelser, at adoptionens hovedvirkning er at etablere et ”ægtebarnsforhold” mellem barnet og adoptanten. Det fastslås udtrykkeligt, at bevillingens virkninger normalt er begrænset til forholdet mellem netop disse personer; den influerer hverken på forholdet mellem barnet og dets ”naturlige” slægt eller på barnets stilling til adoptantens slægt. Selvom § 8 fastsætter, at adoptionen skal være til gavn for den adopterede, så er det tydeligt, at et ligeså vigtigt fokus er adoptanten og adoptantens slægt (slægtsnavn og formuegoder), idet §§ 10, 13 og 14 gav mulighed for, at barnet ikke ligestilles i disse henseender. På det tidspunkt, hvor Familieretskommissionen afgav sin betænkning og frem til 1923-lovens ikrafttrædelse blev der konkret i 75% af bevillinger netop taget forbehold på det arveretlige område.⁴⁰ Synspunktet, at formuer burde blive i det, der fremstår som den ”naturlige” slægt understreges af, at loven opretholdt arveretten mellem barnet og de biologiske forældre. Bemærkningerne til lovforslaget angiver, at loven på dette punkt var mere vidtgående end betænkningens forslag:

Idet man frygter for, at en Ordning, der hindrer Adoptanten i at begrænse Adoptivbarnets Arveret, let kan medføre, at Adoptioner, som i øvrigt maatte anses at være til det paagældende Barns Tarv, ikke kommer i stand.⁴¹

Selv forsørgelsespligten i §12 har ikke udelukkende fokus på barnets ret til penge- og omsorgsforsørgelse fra den nye forælder, men derimod også på adoptanten, der som hovedregel intet krav har på at få godtgjort sine udgifter af ”barnets virkelige forældre”.⁴² Det anføres således, at den forsørgelsespligt, der ifølge den dagældende Fattiglov var pålagt adoptanten var ubetinget både over for barnet ”og dets Forældre”. Denne ubetingede pligt fritog dog ikke de ”virkelige forældre” for forsørgelsespligt, idet faren til et uægte barn fortsat var bidragspligtig også efter barnet var bortadopteret. Formuleringen ”de virkelige forældre” følger desuden direkte af ordlyden af den endeligt vedtagne lov.⁴³

Adoption rammesættes således retsretorisk som etablering af et ”mindre virkeligt” slægtskabsforhold som følge af den tids vægtlægning af biologisk slægtskab og arvefølge som sikring af, at slægtens formuegoder forblev i slægten. Arvelovskommissionen videreførte i 1941 synspunktet om, at barnet ikke skulle være tvangsarving. Der var imidlertid ikke udelt enighed blandt jurister om adoption og dens retsvirkninger. I starten af 1940’erne diskuteredes emnet løbende i retsviden-

40 Se den historiske udredning i Betænkning 111/1954, s. 8

41 Bemærkninger ad § 13.

42 Udkast til Lov om Adoption med tilhørende Bemærkninger udarbejdet af den ved Kgl. Resolution af 25. juli 1910 og 19. juni 1912 nedsatte Kommission. København, J. H. Schultz a/s, 1913, bemærkninger til § 12, p. 5.

43 *Lovtidende* 1923, afdeling A 1, s. 409-412,

skabelige artikler, og dommer Niels Harbou argumenterede med udgangspunkt i de norske regler for mere vidtgående danske regler, således at der kunne ske adoption med "fuldt familieskifte". Harbou anfører bl.a., at der ikke kan være tvivl om, at et adoptivbarn er og bør være socialt knyttet til adoptivforældrene og deres slægt og ikke til sin egen slægt: "På denne baggrund bør den sociale forbindelse og ikke det biologiske slægtskab lægges til grund".⁴⁴ Et fuldt familieskifte, hvor adoptivbarnet ligestilles med biologiske børn i juridisk henseende i forhold til arv og slægtsnavn, medfører i denne udlægning, at både den retlige og sociale tilknytning til barnets egen slægt må afbrydes. Dommer Jørgen Trolle udtrykker derimod bekymring for en sådan ordning, da han finder det "besynderligt", hvis adoptanten skal kunne tillægge barnet fuld legal arveret efter adoptantslægten, "uden at dennes medlemmer bliver spurgt eller endog behøver at få noget at vide herom".⁴⁵ Blodets bånd forbliver her retorisk konstituerende for familietilhørsforholdet.

Det blev netop spørgsmålet om det "kunstige" og "det ægte", der ledte frem til den næste lovændring. Lovgivningsarbejdet blev skudt i gang med betænkning 111/1954 om ændring af reglerne om adoption, der i redegørelsen for de på det tidspunkt gældende regler om adoption rammesætter dem som "etablering af et kunstigt slægtsforhold mellem barnet og adoptanten".⁴⁶ Betænkningen dannede grundlag for, at man i 1956 ændrede adoptionsloven væsentligt med indførelsen af såkaldte "stærke" adoptioner, hvor adoptivbørn ligestilles med egen-fødte børn på alle måder og forbindelsen til de biologiske forældre afbrydes fuldstændigt. Det tidligste materiale om adoption viser en udvikling, hvor adoption bliver mindre og mindre 'kunstig' i takt med at "ægte" slægtskab i stigende grad afkobles fra ideer om slægten som etableret gennem genetik og biologi. Hvor adoption bliver mindre og mindre "kunstig", så bliver de nye reproduktive teknologier monstrøse, bl.a. for at skabe nye forstyrrelser af genetik og biologi som ikke én men to kategorier.

Monstrøse teknologier og humanitære slægtskaber

Hvor slægtskabet mellem adoptanten og den adopterede i den tidlige adoptionslov blev rammesat som "kunstig" og "mindre virkelig", producerer Det Etske Råd i perioden fra 1995 til 2004 en anden hierarkiseret forståelse af slægtskab og måder at få børn på. I redegørelserne bliver ordet "kunstig" nu anvendt om udvalgte former for assisteret reproduktion samtidig med, at de reproduktive teknologier retorisk bliver fremstillet som potentielt monstrøse. I dette afsnit analyserer vi først Det Etske Råds iscenesættelse af assisteret reproduktion inden, at vi vender os mod, hvad den fremvoksende fortælling om adoption som et humanitært velfærdsstatsarbejde gør ved forståelsen af måder at få børn på.

I Etisk Råds redegørelser fungerer det heteroseksuelle samleje som en uomtvistelig retorisk figur for den gode reproduktion. På den måde bliver assisteret reproduktion

44 *Ugeskrift for Retsvæsen* 1944 B s. 181-186.

45 *Ugeskrift for Retsvæsen* 1944 B s. 189-94.

46 Betænkning 111/1954, s. 7.

tion *gjort* kunstig i lyset af, hvad der fremstår som den ”naturlige” forplantning. I redegørelsen fra 2001 forholder Rådet sig eksempelvis til, hvorvidt teknologierne kan efterligne den ”naturlige” forplantning, når de skriver:

Reproduktionsteknologierne bør ikke tages i anvendelse, hvis de sigter på at fremkalde graviditet i situationer, som ikke er ubetvivleligt analoge til situationer, som forekommer eller kunne forekomme, uden at der anvendes kunstig befrugtning.⁴⁷

Sæddonation fremstår i Rådets redegørelse som et eksempel på en sådan analog teknologi, retorisk fremskrevet som uproblematisk. Rådet skriver: ”Behandlingen er lavteknologisk og repræsenterer kun en mindre afvigelse i forhold til forplantning ved samleje”.⁴⁸ I 2004 redegørelsen fastholder Rådet tilsvarende ønsket om, at de reproduktive teknologier skal ligne ”den naturlige proces mest muligt”,⁴⁹ men udvider dog nu mulighederne til også at kunne imødekomme enlige og lesbiske kvinder, der ønsker at få hjælp til at få børn. Som Rådet anfører det: ”Mange børn er gennem historien kommet til verden på helt naturlig vis efter ét eneste møde og samleje mellem en kvinde og en mand”.⁵⁰

I fortællingerne, hvor samlejet mellem kvinden og manden figurerer, fungerer det heteroseksuelle samleje, og hvad Petersen kalder ”heteroseksuel levevis,” fortsat som en primær rammefortælling.⁵¹ De reproduktive teknologier skal helst simulere den ”naturlige” forplantning. Særligt problematisk for Rådet er derfor den reproduktion, der foregår udenfor (kvinde)kroppen. Den sættes i Rådets behandling i en farlig forbindelse med ”teknologisering” og en uønsket ”menneskeopfattelse”:

Udbuddet af de forskellige teknikker til kunstig befrugtning indebærer en generel teknologisering af forplantningen og indebærer en væsentlig risiko for en stærkt uønsket påvirkning af selve vores menneskeopfattelse. Man taler om sæd og æg, fosteranlæg og fostre, som om det var ting, og man behandler dem som ting: De smides væk, forskes på, foræres væk, og man diskuterer, hvem der har ejendomsret og råderet over dem. På den måde udgør anvend-

47 Det Etiske Råd, *Etiske problemer vedrørende kunstig befrugtning*, 1. Del. (København, Det Etiske Råd 2001), <http://www.etiskraad.dk/~media/Etisk-Raad/Etiske-Temaer/Assisteret-reproduktion/Publikationer/2001-Kunstig-befrugtning-del-1.pdf> (downloadet 2018.02.13), 29.

48 Det Etiske Råd, *Kunstig Befrugtning – En redegørelse* (København: Det Etiske Råd, 1995), <http://www.etiskraad.dk/~media/Etisk-Raad/Etiske-Temaer/Assisteret-reproduktion/Publikationer/1995-kunstig-befrugtning.pdf> (downloadet 02.14.2018), 56.

49 Det Etiske Råd, *Kunstig befrugtning – Etisk set* (København: Det Etiske Råd, 2004), <http://www.etiskraad.dk/~media/Etisk-Raad/Etiske-Temaer/Assisteret-reproduktion/Publikationer/2004-01-04-kunstig-befrugtning-etisk-set.pdf> (downloadet 02.14.2018), 13. Rådet viderefører i øvrigt her det heteroseksuelle samleje som rammesætningen fra sin allerførste redegørelse på området Beskyttelse af menneskelige kønsceller, befrugtede æg, fosteranlæg og fostre.

50 Det Etiske Råd, *Kunstig befrugtning – Etisk set*, 13.

51 Nebeling Petersen, *Fra barnets tarv til ligestilling*, 31

delsen og udbredelsen af kunstig befrugtning en tingsliggørelse af de mellem menneskelige forhold og selve forplantningsprocessen.⁵²

Et flertal af Rådet er således i 1995 imod ”kunstig” befrugtning, der foregår ”udenfor” (kvinde)kroppen. Ikke alene skitserer Rådet problematikker forbundet med en ”opsplitning” af moderskabet (rugemoderskab og ægdonation fungerer som konkrete eksempler), men teknologien producerer også, jævnfør Rådet, en ”tingsliggørelse” af det reproduktive. I redegørelsen fra 1995, beskriver Rådet eksempelvis teknologiernes evne til at kunne ”fryse ned” og ”tø op” og de uhensigtsmæssige muligheder forbundet med nu at kunne ”overplanlægge” eller ”skabe” sit eget barn. Ved hjælp af ord som ”adoptiv-æg”, ”teknificeret og fremmedgørende” og ”ubehagelige muligheder” skaber Rådet i 1995 en monstrøs teknologiscene, som de nye teknologier indfinder sig på:

En del af flertallet lægger desuden til grund for et forbud, at reagensglasbefrugtning med donoræg og donorsæd – ”adoptiv-æg” – repræsenterer en for teknificeret og fremmedgørende form for forplantning. Dertil kommer, at muligheden for at kombinere æg og sæd fra forskellige banker og skabe børn på den måde åbner ubehagelige muligheder for, at forældre kan vælge, hvilket æg og hvilken sæd, de vil sætte sammen til et barn.⁵³

Redegørelserne forholder sig endvidere kritisk såvel som bekymret i forhold til det sociale ”pres” som forskellige reproduktive aktører bliver udsat for. På den måde bevæger de retoriske strategier sig fra det individuelle ønske om et barn til en re-installering af velfærdsstaten som nationens moralske vogter (”vores menneskeopfattelse”).⁵⁴ Barnløse er beskrevet som par, der oplever pres fra familie og venner (”parret kan føle pres fra omverdenen”).⁵⁵ Rugemødre (hvis det ellers var tilladt) ville opleve pres fra de intenderede forældre og potentielt blive udsat for større emotionelle udfordringer.⁵⁶ Sådan skriver Rådet:

Overdragelsen af barnet giver som regel rugemoderen store psykologiske problemer, og hun er også i mange tilfælde udsat for et pres fra den eller de kommende sociale forældre under selve graviditetsforløbet.⁵⁷

I redegørelserne producerer Det Etiske Råd en fortælling, hvor nu ikke alene genetisk men biologisk slægtskab (særligt hvis det kan imitere det heteroseksuelle samleje) er ønskværdigt. I skarp modsætning hertil, iscenesættes de reproduktive teknologier retorisk som potentielt monstrøse i deres evne til at kunne skabe slægt-

52 Det Etiske Råd, *Kunstig Befrugtning – En redegørelse*, 49.

53 Det Etiske Råd, *Kunstig Befrugtning – En redegørelse*, 59.

54 Det Etiske Råd, *Kunstig Befrugtning – En redegørelse*, 49. I ”Crafting Virtue” præsenterer Condit en feministisk retorisk læsning af de måder, hvorpå individuelle behov og ønsker, gennem en række retoriske strategier, bliver transformeret til et offentligt samt et objektiveret moralsk kodeks.

55 Det Etiske Råd, *Kunstig Befrugtning – En redegørelse*, 12.

56 I redegørelserne anvender Rådet konsekvent ordene ”rugemoderskab” og ”rugemødre”.

57 Det Etiske Råd, *Etiske problemer vedrørende kunstig befrugtning*, 32.

skab, når genetikken og sågar biologien går ud. Det er slægtskaber, der er til fare for barnets ve og vel såvel som dets tarv samtidig med, at det, som anført af Det Etske Råd, overskrider de (gode) danske ”kollektive” værdier. I Folketingets behandling af den første lov om kunstig befrugtning genfortælles det naturlige for eksempel også i den socialdemokratiske ordførers åbningsbemærkning:

Det overordnede princip er, at det foster, der skabes, ikke må adskille sig fra det, der principielt kunne være frembragt ved sædvanlig befrugtning. Det vil sige ingen manipulationer, ingen fremstilling af kopier af ét og samme individ, ingen deling af æg anbragt i forskellige kvinder, hvorved der kunne fødes tvillinger med forskellige mødre, ingen udvikling af æg, uden for kvindens livmoder, ingen rugemødre....⁵⁸

De reproduktive teknologier skal i den rammefortælling kunne imitere den ”naturlige” forplantning (”det, der principielt kunne være frembragt ved sædvanlig befrugtning”). Samtidig bliver det monstrøse italesat som nye teknologier såsom kloning (”kopier af ét og samme individ”) og rugemoderskab.

I skarp modsætning til de monstrøse teknologier, bliver adoption, i Etisk Råds tre redegørelser, til en økologisk og altruistisk måde at skabe slægtskab på. Redegørelserne kobler rammefortællingen om en overbefolket verden sammen med en anden rammefortælling – nemlig den, der handler om et forældreløst barn. På den måde undslipper adoption helt de teknologiske og værdighedstruende rammer. I stedet bliver adoption konstitueret som en form for humanitær næstekærlighed. Adoption bliver en værdig slægtskabsteknologi samtidig med, at de danske adoptivforældre bliver retorisk fremstillet som modige individer, der tør tage et ”handicappet eller et udenlandsk udseende barn til sig”.⁵⁹ I den fortælling indgår også en forståelse af den danske velfærdsstat som en særlig god ramme at vokse op i. Rådet opmuntrer således til øget adoption, når de skriver:

Det ville være mere ønskeligt om samfundet tilskyndede de barnløse til at adoptere børn, der er født, eller tage dem i pleje. I stedet for ved hjælp af avanceret teknologi at skabe nye børn, kunne man give nogle af de allerede fødte børn ordentlige muligheder.⁶⁰

Fortællingen vinder genklang ved Folketingets behandling af den første lov om kunstig befrugtning, hvor den socialdemokratiske ordfører minder om, ”at vi lægger megen vægt på, at der gives en grundig oplysning om adoptionsmulighederne før påbegyndelsen af behandling mod barnløshed”⁶¹ ligesom ordføreren for SF

58 Første behandling af lovforslag nr. L5 (Forslag til lov om kunstig befrugtning i forbindelse med lægelig behandling, diagnostik og forskning mv.), Folketingets Forhandlinger 8. oktober 1996, s. 245.

59 Det Etske Råd, *Kunstig Befrugtning – En redegørelse*, 12.

60 Det Etske Råd, *Kunstig Befrugtning – En redegørelse*, 50.

61 Første behandling af lovforslag nr. L5 (Forslag til lov om kunstig befrugtning i forbindelse med lægelig behandling, diagnostik og forskning mv.), Folketingets Forhandlinger 8. oktober 1996, s. 245. Der var tale om en genfremsættelse, idet man ved første fremsættelse af

mener, at ”vi skal presse på..., så den naturlige løsning på problemet barnløse forældre og forældreløse børn bliver, at man lader dem finde hinanden i et lidt større omfang end man gør i dag”.⁶² Det blev og er fortsat derfor et krav i lov om assisteret reproduktion, at der inden behandling skal gives information også om adoption, jf. § 23, stk. 2.⁶³ Et krav, der i SF ordførerens udtalelse sågar bliver naturliggjort (”den naturlige løsning på problemet”).

De reproduktive teknologiers monstrøsitet understøttes endvidere, når de rammesættes som direkte i konkurrence med rammefortællingen om de ”forældreløse børn.” Reproduktive teknologier bringer således ”et barn *til at eksistere* og dermed nedbringer antallet af potentielle adoptanter, således at *adoptivbørnernes* fremtidsmuligheder generelt set forringes”.⁶⁴ Den potentielle uværdighed som reproduktionsteknologien rummer overføres her retorisk til rammefortællingen om den globale uværdighed forbundet med de forældreløse børns vilkår. I redegørelsen fra 2001 konstituerer Det Etske Råd det adopterede barns vilkår som så dårlige, at de opmuntrer til en nytænkning af kravene til det (danske) modtagerpar:

Hvis barnets livsbetingelser inden adoptionen er tilstrækkeligt dårlige, har dette således en afgørende betydning for, hvilke krav det er fornuftigt at stille adoptanten. For eksempel kan det udmærket være i et udenlandsk barns interesse at blive placeret hos forholdsvis dårligt fungerende forældre, hvis denne placering er den bedste blandt de realistiske alternativer til den øjeblikkelige situation.⁶⁵

Selvom fattigdom og geopolitik, som Briggs⁶⁶ anfører det, er væsentlige medvirkende aspekter i transnationale adoptionssager, reproducerer Rådet her en rammefortælling, hvor den (gode) hvide danske barnløse redder de forældreløse børn fra den tredje verden. Som anført af Rådet: ”Endelig er det i realiteten således i dag, at det er umuligt at adoptere et dansk spædbarn, fordi der årligt kun bortadopteres ca. 20-30 sådanne børn”.⁶⁷

De etiske redegørelser producerer således bestemte forståelser af gode og potentielt dårlige (kommercielle) slægtskaber. I fortællingerne indgår forståelsen af teknologi og forplantning, der finder sted uden for kroppen som potentiel altid mon-

lovforslaget kun havde haft 4 måneder til at behandle lovforslaget. Det fandt man var for lidt, og det bortfaldt derfor ved Folketingsårets udgang.

62 Ibid s. 248.

63 Inden lovens vedtagelse var denne pligt for lægerne til at informere om muligheden for adoption medtaget i Sundhedsstyrelsens vejledning af 22. december 1993 om lægers anvendelse af kunstig befrugtning og andre former for reproduktionsfremmende behandling. Vejledningen var en del af den allertidligste regulering, foranlediget af regeringens pressemeddelelse om dens intention om at opstille klare retningslinjer på området http://webarkiv.ft.dk/?/samling/19931/udvbilag/suu/almdel_bilag63.html.

64 Det Etske Råd, *Etiske problemer vedrørende kunstig befrugtning*, 65.

65 Det Etske Råd, *Etiske problemer vedrørende kunstig befrugtning*, 64.

66 Briggs, *Somebody's Children*.

67 Det Etske Råd, *Kunstig befrugtning. En redegørelse*, 12.

strøs, mens særligt den transnationale adoption indskrives i en altruistisk ramme-fortælling. Samme ramme-fortælling ses ved Folketingets behandling af den første lov om kunstig befrugtning: S-ordfører Tove Lindbo Larsen udtaler som første taler ved første behandlingen i Folketinget, at information om kunstig befrugtning skal fortælle ”klart om mulighederne for at adoptere et barn. Der er mange børn i verden, der har hårdt brug for et trygt hjem at vokse op i”.⁶⁸ For K-ordfører Henriette Kjær er den teknologiske indblanding i forplantningen monstrøs, ”det er tanken om det kunstige, der skræmmer mig”,⁶⁹ mens R-ordfører Vibeke Peschardt knytter det kommercielle rugemoderskab til Huxleys fremtidsvision fra 1932, ”der har været meget nærværende i debatten....Den fagre, nye verden er her allerede, og lovforslaget drejer sig derfor om, at regulere de værste vildskud fra teknikens overdrev væk”.⁷⁰ De reproduktive teknologier bliver performativt konstitueret som monstrøse – en monstrøsitet som i dag tilsvarende knytter sig til økonomiske transaktioner og det globale forplantningsmarked. Efter teknologiernes indtog skifter adoption samtidig status – hvor adoption før blev rammesat som et kunstigt slægtskabsforhold, der blev monstrøst for sin potentielle indlemmelse af ikke-biologiske arvinger i den biologiske slægts navn og formuegoder, blev adoption – også i takt med adoptioner ikke længere var lokale men transnationale – sidenhen set som truet af teknologien, der kunne skabe ’ægte’ biologiske børn, men som var monstrøs for sit potentiale til at efterlade en masse ’stakkels’ børn uden adoptanter i Danmark. Afsnittet har vist, hvordan det monstrøse flytter undervejs. I det næste afsnit sætter vi fokus på, hvordan kommercielle transaktioner nu indtager den mere monstrøse position.

Penge lugter! Monstrøse slægtskaber

Mens de tidlige redegørelser og lovgivning om ”kunstig befrugtning” benytter sig af talefigurer som ”vildskud” og andre skræmmebilleder, og adoption bliver altruistisk og økologisk, så bliver kommercielle transaktioner centrale i det nyere materiale, og der udstikkes to spor for, hvordan penge må eller ikke må være i spil i slægtskabs-etableringen. Det gør sig særligt gældende i nyere adoptionssager såvel som i redegørelser og lovmaterialet forbundet med rugemoderskab.

Den 29. november 2017 afsagde Retten i Sønderborg dom⁷¹ i en sag om et barn-

68 Første behandling af lovforslaget L200: Forslag til lov om kunstig befrugtning i forbindelse med lægelig behandling, diagnostik og forskning m.v., 23. februar 1996, Folketingets Forhandlinger spalte 4055.

69 Første behandling af lovforslaget L200: Forslag til lov om kunstig befrugtning i forbindelse med lægelig behandling, diagnostik og forskning m.v., 23. februar 1996, Folketingets Forhandlinger spalte 4060.

70 Første behandling af lovforslaget L200: Forslag til lov om kunstig befrugtning i forbindelse med lægelig behandling, diagnostik og forskning m.v., 23. februar 1996, Folketingets Forhandlinger spalte 4066.

71 Dom i sag nr. K014710/2017 <http://www.domstol.dk/soenderborg/Nyheder/Doms-resum%C3%A9er/Documents/D16.pdf>

løst dansk par, der havde købt et nyfødt barn i Polen. Parret blev dømt for at afgive falske oplysninger, men selve transaktionen faldt uden for adoptionslovens forbud, der alene gik på aftaler om etablering af surrogatmoderskab og følgende overdragelse af barnet indgået inden fødslen. I følge børne- og socialminister Mai Mercado signalerede sagen, at det er ”dybt forkasteligt at gøre børn til en handelsvare”,⁷² og tilsvarende istemte Venstres socialordfører Carl Holst:

Vi har et adoptionssystem, hvor der gælder nogle regler. Vi skal ikke have et parallelsystem, hvor man på egen hånd kan rejse rundt i verden og finde folk, der giver samtykke til, at man sælger sit barn.⁷³

Det politiske budskab er altså, at der er et officielt adoptionssystem, hvor barnløse forbindes med forældreløse børn på altruistisk grundlag, som står i skarp kontrast til situationen, hvor parret selv opsøger en nybagt mor og betaler hende i forbindelse med overdragelsen af barnet. Men faktisk havde der i 2012 og 2013 været kritisk fokus på international fremmedadoption fra Etiopien gennem den såkaldte Amy-sag og dokumentaren *Adoptionens pris*.⁷⁴ Det viste sig, at forældre var blevet frarøbet to af deres børn med løgne og falske løfter. Dette satte fokus på det som nogle kaldte ’handelselementet’ ved international adoption.⁷⁵ I den første adoptionslov var holdningen til vederlag i forbindelse med adoption imidlertid mere tvetydig. Kommissionens lovbemærkninger, der stod uimodsagte ved fremsættelsen af 1923-loven, anerkender således (jf. § 9), at vederlæggelse udgør en særlig vanskelighed, fordi et vederlag på den ene side kan sikre adoptanter fra små kår, at et oprigtigt følt ønske om adoption kan realiseres med en naturlig erstatning for de udgifter, der er forbundet med opfostring af barnet, og at en far til et uægte barn ofte nemmere vil kunne udrede et vederlag en gang for alle end at påtage sig barnets opdragelse. På den anden side rummer vederlag stor fare for spekulation fra adoptanter og mellemmand. Afgørende blev derfor vederlagets størrelse og om det var til betryggelse af barnets livsvilkår. Det fremhæves i den forbindelse, at bevillingsmyndigheden må påse, at adoptionen virkelig er til barnets tarv, og at ”barnet f.eks. ikke er købt for at opdrages til gøgler, som offer for hvid slavehandel eller lignede”.⁷⁶

Mens adoption af danske børn, stedbarns-adoption og familieadoption i dag stort set er gratis, er international ”fremmedadoption” forbundet med høje udgifter. Det danske adoptionssystem baserer sig tillige i dag på private adoptionsformidlere, og selvom der udbetales et kommunalt adoptionstilskud efter adoptionen, så rækker det langt fra. Der er således stadig en tvetydighed at spore, hvor man på den ene side

72 *Politiken* 2. december 2017 <https://politiken.dk/indland/art6233864/Ministre-vil-granske-regler-efter-sag-om-barn%C3%B8b>

73 *Politiken* 2. december 2017 <https://politiken.dk/indland/art6233864/Ministre-vil-granske-regler-efter-sag-om-barn%C3%B8b>

74 *Mercy Mercy – Adoptionens pris*, 26. november 2012 (Katrine W. Kjær).

75 <https://www.information.dk/debat/2017/12/sikret-boernehandel-blot-fordi-adopterer-via-etablerede-system>

76 Udkast til lov om adoption med tilhørende bemærkninger udarbejdet af den ved Kgl. resolutioner af 25. juli 1910 og 19. juni 1912 nedsatte kommission.

overlader adoption til private adoptionsformidlere, der tjener penge på sin virksomhed, samtidig med at loven i vidt omfang forsøger at skabe tryghed om det kommercielle aspekt: Gebyret til de adoptionsformidlende organisationer dækker udgifter som tilskud til børneinstitutionen, udgifter til barnets pleje frem til adoptionen, medicin, vaccinationer, juridisk bistand til adoptionen, oversættelser mv, idet organisationen ikke må opnå utilbørlig økonomisk vinding i forbindelse med adoptionshjælpen og ikke må modtage betaling, der står i misforhold til det udførte arbejde.⁷⁷ Tilsvarende må organisationerne kun virke som adoptionsformidlere med Socialministerens tilladelse, og den adoptionshjælp, de yder, skal være bestemt af hensynet til barnets bedste og være etisk og fagligt forsvarlig.⁷⁸ Et egentligt forbud mod at købe et barn udenom det lovregulerede adoptionssystem findes ikke, hvilket af flere politikere blev opfattet som et hul i loven,⁷⁹ da et par i 2017 alene blev dømt for at afgive falske oplysninger i forbindelse med, at de havde fået overdraget et barn i Polen fra en nybagt mor mod betaling.⁸⁰

Vederlag og værdighed er problematiske størrelser også i Det Etske Råds redegørelser. Her bliver den ”menneskelige værdighed”⁸¹ sat på spidsen – dog ikke i Rådets behandling af transnational adoption men i dets diskussion af rugemoderskab og ægdonation. Rugemoderskab beskrives eksempelvis som ”bestilt adoption”⁸² og ”salg af børn”.⁸³ I de tre redegørelser bliver alle former for mellemmandsvirksomhed samt brug af ”kunstig befrugtning” til det formål gjort ulovlig og strafbar: ”Formidlingen af rugemoderskab er forbudt både for formidleren og parterne selv”.⁸⁴ I Rådets redegørelser bliver rugemoderskab en potentiel monstrøs form for slægtskabsteknologi. Rugemoderskab skaber ”unaturlige forhold”.⁸⁵ En kvinde føder et barn, der er intenderet en anden, samtidig med, at forholdet mellem ”manden og kvinden” – i skarp modsætning til ”den naturlige befrugtning” – alene er, skriver Rådet, af ”ydre og instrumental karakter”.⁸⁶ Det samme gør sig potentielt også gældende i ægdonation og i det, som Rådet kalder ”opsplitningen af moderskabet”.⁸⁷ Jævnfør lov om assisteret reproduktion er det ikke tilladt at ”sælge, formidle salg eller på anden måde medvirke til salg af ubefrugtede eller befrugtede

77 jf. adoptionslovens § 30a, stk. 2

78 jf. adoptionslovens § 30, stk. 2.

79 ”Par købte polsk dreng for 5.600 kr. Ministre vil granske regler efter sag om barnekøb”, *Politiken* 2.12.2017 <https://politiken.dk/indland/art6233864/Ministre-vil-granske-regler-efter-sag-om-barnek%C3%B8b> (tilgået 14. juni 2018).

80 Retten i Sønderborgs dom af 29. november 2017 <http://www.domstol.dk/soenderborg/Nyheder/Domsresum%C3%A9er/Documents/D16.pdf> (tilgået 14. juni 2018).

81 Det Etske Råd, *Kunstig befrugtning – Etisk set*, 10.

82 Det Etske Råd, *Kunstig Befrugtning – En redegørelse*, 30.

83 Det Etske Råd, *Etiske problemer vedrørende kunstig befrugtning*, 31.

84 Det Etske Råd, *Kunstig Befrugtning – En redegørelse*, 30 (jf. også adoptionslovens § 33)

85 Det Etske Råd, *Etiske problemer vedrørende kunstig befrugtning*, 30.

86 Det Etske Råd, *Etiske problemer vedrørende kunstig befrugtning*, 55.

87 Det Etske Råd, *Kunstig Befrugtning – En redegørelse*, 57

menneskelige æg^{88,89} I begge tilfælde fungerer vederlag som en forurenende størrelse:

Reproduktion bør ikke underkastes den pengemæssige logik, hvor det solgte betragtes som en genstand, der er afhængelig til højstbydende. Den enkelte rugemoder bør derfor ikke have mulighed for at ”udleje” sin livmoder og sælge sine æg.⁹⁰

I lovbemærkningerne til de første lovbestemmelser vedrørende surrogati-arrangementer hedder det ligeledes:⁹¹

Ved aftaler om vederlag eller betaling for tabt arbejdsfortjeneste må myndighederne ikke medvirke til, at barnet får lovligt ophold hos det par eller den, der har 'bestilt' barnet, f.eks. gennem plejetilladelse, ligesom ansøgning om overførelse af forældremyndigheden eller adoption skal afslås. Ønsker moderen ikke at have barnet, kan hun give tilladelse til, at barnet anbringes i familiepleje eller adopteres af et par, der er godkendt til adoption.

I betænkning 1350/1997 om børns retsstilling understreges det, at selve det at virke som surrogatmor ikke er forbudt, heller ikke hvis der ydes vederlag for det. Men udbredelsen af surrogatmoderskab er i øvrigt søgt begrænset på forskellige måder, bl.a. ved i de administrative regler at præcisere, at statsamtet ikke må godkende aftaler om overførelse af forældremyndighed eller meddele bevilling til adoption, såfremt der skal ydes vederlag eller betaling for tabt arbejdsfortjeneste til indehaveren af forældremyndigheden eller den bortadopterende. Det er altså ikke forbudt at modtage vederlag, men hindring af den sociale moders mulighed for at få del i forældremyndigheden – og at stedbarnsadoptere barnet – er tænkt som et værn mod forekomsten af surrogati-arrangementer med betaling.⁹²

Til trods for den opmærksomhed, som dokumentaren Adoptionens Pris fik, så

88 Lovens § 12, se også nærmere Søbirk Petersen, Thomas & Janne Rothmar Herrmann 'Altruistisk surrogatmoderskab og straf', Bibliotek for Læger 211, 2019, 44. Tilsvarende i bemærkningerne til 1997-loven om kunstig befrugtning (dengang fremgik forbuddet mod salg af æg af § 11) som understreger, at mens forbudsbestemmelserne primært er rettet mod den læge og eventuelt andet medhjælpende personale, der udfører kunstig befrugtning i strid med lovens bestemmelser, så er det ikke fundet rimeligt at straffe de personer, der er donorer eller modtager behandling, da de ikke selv udfører de pågældende handlinger m.v. og heller ikke kan forventes at kende de retlige rammer for behandlingsmulighederne nærmere. Det understreges dog, at dette ikke gælder bestemmelsen i lovens § 11 om salg og formidling af menneskelige æg, idet det for eksempel her findes rimeligt, at den kvinde, der måtte sælge sine æg til donation, kan straffes.

89 Denne forskel på æg og sæd skyldes, at ubefrugtede æg i højere grad opfattes som fremtidige børn i modsætning til sæd, se mere indgående Herrmann, Janne Rothmar & Charlotte Krolokke, "Eggs on Ice. Imaginaries of Eggs and Cryopreservation in Denmark", *NORA – Nordic Journal of Feminist and Gender Research* 26, 2018, 19-35.

90 Det Ethiske Råd, *Ethiske problemer vedrørende kunstig befrugtning*, 33.

91 Folketingstidende 1985-86 tillæg A spalte 4165-4166.

92 Pedersen, Frank Høgholm, "Forældremyndighed i forbindelse med økonomisk kompenseret surrogatmoderskab," *Tidsskrift for Familie og Arveret* 2 (2017), 76-86.

er det bemærkelsesværdigt, at opmærksomheden på handel og adoption er klokkeklart rettet mod korrupcion i det pågældende land samt dets evne til at kunne håndtere adoption. I en helhedsanalyse understreger Ministeriet for Børn, Ligestilling, Integration og Sociale Forhold i 2014 således til et ”grundigt kendskab til afgiverlandene” herunder kendskab til ”risikoen for korrupcion”.⁹³ På den måde undslipper transnational adoption sig en mere generel rammefortælling, hvor det kommercielle og det uværdige kobles sammen. I modsætning til afsenderlandet fremstår modtagerlandet fortsat som forplantningens moralske vogter samtidig med, at transnational adoption bliver genfortalt inden for rammen om det gode forældreskab. På den måde undslipper transnational adoption den monstrøse ramme og bliver i stedet geninstalleret i en altruistisk rammefortælling.

Penge skaber monstrøsitet, når måder at få børn på involverer kommercielle transaktioner. Men det monstrøse bliver konfigureret på forskellig vis; på adoptionsområdet er ’markedet’ indrettet sådan, at visse ikke-monstrøse pengetransaktioner godt kan finde sted, ligesom visse pengetransaktioner på det reproduktive område accepteres (fx salg af sæd), mens andre ikke gør (salg af æg).

En opsummering: Feministisk retsretorik som analyseramme

Vi har i artiklen udviklet en feministisk retsretorisk analyseramme og anvendt den på udvalgt lovmateriale og redegørelser fra Det danske Etske Råd. Måder at få børn på indgår i meget forskellige rammefortællinger. Hvor blodets bånd i den tidlige lov og betænkning om adoption retorisk etablerede adoption som mindre virkelige slægtskaber, så bliver adoption i dag, i nyere lov og i det Etske Råds redegørelser, retorisk naturliggjort som en god måde at få børn på. Til sammenligning bliver de reproduktive teknologier positioneret som altid potentielt monstrøse. Det gør sig særligt gældende, når forplantning sker udenfor kvindekroppen, og når det økonomiske vederlag retorisk konstitueres som en forurenende størrelse. Til trods for, at monstrøsitet, i de forskellige perioder, klistrer sig til forskellige aktører og teknologier, så fremstår velfærdsstaten retorisk i hele perioden som nationens og forplantningens moralske vogter.

Den retsretoriske analyseramme har vist sig behjælpelig med at synliggøre retens forforståelser og understreger de retoriske strategiers performative effekter i de måder, hvorpå bestemte slægtskaber bliver gjort til (il)legitime. Som anført i den skematiske oversigt (Figur 1, næste side) er de forskellige rammefortællinger produceret af et sæt meget forskellige retoriske figurer og metaforer.

93 Ministeriet for Børn, *Ligestilling, Integration og Social Forhold. Helhedsanalyse af det danske adoptionsystem* (2014), 69.

Slægtskabsteknologier	Forplantningens rammefortælling	Retoriske figurer og metaforer
Adoption	Den kunstige men også altruistiske	Forældreløse (stakels) børn, næstekærlighed, ”ægtebarn”, den gode hvide vesterlænding
Sæddonation	Den (næsten) naturlige	Sæd som altid doneret materiale, mulighed for at imitere det ”naturlige” og gode heteroseksuelle samleje
Ægdonation	Den teknologisk kunstige	Moderskabets opsplitning, kommercialisering, ”adoptiv-æg”, forplantning udenfor kvindekroppen, teknificering og tingsliggørelse
Rugemoderskab	Den monstrøse	Penge lugter, pres fra omverdenen, handel, købebørn og salg af børn, moderskabets splittelse, udnyttelse af resurssvage kvinder.

Figur 1: Rammefortælling i forskellige slægtskabskonstruktioner samt de retoriske figurer og strategier

I fremstillingen bliver adoption og sæddonation til ”gode” økologiske slægtskabsteknologier. I de to rammefortællinger bliver potentielt forurenende størrelser som ”vederlag” og ”teknologi” transformeret og gjort naturlige og acceptable. Barnet bliver altså i nyere fortællinger om adoption performativt konstitueret som et allerede (naturligt) ventende og forældreløst barn. I rammefortællingen omkring sæd-

donation bliver sæd ligeledes omskrevet til et ”naturligt” doneret materiale. I skarp modsætning fremstår ægdonation, rugemoderskab og særligt den økonomiske transaktion, der kan forekomme her, i en ”teknificeret”, ”kunstig” og ”monstrøs” rammefortælling. Hvor ægdonation bliver retorisk fremstillet som en potentielt monstrøs tingsliggørelse af forplantningen, så bliver rugemoderskab altid forankret i en monstrøs rammefortælling. Kendetegnende for ægdonation såvel som rugemoderskab er moderskabets splittelse, teknologiens intervention og det kommercielles forurening af den (gode) økologiske forplantning.

Denne analyse understøtter desuden eksisterende kønsforskning og viser, hvordan den heteronormative rammefortælling fungerer som bagtæppe for de øvrige fortællinger, samtidig med, at det monstrøse flytter sig fra de uægte adoptanter til de teknologier udviklinger og nu også klistrer sig til de kommercielle transaktioner. Det empiriske materiale tydeliggør, hvordan forskellige måder at få børn på trækker på meget forskellige retoriske figurer og rammefortællinger. Hvor evnen til at kunne reproducere udenfor kvindekroppen mistænkeliggøres som ”kunstig”, så knytter den monstrøse rammefortælling sig i dag i langt højere grad til de finansielle transaktioner herunder frygten for tingsliggørelse af kvindekroppen og for, at barnet bliver en (bestilt) handelsvare.

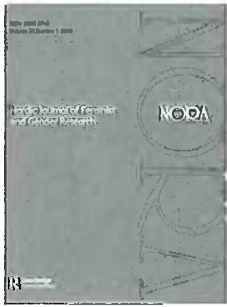
En feministisk retsretorisk analyseramme bevæger sig fra en analyse af rets-anvendelsens argumenter og argumentationslære til selve retskildematerialet. Vi har vist, hvordan en sådan analyseramme kunne interessere sig for statens regulering af måder at få børn på, men den har selvfølgelig et langt bredere sigte, og kan bruges som analytisk linse på alle retsområder, hvor rettens kønsneutralitet, kønsbalance og ligestilling/ligebehandling ønskes efterprøvet eller hvor det er relevant at løfte sløret for rettens væsen, strukturer eller hvilke magtforhold, der gemmer sig under en retlig legitimation. Her kan feministisk retsretorik bruges til at fremanalysere, hvordan retoriske figurer og metaforer skaber de rammefortællinger, der legitimerer lovgivningen. Kun ved at få forforståelserne frem i lyset, kan man vurdere om reguleringens indhold kan stå sin prøve om lighed og ligebehandling.

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Eggs on Ice: Imaginaries of Eggs and Cryopreservation in Denmark

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ABSTRACT

While Denmark is widely known as a global exporter of cryopreserved sperm, Danish women's eggs face a very different fate. This paper combines legal and rhetorical analyses with the concept of sociotechnical imaginaries. In establishing the genealogy of the sociotechnical imaginaries that shaped Danish regulation of the cryopreservation of eggs, we analyse the relevant Acts, Bills, preparatory work, and readings in Parliament, along with the concurrent public and ethical debates that over time relaxed the legal limit for the cryopreservation of eggs to the current five years and today continue to ignite discussions on elective egg freezing. We rely on welfare-state perspectives to discuss why reproduction, in the Danish context, is seen as a legitimate and appropriate sphere to regulate, and we turn to feminist theorizing to discuss the gendered implications captured in the sociotechnical imaginaries of the "Moral State", "technologies to be tamed", "the nuclear family", and "technology as equality and hope". We end by discussing how an interdisciplinary approach enriches our understanding of the legal, cultural, and political entanglements related to putting eggs on ice.

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Introduction

The accidental discovery by Polge, Smith, and Parkes published in *Nature* in 1949 that glycerol enabled fowl spermatozoa to survive freezing to -70°C initiated a phase of dramatic development in the techniques we now know as cryopreservation. Meanwhile, vitrification is a more recent technique that enables egg cells to be cooled to cryogenic temperatures in the absence of ice. Although success rates in establishing pregnancies are still higher for frozen sperm than frozen egg cells, in 2012, the American Society for Reproductive Medicine announced that egg freezing was no longer considered experimental. In this article, we trace the Danish legal regulations alongside ethical and public debates on women's egg cells in order to respond to the research question: What sociotechnical imaginaries are embedded within the Danish cultural, legal, and political discourses on (frozen) egg cells?

Whereas we draw on welfare-state perspectives to capture the complex entanglements between the state, the law, and reproductive technological developments, we use the concept of sociotechnical imaginaries to analytically grasp how cryopreservation becomes imagined in Danish regulatory processes as well as in public debates (Jasanoff, 2015, pp. 1–33). Sociotechnical imaginaries can be defined, according to Jasanoff, as “collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology” (Jasanoff, 2015, p. 4). Following this definition, we turn our attention to the imaginative work undertaken during different time periods within Danish law, and we theorize the ways in which legal regulation, along with ethical and public debates, coproduce different values and perform different visions and gendered imaginaries. As noted by Jasanoff and Kim (2009), imaginaries are almost always related to what is good and what best serves “national interests” (p. 121). In the case of Denmark, such national interests might be the political economy of assisted reproductive technologies (ARTs) as Herrmann (2013, p. 508) notes, where the economic interests at stake were the explicit political reason for upholding anonymous sperm donation, or they might relate to the economy of the Danish welfare state, where reproduction is positioned as requiring control. We thereby hope to establish not only a general overview of the ways in which Danish imaginaries of egg cells and cryopreservation come together with national interests, but also the specific ways in which public debates infiltrate and become entangled with the law to coproduce gendered sociotechnical imaginaries related to eggs on ice.

The biopolitics of the Danish welfare state: *Do it for Denmark!*

Can sex save Denmark? With this compelling question, the Danish travel agency Spies launched its 2014 *Do it for Denmark* campaign.¹ In the video, the viewer is confronted with drastically falling birth-rates, the struggle to support an ageing population, and biomedical evidence that Danes have more sex while on vacation. In *Do it for Denmark*, reproduction becomes a welfare-state duty as well as a business opportunity repackaged into a competitive, attractive, and active holiday. In this section, we use welfare-state and feminist theory to situate Danish biopolitics on reproduction, and we then discuss why Denmark constitutes a compelling case to study.

The relationship between the state, market, and family is a major focal point in welfare-state theory. The Danish welfare state is redistributive and provides a wide range of benefits and services as citizens’ entitlements with the aim of creating a more egalitarian society (Leira, 2002, p. 32). This includes, but is not limited to, paid parental leave, affordable childcare centres, and child support to single parents or lower-income families. Feminist scholars have specifically addressed the gendered nature of care, such as the fact that women continue as the primary caretakers in the welfare state (Orloff, 1996), while simultaneously pinpointing how reproduction becomes not exclusively a concern for the individual but, rather, pivotal to the state. As noted by Cooper (2008, p. 38), in the welfare state, women must dutifully manage their reproductive abilities in order to reproduce not only the family but, in fact, the nation. This logic is similarly apparent in the introduction to the first comprehensive Danish Abortion Act in 1938 when the general moral and legal taboo on abortion was relaxed for the first time, and the relationship between reproductive policies and the welfare state was cemented:

The rights of society to intervene in individual reproductive life were already broadly accepted in medical and political circles that believed that the state was responsible for public health ... Reproduction, as it impinged on society, was primarily a social and only secondarily an individual matter. (Koch, 2006, p. 308)

Reproduction and fertility have continued to be focal points in welfare-state theory (Esping-Andersen, 2007; Yuval-Davis, 1997). Scholars have indeed demonstrated how economic and labour issues provide the context in which women and their partners negotiate questions about reproducing through ARTs (Nahman, 2016), and we suggest that these issues also provide the context in the making of the law. Although the categorization of citizens as (male) breadwinners and (female) dependants by the National Agency for Statistics had been dropped in the early 1970s (Statistics Denmark, 2015), our analysis shows that traditional perceptions of male breadwinners and female providers of care within families continued to dominate the Danish case during the following decades. Yet, the value of carrying the welfare state's reproductive burden as a necessity in upholding the welfare state is absent from this rhetoric, exemplified in the problematization of the fact that Danish women remain dependent on the financial support of the welfare state, as a newborn girl will receive welfare benefits and services worth 1.6 million DKK more than she contributes in taxes during her lifetime (Smith, 2012), with the value of her contribution to uphold the welfare state through reproduction largely missing.

However, the collectively oriented Danish welfare state is under pressure from neoliberal ideology. Although neoliberalism can be seen as predominantly an economic theory emphasizing minimal state actions and the free market, it can also include a perspective on moral virtue; the virtuous person is one who is able to access the relevant markets and function as a competent actor in these markets. Individuals are also seen as being solely responsible for the consequences of the choices and decisions they freely make (Thorsen, 2010, p. 204). In terms of the Danish economy, labour market, and welfare state, the neoliberal political era has seen major labour-market reforms, more than halving the duration of unemployment benefits (Larsen & Andersen, 2009, p. 244), tying in to some degree with neoliberal ideology in which welfare states with high taxes and generous social transfer payments are seen to corrupt unemployed people (Dean & Taylor-Gooby, 1992), yet at the same time being presented as a recalibration of the welfare state to enable it to survive both external and internal challenges. The neoliberal ideology accordingly puts a premium on individualized rights. In terms of reproduction, the neoliberal consequently emphasizes reproductive autonomy (Kroløkke & Pant, 2012). That women are seen as individual and free agents is perhaps not surprising, given the fact that women (like men) are agents of economic growth coinciding with the female participation rate in the Danish workforce rising since the 1980s (Statistics Denmark 2014). Yet, while Danish women today, similarly to men, are breadwinners, the responsibility associated with pregnancy and parenting continues to be placed more solidly on women's shoulders (Kremer, 2007). This gendering of reproduction is similarly extended to fertility-awareness campaigns such as the recent Copenhagen campaign entitled *Have you counted your eggs today?* in which young Danish women (through a depiction of six chicken eggs) are targeted and made aware of the relationship between age and fertility. The ways in which the Danish welfare state today coexists with neoliberal ideology has effectively positioned women as responsible for their fertility, including the need to make behavioural and lifestyle choices that maximize their chances of pregnancy (Kroløkke & Pant, 2012).

Consequently, in many ways, Denmark constitutes a compelling case to study. Not only is the country a global leader in the export of sperm (Kroløkke, 2009) and laboratory equipment, it is also a well-known fertility destination for European single women as well as lesbian and heterosexual couples desiring anonymous sperm donation (Adrian & Kroløkke, in review). In the case of the cryopreservation of eggs, however, Denmark is more restrictive than neighbouring Sweden, and, consequently, Swedish fertility clinics encourage Danish women to go to Sweden by offering them the benefits of long-term storage.² Combined with the fact that one out of twelve Danes is currently conceived through the use of in vitro fertilization (IVF) (Mohr & Koch, 2016), this apparent contradiction between the quest to reproduce and the restrictions on the cryopreservation of eggs calls for examination. Accordingly, we use a genealogical analysis of the Danish law, engaging with Parliamentary debates as well as commentaries from the National Council of Ethics on cryopreservation more generally and elective egg freezing specifically.

Methodology and data collection

This article is effectively structured around the four periods of Danish regulatory response to assisted reproductive technologies (ARTs) and cryopreservation technologies ranging from 1984 until 2017. Empirically, we focus on Danish regulation of the cryopreservation of eggs, tracing the Danish Bills through the legislative process with their three readings in Parliament and the ensuing debates in both Parliament and the Parliamentary Health Committee, and the concurrent public and ethical debates that over time relaxed the legal limit for the cryopreservation of eggs from the initial proposed one-year limit to the current five years. To do this, we searched the Parliamentary files electronically (www.folketinget.dk and www.retsinformation.dk) and manually (Folketingstidende) for Bills, debates, Health Committee deliberations, public consultation files, and Acts related to the cryopreservation of fertilized and unfertilized eggs. We were furthermore allowed access by the Parliamentary Library to files not publicly available.

In this article, we combine two different disciplinary methods: a dogmatic legal analysis which establishes what the law is, and a rhetorical analysis that assists in identifying the sociotechnical imaginaries embedded within the empirical material. Because egg freezing is a recent technological development that ignites widespread discussion, we empirically turn to the ways in which the cryopreservation of eggs has been debated in mediated accounts dating from 2007 until the present day. To do this, we carried out a computer-generated info-media search using the words “freezing”, “eggs”, and “social freezing”, generating a total of 2,866 Danish articles written in the 10-year span of 2007–2017. A qualitative screening of all these articles using relevance as an indicator (leaving out unrelated articles such as recipes) helped narrow the empirical material to a total of 89 Danish newspaper and media accounts. In the subsequent analysis, we identified imaginaries through an emphasis on the interpretation of symbols and the use of rhetorical tropes such as metaphors and metonymy. Because language is central to the formulation of Bills, in the readings as well as the various public debates, we use a rhetorical toolbox in the formulation of different sociotechnical imaginaries. Consequently, while the law constitutes a site in which sociotechnical imaginaries unfold in practice (Jasanoff, 2015), attention to the images that different rhetorical tropes generate has been at the core of our analytical approach.

The choice to combine Danish regulations, readings, and debates in Parliament with public and ethical debates was made in order to prioritize the complex relationship between reproductive technological developments and the regulatory and public-opinion environments within which they unfold. A basic assumption is that legal regulation does not exist in a vacuum but, rather, regulatory decisions as well as ethical and public debates become entangled in ways that call for interesting theorizing. Generating a strong sense of the sociotechnical imaginaries is helped by the juxtaposition of different empirical material. We examine and privilege times of flux and changes over time, therefore necessitating a chronological approach, evident in this article in the choice to foreground different time periods (Fischer, 1995). Documents and other verbal texts related to science, technology, and power, such as legislative hearings, policy reports, judicial opinions, legal briefs, political speeches, and media reports, provide some of the most accessible and ubiquitous resources for analysing sociotechnical imaginaries. Consequently, we seek to discuss how different sociotechnical imaginaries are constructed by comparing different arenas of power, from the legal to the public and political. This involves analysing recurrent themes or tropes and positioning them in reference to the welfare state, articulated in this material in four sociotechnical imaginaries: the imaginary of the Moral State, technologies to be tamed, the nuclear family, and technology as equality and hope.

The sociotechnical imaginary of the Moral State

Up until 1984, in Denmark, assisted reproduction was not subjected to regulation. Instead, the sociotechnical imaginary of the competent and independent scientist had dominated the Danish case. Medical issues had been seen as best left to the medical profession to decide on a professional and scientific basis, and for that reason most medical issues were not addressed by legislation. In October 1984, however, a working group under the Ministry for Interior and Health published its report “The Price of Progress” which recommended the establishment of a Council of Ethics. In 1987, the Council of Ethics was established by Parliament, and in 1989 it published a report on the protection of human gametes, embryos, pre-embryos, and fetuses. It observed that viability was hard to preserve and recommended a time limit for cryopreservation. A majority of the Council found “that cryopreservation of eggs should be allowed subject to the same conditions applicable to sperm, i.e. that cryopreservation should be allowed for a limited time and [they] had to be destroyed at the time of the banker’s death” (p. 81). However, when the Council considered the cryopreservation of sperm, it did not consider that it should be subject to any limitations except on medical or administrative grounds as long as the sperm was destroyed when the banker died (1989, pp. 60–61). This requirement exclusively addressed the time lag between the deposit and the fertilization, ensuring that fertilization did not take place after death. Jointly, the Council of Ethics, along with increasingly sophisticated technological developments, led to a shift in the sociotechnical imaginary, from the imaginary of the competent scientist to the sociotechnical imaginary of the Moral State.

The sociotechnical imaginary of the Moral State became highly gendered. Whereas male gametes had no storage limit, women’s eggs were restricted in the number of years they could be preserved in a frozen state (with a further restriction regarding their transnational mobility added in 1994). The Council of Ethics’ report formed part of the background material for the 1991 Act on Biomedical Research Ethics Committees, which lifted the research ban

on fertilized eggs in order to ensure adequate quality in the provision of fertility treatments. IVF was now becoming a recognized clinical treatment, which meant that research—as was the case for all other treatments offered—was deemed integral to ensuring good quality. In Article 14, the Act authorized the Health Minister to issue a ministerial order regulating the donation and cryopreservation of human eggs. This primarily concerned requirements when establishing egg banks and cryopreservation. But the authorization was in reality not solely for the regulation of technical questions. A normative issue was intended to fall within the authorization, reflected in the fact that the government explicitly stated that it presupposed a maximum cryopreservation period of 12 months for eggs and embryos, but no reasons for this limit were given in the comments included in the Bill (L59/1991). In this manner, eggs and embryos were regulated in ways that sperm was not. For the Council of Ethics, the winning argument for regulating storage seemed to be the preservation of viability, while the government did not give any reasoning for fixing the limit at 12 months in the preparatory work.

The Moral State sought to regulate the normative issue of the status of the egg as well as that of the embryo. Authorization was assigned to the Minister in order to regulate technical issues in a law predominantly concerned with codifying the framework for biomedical research ethics that had previously been based on a non-binding professional framework. The Moral State was clearly not completely comfortable with regulating medical practices, which was in line with the general legal trend at the time—medical issues were on the whole best left to doctors to decide on a professional basis. Between readings in Parliament as the Bill passed on to further deliberations in the relevant parliamentary committee, the Health Minister had stated, in a reply to the Committee's question 96, that "cryopreservation of eggs is allowed when intended for later implantation in the same woman or for donation. Unfertilized human eggs cannot be cryopreserved for more than 12 months" (White Paper No. 59, 1992). Since the Act's authorization had to be interpreted in light of the scope articulated in the preparatory work, cryopreservation was regulated accordingly in administrative practice. In spite of the fact that the Ministry had received more than 100 applications from couples asking for extensions to the 12-month period due to physical and mental problems related to having to undergo a renewed cycle of egg retrieval, it had been impossible to grant extensions due to the lack of a legal basis to do so.

In 1993, the sociotechnical imaginary of the Moral State was reiterated once again in the government's attempts to regulate assisted reproductive technologies.³ The headline of the government's paper outlining its intent to regulate ARTs seemingly offers reassurance while reinstating ARTs as "unnatural". Offering "clear guidelines for artificial fertilization", it states that the Minister has asked the National Board of Health to issue guidelines based on the government's "comprehensive initiative to regulate". This initiative included limiting the maximum number of embryos to be implanted after IVF, a requirement to use cryopreserved (rather than fresh) sperm for donation for safety reasons, to implement a national reporting system allowing the Board of Health to "*control retrieved eggs*" and supervise the quality of treatment, and to set in place guidelines which mirrored what was described as women's natural ability to bear children. Bearing in mind that the said ability could end unnaturally early in some women, publicly funded IVF was nevertheless only to be offered to women up to 40 years of age. But, due to what was framed as the maintenance and upbringing of the child, in Denmark, 45 years was to be the upper limit for women to legally receive ART within the private sector, while no age limit existed for men. In a response to the parliamentary

Committee for Health, the Minister added that the increased risk during pregnancy and at birth for older women was also to be considered in setting the upper limit at 45 years.⁴ These guidelines clearly invoked gendered imaginaries and normative understandings related to the appropriate age for motherhood as well as the desire to control women's eggs, even in the frozen state. Subsequent legal interpretations would also rely on the intention to control as the basis for denying eggs transnational mobility (Ombudsman opinion, 1993).

In setting an upper age limit, the Danish law mirrored traditional and welfare-state views of women's role in the family (Pateman, 1989), which emphasize the importance of the female (and not the male) presence in the upbringing and care of the child. In this manner, the sociotechnical imaginary of the Moral or moralistic State replaced the earlier imaginary of the responsible scientist. To address the rapid developments within ARTs, the Moral State set out to stipulate guidelines that aligned themselves with gendered constructions of nature, including the limited, or non-existent, mobility or preservation of women's eggs. While it had previously been seen as natural that medical issues were best left to the medical profession to decide upon, the Moral State introduced a new set of legislative guidelines imbued with gendered implications that set the stage for taming scientific developments. The potentiality of ARTs to be monstrous was becoming a more powerful imaginary than that of the moral doctor. As noted by feminist scholars, in patriarchal cultures, technological developments are frequently discussed as having monstrous outcomes (Shildrick, 1996). While sperm had unrestricted international mobility, eggs were subject to a travel ban in order to control them. Both the Danish law and the Parliamentary debates reproduced particular understandings of the Danish nation. This ideal and imaginary state included the Viking nation, which was made territorially great by spreading its (male) seeds by travelling—a narrative which was heavily invoked in later international media news stories under such compelling headlines as “The father's a Viking” (*The Guardian*, 4 February 2011), “Invasion of the Viking babies” (*The Telegraph*, 23 June 2014), “Spreading Scandinavian genes, without Viking boats” (*New York Times*, 30 September 2004).

Technologies to be tamed

It was clear from the 1994 debate that Parliament was anxious for the Government to propose comprehensive regulation of ARTs because of the ethical concerns they raised. In February 1996, a Bill (1995/1 LSF 200) was introduced to regulate artificial fertilization, thus providing a legal basis for the prohibitions, which had previously been issued administratively (guidelines 15,120/1993, circular 108/1994, and guidelines 109/1994). This meant that the regulation of ARTs moved away from being an administrative regulation of the physicians' professional activity to becoming a normative comprehensive Act with sanctions inscribed in criminal law.

The Bill's overall approach was to regulate in the language of prohibition, in relation to both research activities and clinical applications, combined with an approval system. It included a provision on cryopreservation in Article 14, which codified the limitation on the cryopreservation of eggs and embryos to 12 months but with the possibility of the National Health Board granting permission to extend this period “in special cases, where the woman's health or other critical grounds” spoke in favour of an extension. Once again, no upper storage limit existed for the cryopreservation of sperm. Moreover, in an explicit quest to tame ARTs, the adopted Act continued to include what was discursively positioned

as an “objective” age limit of 45 years for women to replace the Bill’s suggested subjective limit of 40–45 years based on an individual assessment of the woman’s reproductive capacity and whether or not it has ceased because of age or the onset of menopause. While this assessment was initially intended to apply to both men and women, in reality it became gendered, as the adopted requirement related to women only. During the Parliamentary Health Committee’s deliberations, different constellations of party minorities, majorities, and individual members proposed a large number of amendments. One amendment proposed to continue the 45-year age limit for women only. The proposition stated that this would legally fix the age limit, which the government had proposed in 1993 as part of a press release and which had subsequently been part of the Health Board’s guidelines of 22 December 1993.

While the monstrosity of the old mother is present throughout this material, other monstrosities were invoked as well. Notably, in these Parliamentary debates, the monstrosity of disrupting what appeared to be a normative kinship order (“twins in separate pregnancies”) became pivotal. According to a spokesperson for the Social Democratic Party, separating “twins” became morally suspect: “At present no eggs are frozen, but technology may catch up. I find 12 months to be right. To me, there is something unethical about having embryos in storage, maybe even to have twins in separate pregnancies.”⁵ Similarly, the Conservative Party’s spokesperson expressed concern when comparing frozen reproductive cells with what she speculated to be the similarly poor viability of frozen food: “It is the thought of the artificial that scares me ... after two or three years in the freezer ... are the eggs in good condition? The food we freeze has a shorter shelf life” (1996/1 LSF 5 debate). Meanwhile, the spokesperson for the Socialist Party reiterated the need to tame ARTs by simply referring to the technological developments as “monstrous research” (1996/1 LSF 5 debate). The Bill, however, did not succeed in being read three times during the parliamentary working year because the Parliamentary Health Committee felt that there was insufficient time to debate and negotiate it, and consequently it was automatically struck. The Government put forward the Bill with slight revisions the following Parliamentary year (1996/1 LSF 5).

During this time period, the Parliamentary debates reiterated a concern about the “unnatural”, which featured heavily in the image of the freezer, the ageing mother, and the best interests of the child. For example, in one proposition, a leading Danish politician stated in reference to the cryopreservation of embryos that it was offensive to have “the family in the freezer”, calling for a maximum two-year cryopreservation period. Meanwhile, the general extension of the one-year legal limit was believed to address concerns related to the woman and her family, cases of illness, and the physical and mental trauma of having to undergo renewed hormone stimulation and egg retrieval. The extension was meant to ensure the successful achievement of one pregnancy in accommodating further treatment cycles if the first attempts were unsuccessful. It was noted that longer cryopreservation limits abroad indicated that there were no safety issues in extending the limit. However, the limit was not extended beyond the two years out of consideration for the ethical concerns that had been voiced, including by the Council of Ethics, which in its 1995 annual report stated that scientific studies indicated that the cryopreservation of eggs would likely damage the chromosomal material. Between readings, the Parliamentary Health Committee considered the Bill and members posed various suggestions for amendments. Their deliberations, the material they received during the public consultation process, and the suggested amendments reflect a number of key concerns and questions: Would the technology lead to unnecessary

treatments, potentially burdening the welfare state? And what were the consequences of individualizing eggs and embryos in this way in relation to women's rights on the one hand and disposition rights over the material on the other?

The imaginary of medicine as a scientific endeavour in the service of the moral good was changing during this time period. The adoption of the Act on Artificial Reproduction was followed by the adoption of the Patients' Rights Act 1998, reflecting a general legislative move away from self-regulation towards taming reproductive technologies, including the technologies of cryopreservation. In this sociotechnical imaginary, eggs became seen as vulnerable entities in need of protection, while no such concerns were expressed about sperm. Medicine in the realm of new technology had to be tamed because of what became framed as the risks to the patients and the overall ethical concerns related to present and future reproductive options, including the gendering of reproductive cells. Meanwhile, cryopreserved sperm did not invoke the same kind of response or concern. In this manner, eggs became bearers of kinship in need of state protection, and technological developments, including the ability to cryopreserve eggs and embryos, became technologies to be tamed. Consequently, the entanglements between Parliamentary debates and Danish law produced an image of the welfare state as rightfully controlling women's ability to put eggs on ice.

The nuclear family

In 2006, a Bill (2005/1 LF 151) to modernize the Act on Artificial Fertilization included new provisions for the assessment of parental skills, widened access to egg donation, and extended the maximum period of cryopreservation of eggs to five years. The accompanying remarks state that both the Ministry and the National Board of Health had continued to receive requests for dispensation so that couples could try for a second child with their cryopreserved fertilized eggs. It is noteworthy that, during this time period, the debates made reference to cryopreserved eggs and fertilized eggs interchangeably. Whereas *one* pregnancy had been the goal of the previous legislation, the issue was now that of securing families more time to establish a *second pregnancy*.⁶ Relying upon scientific evidence that cryopreservation posed no risks, the government extended the time limit to five years, successfully enabling the possibility for two children to be born within a normative kinship order. It was stressed, however, that cryopreserved eggs were subject to other legal limitations besides the length of the cryopreservation period, such as the requirement that they be destroyed in cases of death or divorce, the rules on donation to other women, and the requirement for consent in the case of donation to research. It was in order to ensure the enforcement of these rules and requirements that an upper limit for cryopreservation was left in place. Meanwhile, no upper storage limit was imposed on the cryopreservation of sperm.

Clearly, the technological ability to successfully cryopreserve women's eggs was still in its infancy during this time period. In the popular debates, cryopreservation was frequently problematized and seen as a potentially monstrous technology. This was especially true in cases when same-age embryos (created during the same IVF treatment) were used during separate IVF treatments and pregnancies. As noted in one Danish account, but in reference to a case in the United States, where a 42-year-old woman used a 20-year-old embryo to create a healthy child: "How about having a child that comes from an egg older than yourself?" (Jyllandsposten, 2010). Similarly, the headline "Created at the same time: Twins born five years apart" underpinned what became seen as the "unnaturalness" associated

with the disruption of sibling (kinship) time. As echoed in the article in which the older child's resemblance to the newborn is presented as uncanny:

He was an easygoing and happy boy, and while he was growing big and strong turning into the five-year-old bundle of energy he is today, little Floren was on ice. The egg, which ended up as the loveliest of girls, was stored at minus 196 degrees. (Søgaard, 2012)

In the public imaginary, then, eggs and embryos—even when put on ice—age and turn into a “twenty-year-old egg” (Mama.dk, 2010) or a “twenty-year-old sister” (Mama.dk, 2010).

While the monstrosities associated with disrupting the normative kinship order (embryos created at the same time should be born at the same time) continue to be visible, the sociotechnical imaginary of ice is not exclusively negative during this time period. Rather, in the popular debates, ice becomes aligned with the notion of strong and healthy babies. As noted in one account, cryopreservation is constructed as good news for the parents, because frozen embryos result in the birth of larger babies, simultaneously diminishing the risk of prematurity (Foghsgaard, 2009). So, while ice disrupts kinship temporalities, it is seemingly and positively also seen to contribute to the baby's health. This ambivalence between ice as unnatural and monstrous (separating twins and siblings), on the one hand, and healthy (making for sturdier children), on the other, coincides with attempts to regulate ice within certain normative frameworks. Additionally, the imaginary draws upon nationalized and preconceived notions of frost as healthy, such as babies who, in the Scandinavian countries, conventionally nap outside in cold weather, for example. Jointly, the modernization of the Bill and increased awareness concerning the possibilities of cryopreservation came together, during this time period, to create a new set of sociotechnical imaginaries. The sociotechnical imaginary of the modern nuclear family included the desire for two children along with the notion that frost did not hinder but in fact supported the making of strong Danish babies.

Technology as equality and hope

It was not until 2015 that the Danish Council of Ethics made a statement on the storage and use of unfertilized eggs. Notably, the Council found that it had not sufficiently discussed how the storage and use of unfertilized eggs ought to be regulated in light of the new preservation possibilities, stressing that it had been assumed without explicit reasoning or discussion that the regulation of unfertilized eggs would follow that of fertilized eggs. Central to the debates, once again, was the best interests of the child, including the development of a practice ensuring that cryopreservation would be used to increase the opportunities for creating well-functioning children as conceptualized within the parameters of welfare-state perspectives as the creation of future responsible (healthy and tax-paying) citizens.

Whereas the Council expresses concern related to the cryopreservation of eggs, it explicitly seeks to manage cryopreservation through a reinstatement of the woman's age. A continuation of the age limit would, according to the Council, serve as a general encouragement for women to reproduce earlier. Interestingly, the Council notes that, if the upbringing of the child and the child's best interests are key concerns, as they indeed were in the adoption of the 1997 Act, then an age limit should apply to men too. Yet, due to the fact that men's reproductive abilities are seen as not ceasing “naturally”, the Council in its deliberations cements the concern to exclusively centre on the image of the older mother. Accordingly, the Council calls for legal frameworks that discourage women from “deliberately choosing to postpone pregnancy” (The Danish Council of Ethics, 2015, p. 8), encouraging women

instead to have children prior to their 35th birthday. In terms of “social freezing”, the Council conceptualizes the technology as not altogether a “free choice” but in fact caused by the absence of suitable male partners, thus reinstating social egg freezing within a heteronormative framework (Waldby, 2016). An extremely divided Council remains critical, however, of women’s ability to deliberately postpone reproduction to their later years, discussing arguments for and against regulating sperm and eggs in the same way. The Council advises that sperm and eggs *are* different—amongst other things, sperm, according to the Council, is easier to access and exists in larger numbers—encouraging in fact the development of differential and gendered legislation.

In contrast to a sceptical Council, in the popular debates, social egg freezing is celebrated as a new reproductive revolution enabling women to put their fertility on hold at will. As noted in one account:

Through cryopreservation, women can expand their biological time and plan their way out of the crisis, which is why an egg on ice seems like an obvious solution, especially if you want to enjoy your success in the job, find the man that you dreamt about in your teenage bedroom and, for once, do not see the necessity of having children in your early spring because you expect to turn 100 years old. (Wallach, 2015)

Similarly, Danish newspapers rely on the experiences of North American fertility clinicians such as David Keefe, head of New York University Fertility Center, who positions egg freezing as a natural extension of women’s ability to make their own reproductive choices: “We have been successful at liberating women from pregnancies, but we have never been successful at letting women have children when they want them” (Vestergaard, 2014). Social egg freezing, in these debates, extends the reproductive choices afforded by the birth-control pill, making cryo-pregnancies appear normal—even attractive—as they enable women to synchronize their “biological clock” with the rest of their lives or, as noted in one account: “Wise women freeze” (Tholl, 2016). In this manner, popular debates on social egg freezing put a premium on neoliberal modes of reproductive rights and autonomy.

Meanwhile, Danish women’s ability to bring their reproduction into sync with the rest of their lives (and not the other way around) continues to be limited by the five-year cryopreservation time period. This limitation has been criticized, however. For example, the Danish bioethicist Thomas Søbirk Petersen notes that egg freezing is seen as having a potentially positive impact on women’s careers, when he says:

If we allowed egg freezing to all women, we might have more ambitious women in the top posts of society. Those women would have an easier time changing structures within their present workplaces so, in the end, it would be easier for other women to have their children earlier. (Wallach, 2015)

The gender-equality argument is similarly employed by the head of The Laboratory of Reproductive Biology at Copenhagen University Hospital, Claus Yding Andersen, when, in reference to men’s cryopreservation options, he is quoted as asking critically: “Why can men have their sperm frozen indefinitely, while women can freeze for a maximum of five years?” (Ejsing, 2014). In this sociotechnical imaginary, freezing or postponing reproduction is aligned with the promise of a more gender-equal society. Ice becomes a technology that frees women, assisting them in synchronizing their reproductive bodies with their careers and romantic time, yet also firmly situating women’s reproduction within a biomedical mode (Thompson, 2005). In these accounts, neither frozen eggs nor women’s uteruses age: “A woman has the best chance of becoming pregnant while she is young. Here the eggs are

best and plentiful. The uterus on the other hand does not age”, one reporter notes.⁷ Having eggs on ice, then, is imagined as granting women the freedom to choose, an individualized and neoliberal reproductive solution to what might otherwise be construed as a collective problem riddled with structural and gendered barriers.

In spite of these more celebratory accounts, social egg freezing continues to be questioned in light of women’s ageing bodies as well as the limitations that the Danish five-year cryopreservation period poses. Here, egg freezing is narrated within a heteronormative framework and positioned as constituting both false and limited promises. As argued by the former head of the Danish Council of Ethics, Jacob Birkler:

It is not about preventing women from having the same rights as men, but amongst other things about fooling them and giving them the impression that they can use freezing to extend their reproductive time and wait for children until their career is in place and the man has been found. (Danish Ethical Council, 2015)

Similarly, clinician Karin Erb sees egg freezing as creating a false sense of security, leading women to potentially waste their fertile time: “I am worried that women think they are assured children until they are 45, if they freeze 10 eggs” (Dahlgaard, 2013). Mai Mercado from the Conservative Party echoes this when she speculates that freezing may increase the age difference between parents and their children. While Mercado (2014) positions her concern as having to do with “parents”, it is effectively gendered towards “mothers”, as no age limit currently exists for men:

Now you will pretty soon be able to freeze your eggs when you are in your early 20s and then wait until your 40s to use the completely young eggs. I think you are interfering with nature too much. To me, it is also important that the age difference between *parents* and children is not too great. (Mercado, 2014)

In this imaginary, the notion of mothering at a grandmother’s age disrupts the normative temporality of reproduction. Thomas Søbirk Petersen addresses this when he is quoted as saying: “I think a lot of people basically find it disgusting and gross when mothers are in their 50s and 60s” (Vestergaard, 2014).

Consequently, the more celebratory imaginary of ice is replaced, in these debates, with an alarmist imaginary citing freezing as a potential scam that, when combined with the monstrosities associated with the ageing (in)fertile female body, turns the cryopreservation of eggs into a negative right. In the cold new world of cryopreservation, ice is made to appear a viable option enabling reproductive autonomy and fertility at a later age, yet also problematized as invoking commercial exploitation in the form of false promises and misplaced hope. Feminist scholars echo this latter perspective when they critically position ARTs as a technology of hope, noting that the requirement to be hopeful is an earmark of neoliberal ideology (Franklin & Lury, 2006). In both understandings, social egg freezing is positioned within an individualized imaginary in which women (but not men) navigate the responsibility associated with reproductive technologies and family planning.

Concluding remarks

In this article, we have discussed the Danish sociotechnical imaginaries of cryopreservation as being embedded within Danish legal regulatory practices as well as within the Council of Ethics, and Parliamentary and public debates. We have seen how competing imaginaries unfold in the Danish case between the early sociotechnical imaginaries of the Moral

State and the taming of freezing technologies, and the more contemporary imaginaries of the modern nuclear family, along with monstrous disruptions of reproductive temporality and autonomy. To some extent, the imaginary of cryopreservation in which the family (or fertility) is put in the freezer has been present during all of these time periods. Here, the workings of the law have been to regulate reproductive lives to fit within the nationalized ideal of the Moral State and the moral professional, now extended to the modern nuclear family along with what gets framed as the fit, autonomous, and younger (under 35) mother. Danish law has repeatedly sought to control women's eggs, both in terms of their inability to move transnationally and their ability to stay on ice. Here, the image of older mothers deliberately defying age-defined reproduction, positioning grey maternity as a form of bodily rejuvenation (Lahad & Hvidtfeldt Madsen, 2016), appears especially problematic. Meanwhile, women continue in these sociotechnical imaginaries to shoulder the responsibility for bearing children as well as becoming the bearers of the Danish welfare state.

As evidenced in the material, however, the moralistic yet controlling welfare state is under siege. Confronted with the imaginary of individualized reproductive autonomy and neoliberal reproductive citizenship, normative imaginaries associated with reproductive time and age are potentially disrupted. Yet, the discourse simultaneously reiterates a naturalized desire for heterosexual coupledness prior to pregnancy as well as women who become positioned as responsible reproductive decision-makers. In the public debates, however, cryopreservation is both celebrated as a gender equalizer and also critically questioned as an insurance policy—a speculative banking of one's fertility of sorts, as well as an indicator of health, because ice is seen to make sturdier babies.

Our findings cement the importance of interdisciplinary feminist scholarship. In the Danish case, reproduction has been a central tenet of the welfare state. In seeking to control women's eggs and the age at which women—at little cost to the welfare state—can reproduce, the Danish welfare state has applied a gendered rationale in which men's reproductive cells “naturally” transgress the borders of geographical place, life, death, and the market. Meanwhile women's eggs continue to be regulated as the property of not only the individual woman but also the state. Danish women are expected to manage the burden of the welfare state through reproducing responsibly, reiterated in our empirical material as limiting cryopreservation and managing pregnancy within a normative age framework. The monstrous constructions of the older mother and the disruption of sibling temporality are managed in order to fit particular understandings of the good mother/citizen and the healthy/responsible child. In combination, we have shown that interdisciplinary feminist scholarship contributes with important knowledge about the ways in which the Danish law becomes entangled with technological developments as well as Parliamentary, public, and Council of Ethics debates.

Notes

1. The video *Do it for Denmark* can be found at: <https://www.youtube.com/watch?v=vrO3TfjC9Qw> Retrieved October 2017.
2. Cura Öresund markets its services specifically to Danish women on its website: http://www.ivfcliniken.se/curaoresund/behandling_2012/nedfrysning-af-aeg/ Retrieved October, 2017.
3. http://webarkiv.ft.dk/?/samling/19931/udv_bilag/suu/almdel_bilag63.htm. Document is not electronically available, but made available to the authors courtesy of the Parliamentary Library.

4. http://webarkiv.ft.dk/?/samling/19931/udvtilag/suu/almdel_bilag137.htm. Document is not electronically available, but made available to the authors courtesy of the Parliamentary Library.
5. Debate on Bill No. 200 of 23 February 1995 printed in *Folketingets Forhandlinger* p. 4055 http://webarkiv.ft.dk/?/samling/19951/lovforslag_oversigtsformat/l200.htm
6. See also the Health Minister's speech during the first parliamentary debate <http://www.ft.dk/samling/20051/lovforslag/l151/beh1-48/81/forhandling.htm?startItem=#nav>
7. Kvinder fryser sig til sen graviditet. Derfor frosser yngre kvinder æg ned, mens de venter på drømmeprinsen [Women freeze to have a late pregnancy. These are the reasons why younger women freeze while they await the prince of their dreams]. *24 timer*, 28 June 2010.

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Guidelines no. 15,120 of 22 December 1993 on physicians' use of artificial fertilization and other forms of fertility enhancing treatments.
The Health Board's circular no. 108 of 13 June 1994.

...OPINION

Dansk lov forhindrer kvinder i at eje deres krop


Kvindens nedfrosne æg bliver destrueret efter fem år, men der er ingen tidsgrænse for nedfrysning af mænds sæd.



»Er det virkelig etisk forsvarligt, at kvinder ifølge dansk lov ikke kan nedfryse deres æg lige så længe de ønsker, mens dette er muligt for mænd?« skriver Thomas Søbirk Petersen. Billeder fra Dansk Fertilitetsklinik.

Foto: Asger Ladefoged

Torsdag d. 26. december 2019, kl. 15.45

Del denne artikel 

Thomas Søbirk Petersen, professor i Etik ved Roskilde Universitet

Hvem synes du, der skal bestemme over din krop - du selv eller staten?

Jeg tror, at de fleste vil mene, at det skal vi selv. En fundamental etisk rettighed er, at vi ejer os selv, og at vi kan gøre med vores krop, hvad vi vil, bare vi ikke skader andre.

Vi bør bekæmpe, at andre tager ejerskab over vores krop. Et eksempel på, at selvbestemmelsesretten bliver krænket, finder vi i dansk lov om assisteret reproduktion.

Ifølge **loven** kan mænd nedfryse deres sæd lige så længe, de ønsker - også efter deres død (§23, stk. 5) - mens det er strafbart at nedfryse kvinders æg i mere end fem år (§15). Straffen er ifølge lovens §29 op til fire måneders fængsel. En straf for at hjælpe kvinder med at bevare nogle af kvindens egne celler.



Thomas Søbirk Petersen

Er det virkelig etisk forsvarligt, at kvinder ifølge dansk lov ikke kan nedfryse deres æg lige så længe, de ønsker, mens dette er muligt for mænd? En forskel der gør, at mænd kan eje deres sæd på ubestemt tid, mens det ikke er muligt for kvinder. En forskel der gør, at mænd har bedre chance for at få børn end kvinder.

Kvinder bør stilles lige med mændene. Både fordi der er gode grunde for en ligestilling mellem kønnene, hvad angår ejerskab af egen krop, og fordi der ingen gode grunde er for denne forskelsbehandling. Desuden kan en lovændring øge chancen for, at børn bliver født med færre alvorlige genetiske sygdomme. Hvis en kvinde nedfryser sine æg som f.eks. 25-årig og igen anvender dem som 40-årig, er risikoen for, at barnet har genetiske sygdomme mindre, da en 25-årig kvindes æg i gennemsnit er mindre disponeret for genetiske sygdomme end hendes æg, når hun er 40 år.

»Den overvejende grund til, at kvinder får børn i en senere alder, er, at mange mænd er ramt af et Peter Pan-syndrom, der gør, at de først ønsker at få børn i 40erne og 50erne.«

Man kan mene, at det er farligere for kvinder at være gravid og føde børn i en senere alder, og at en ændring af loven vil betyde, at flere kvinder får børn i en senere alder, end det er tilfældet i dag. Det er rigtigt, at der er en øget risiko for moderen, hvis man bringer et barn til verden som 40-årig end som 25-årig. Men hvis man som kvinder bliver informeret om disse meget lave risici, er det vel kvinden selv, der skal bestemme, om hun ønsker at få børn? Vi tillader jo, i al almindelighed, kvinder over 40 år at få børn.

Man kan også mene, at staten ikke bør støtte, at kvinder kan få børn i en senere alder, og at kvinders ejerskab over deres kønsceller vil øge sandsynligheden for dette. Jeg er helt på det rene med, at det er sundt fornuft at prøve at få børn, mens man som kvinde er i 20erne. For det vil øge chancen for at få de børn, man ønsker at bringe til verden. Men der er mange andre grunde til, at kvinder får børn i en senere alder, end at kvinder udskyder at få børn, fordi det er teknologisk muligt. Det kan være

fordi, man har mistet et eller flere børn, eller at man har mistet den kæreste eller ægtefælle, som man gennem mange år troede, man skulle have børn med.

Forskningen viser, at den overvejende grund til, at kvinder får børn i en senere alder, er, at mange mænd er ramt af et Peter Pan-syndrom, der gør, at de først ønsker at få børn i 40'erne og 50'erne. Da er det ofte for sent for deres jævnaldrende kvinder. Kvinder ønsker at få børn i en tidligere alder, men det er altså ofte mændene, der forhindrer dette.

»At man vil straffe individer, der vil hjælpe kvinder med at bevare deres nedfrosne æg, er svært at forstå i et foregangsland som Danmark.«

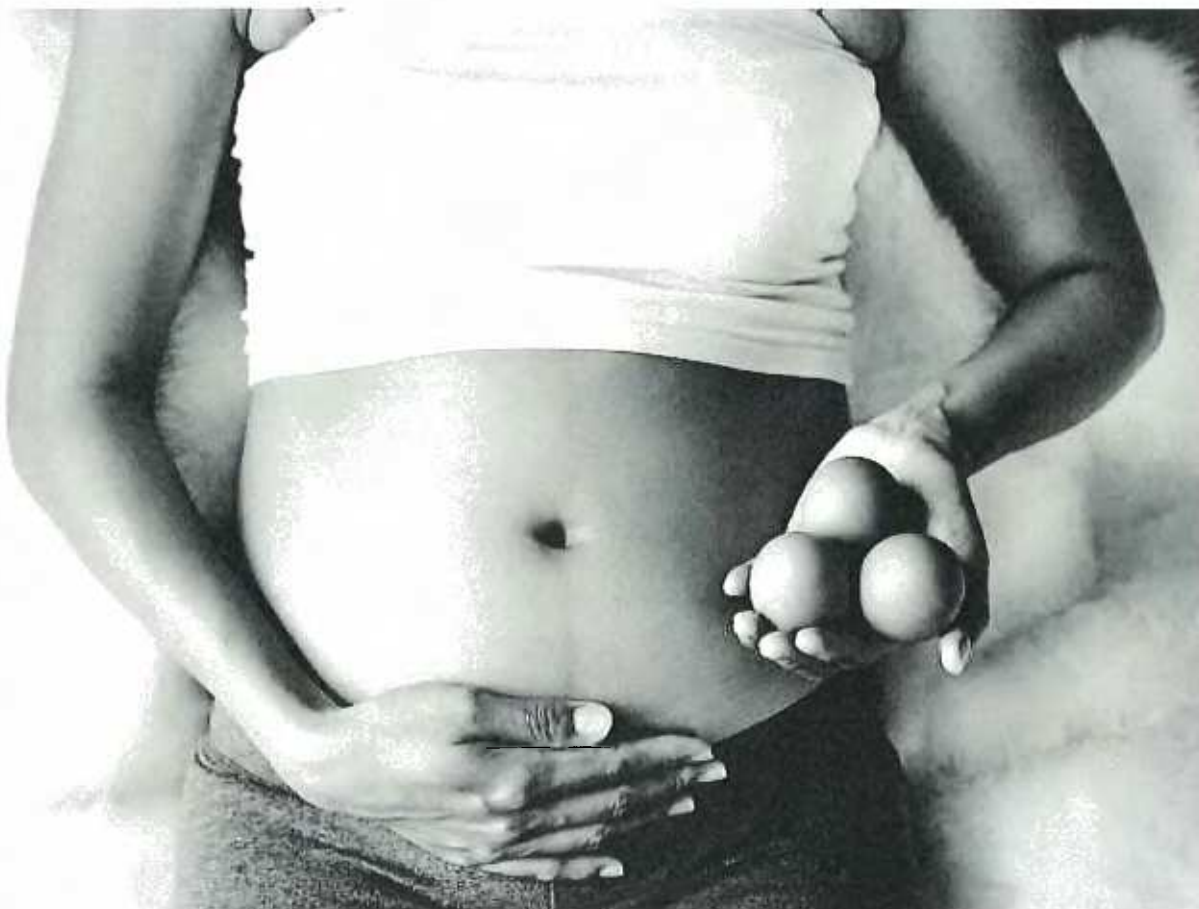
Man kan også mene, at det er synd for børnene, når kvinder får børn i en senere alder, fordi børnene har deres mødre i kortere tid end yngre mødre.

Men så længe, der er tale om børn, der har liv, som er værd at leve, er det svært at se, hvorfor det skulle være synd for dem at blive til, eftersom alternativet ville være aldrig at være blevet født. Og - som nævnt før - i nogle tilfælde vil frysning af æg faktisk formindske risikoen for, at børn bliver født med genetiske sygdomme, eftersom denne risiko er mindre, når man bruger unge æg.

At kvinder ifølge dansk lov bliver lagt på is, når det handler om at få børn og selvejerskab, er problematisk. At man vil straffe individer, der vil hjælpe kvinder med at bevare deres nedfrosne æg, er svært at forstå i et foregangsland som Danmark, hvor vi sætter ejerskab over egen krop højt, og hvor vi mener, at kvinder og mænd skal have lige adgang til at få de børn, vi ønsker at bringe til verden. Giv kvinderne en oplagt julegave: lad dem bestemme over deres egen krop, og slet den formynderiske fem års grænse...

Kvinde, hvor mange æg har du i banken?

KOMMENTAR: Britiske, amerikanske og svenske kvinder kan nemt få deres æg frosset ned. Er du kvinde i Danmark, er det til gengæld knap så let. Hvorfor halter Danmark stadig efter?



Når nedfrysning bliver set som »uværdigt« , er det fordi kvinders arveanlæg ikke 'bare' er kønsceller, men i højere grad gjort til fremtidige børn. (Foto: Shutterstock)

Charlotte Kroløkke - Professor MSO, Institut for Kulturvidenskaber, Syddansk Universitet & Janne Rothmar Herrmann - Lektor, Det Juridiske Fakultet, Københavns Universitet

08 marts 2018

FORSKERZONEN

KOMMENTAR

PARFORHOLD

Evnen til at kunne reproducere os selv 'kunstigt' udvikler sig hastigt i disse år. Vi bliver bedre til at

opbevare menneskelige æg, sæd, ovarievæv og embryoner. Det skaber helt nye og komplekse dilemmaer for lovgivere, kliniske praktikere og de involverede kvinder og mænd.

Skal en kvinde eksempelvis have mulighed for at forlænge sin reproduktive alder ved at nedfryse sine æg, og hvor lang tid bør en kvindes æg egentlig kunne ligge på køl?

Danmark er kendt for at have verdens største sædbank, men mens retsreglerne understøtter salg og opbevaring af sæd, ser det anderledes ud for kvinders æg. Lovgivningen begrænser i dag opbevaringstiden af æg og embryoner til fem år, og man må kun bruge dem indtil kvinden fylder 46 år.

Derimod er der intet til hinder for, at en 65-årig mand donerer sæd eller bruger sin allerede opbevarede sæd til at få børn med – har han sagt god for det, kan sæden endda bruges, efter han er død.

Hvilke værdier gælder på hvilket tidspunkt?

Men hvad er det egentlig for værdier, hensyn og forestillinger, der ligger til grund for, at lovgivningen er indrettet, som den er? Og er de hensyn fortsat gangbare som argument for at opretholde gældende lovgivning?

Det satte vi os for at undersøge ved at analysere mediedebatter, etiske debatter, folketingsdebatter, lovforslag og love – helt tilbage fra den første regulering af assisteret reproduktion i 1997 frem til den nugældende lovgivning og aktuelle debatter om det, man i dag kalder 'social freezing' – altså det fænomen, hvor kvinder får frosset æg ned, fordi deres livssituation ikke er til et barn nu og her.

Vores resultater er netop udkommet i artiklen 'Eggs on Ice: Imaginaries of Eggs and Cryopreservation in Denmark' i Nordic Journal of Feminist and Gender Research (NORA).

Æg og reproduktion skulle kontrolleres

18. oktober 1983 blev Troels Renard Østbjerg født som Danmarks første reagensglasbarn. Hans fødsel og de reproduktive teknologiers ankomst skabte et nybrud: Hvor man før havde opfattet lægen som en moralsk ansvarlig figur i det godes tjeneste, opfattede man nu de nye teknologer som potentiel 'monsterforskning', der skulle tæmmes.

Det kunne man ikke overlade til forskerne og lægerne selv. I stedet måtte lovgiverne på banen. De var ikke helt trygge ved at bevæge sig ind på lægernes domæne – og den første, spæde regulering havde derfor hovedsageligt karakter af faglige vejledninger. Den første samlede lovgivning, der trådte i kraft i 1997, rammesatte de reproduktive teknologier som kunstige (lov om kunstig befrugtning) og regulerede hovedsageligt i forbudssprog.

Et centralt element i loven var ønsket om at kontrollere æg – også de ubefrugtede. For eksempel har

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handel med æg længe været fordømt som uønskeligt, mens vi har kunne bryste os af at være førende på det globale marked i sæd.

Ønsket om at kontrollere forplantningen kan da også spores helt tilbage til den tid, hvor velfærdsstaten var under opbygning.

Vi får eksempelvis den første abortlov i 1939 – der trods en grundlæggende opfattelse af abort som naturstridigt og samfundsfarligt – nu gav mulighed for at abortere syge eller misdannede fostre, så byrden på de offentlige kasser, der skulle sørge for pleje og underhold, ikke blev for stor.

Da Det Etske Råd bliver oprettet i 1987, sker det også med det specifikke formål at rådgive Folketinget efter Indenrigsministeriets rapport 'Fremskridtets Pris' med et billede af Adam, Eva og det forbudte æble på forsiden havde formået til lovgivning om nye reproduktionsteknologier.

»Kvinder er ikke beregnet til at lægge æg«

Men mens der ikke laves regler for, hvor længe sæd kan opbevares i fryseren, blev ubefrugtede æg set som sårbare størrelser, der havde brug for særlig beskyttelse.

Ordfører Henriette Kjær (K) udtaler således ved 1. behandlingen af 1997-loven om kunstig befrugtning, at »det er tanken om det kunstige, der skræmmer mig, hvor man to eller tre år efter, at ægget er blevet nedfrosset, tager det frem igen (...) man kan spørge sig selv, om æggene er i god nok stand. De fødevarer, vi fryser ned, kan jo ikke engang holde så lang tid.«

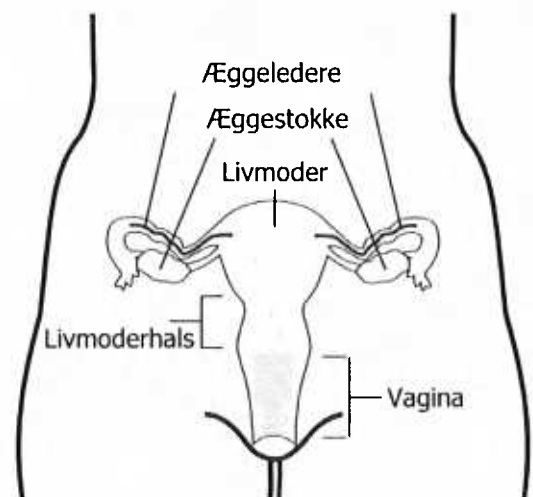
Ordfører Margrethe Auken (SF) følger op: »Vi er bekymrede for, hvad der sker, når det æg kommer ud af kvinden, for når vi ser, hvad der derefter kan findes på, er vi faktisk tilbøjelige til at sige, at kvinder ikke er beregnet til at lægge æg, og derfor vil vi ikke have det.«

Ønsket om at kontrollere æg betød, at de heller ikke måtte forlade landet, alt imens salget af sæd efterhånden blev til en national eksportsucces.

Uværdigt at have et 'barn' i fryseren

Nedfrysning af kvindens arveanlæg bliver i lovgivningen og de etiske debatter indflettet i en bestemt kønnet værdighedsforståelse. Det Etske Råd har i deres redegørelse fra 2004 et separat afsnit, der handler om etik og nedfrysning.

I afsnittet diskuterer Rådet alene ubefrugtede og befrugtede æg. Nedfrysning bliver set som



Kvindens æg udvikles i æggestokken, hvorefter det føres til livmoderen gennem æglederen. Hvis ægget befrugtes, sætter det sig fast i livmoderens slimhinde og danner et foster. (Illustration: CDC, Mysid)

»uværdigt,« og Rådet ser bekymret på den »voksende industrialisering og teknologisering af den menneskelige forplantning.«

Det ser på det tidspunkt helt anderledes ud med sæden. Nedfrossen eller ej – så bliver sæd set som en »klat« (donerede) celler. Kvindens æg er derimod indlejret i en række kulturelle og ret kønnede forståelser.

Hendes arveanlæg er nemlig ikke 'bare' kønsceller. De er i højere grad gjort til fremtidige børn. Og i debatterne bliver det potentielt uværdigt at have sine fremtidige børn liggende i fryseren. Det er tydeligt i den meget glidende overgang, der finder sted i Det Etske Råds redegørelser mellem ubefrugtede og befrugtede æg.

Et bekymret Råd ser nedfrysningsteknologierne som en måde at kunne »overplanlægge« og »suspendere livet« på. Nedfrysning af æg bør derfor, skriver Rådet, »forvaltes efter forsigtighedsprincippet, det vil sige efter de samme regler som for fosteranlæg.«

I 2006 udvides opbevaringsperioden på befrugtede og ubefrugtede æg dog til fem år. Det primære hensyn er dog her ikke kvindens råderet over egne æg. Det er til gengæld hendes mulighed for at få barn nummer 2 og derved en etablering af kernefamilien, der udtrykkelig anføres som baggrunden for ændringen ved ministerens fremsættelse.



Både sæd og æg fryses ned ved hjælp af flydende nitrogen. (Foto: Shutterstock)

Ægfrøsning er nu et frynsegode i USA

Når det handler om den kvindelige reproduktion, har lovgivningen arbejdet ud fra et naturligheds- og forsigtighedsprincip. Assisteret reproduktion (tidligere benævnt som 'kunstig befrugtning') skulle nemlig helst ligne den 'naturlige' forplantning mest muligt.

Og mens fryseteknologien var veletableret i forhold til mandens sæd, var den i 1990'erne og i starten af det 21. århundrede i forhold til kvindens arveanlæg fortsat ny.

Det er ikke længere tilfældet.

I 2012 slog The American Society for Reproductive Medicine (ASRM) fast, at nedfrysning af æg ikke længere er en eksperimentel behandling. Det er i dag muligt at nedfryse (og optø) ubefrugtede såvel som befrugtede æg på formentlig ubestemt tid – idéen er at nedfryse, mens æggene er biologisk 'unge og friske', enten for at bruge dem efter endt kræftbehandling, der ødelægger fertiliteten eller senere i livet, når det passer i kvindens livsplaner.

Fakta

Ice Age-projektet

Facebook, Apple og Pentagon tilbyder nu ægfrysning-pakker som en del af deres frynsegoder. Amerikanske fertilitetsklinikker har ikke overraskende også fået øje på det store marked og afholder 'cocktails and cryo' informationsaftener, hvor frysemulighederne bliver forklaret til en gruppe af fertilitets-bevidste men også bekymrede kvinder.

Vi hylder de gamle fædre, men skoser de ældre mødre

Den danske lovgivning fastholder derimod en 5-års regel, der gælder for kvindernes æg, men ikke for mandens sæd. Samtidig er der en øvre aldersgrænse for behandling af kvinder, mens mænd kan blive fædre i alle aldre. Hensynet kan dog ikke længere kun være forbundet med et medicinsk forsigtighedsprincip.

Det handler snarere om kuldegysninger forbundet med det kommercielles 'indblanding' i forplantningen, bekymring forbundet med, at nedfrosne æg stikker kvinder blår i øjnene om deres fremtidige frugtbarhed og så risikoen for, at gamle kvinder bliver mødre.

For mens gamle danske fædre hyldest som højtprofilerede mænd, der kører sportsvogn og har 'vind i håret', fastholder mediedebatterne og lovgivningen en forståelse af det respektable moderskab som tilhørende kvinden, der er yngre end 45.

I modsætning til de spanske, britiske, amerikanske og svenske kvinder (samt de danske mænd), har danske kvinder således i dag ringe mulighed for at få deres arveanlæg i banken.

Fakta

Forskerzonen

Kilder

- Charlotte Kroløkkes profil (SDU)
- Janne Rothmar Herrmanns profil (KU)
- 'Eggs on Ice: Imaginaries of Eggs and Cryopreservation in Denmark', Nordic Journal of Feminist and Gender Research (2018) DOI: 10.1080/08038740.2018.1424727
- Forskningsprojektet Ice Age

Hvorfor må mænds sæd være nedfrosset i en uendelighed, mens kvinders æg skal destrueres efter fem år?

BOGOMTALE: Vi danskere er vilde med lighed. Alligevel giver loven mænd langt bedre mulighed for at få børn.



Et af argumenterne imod en forlængelse af nedfrysningstiden af kvinders æg er, at det er synd for barnet at have en ældre mor. Men er det virkelig så slemt? Det er et af de spørgsmål, Thomas Søbirk Petersen diskuterer i artiklen. (Foto: Shutterstock)



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FORSKERZONEN

BØRN & UNGE

ETIK & FILOSOFI

POLITIK

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I Danmark tilslutter vi os et centralt etisk princip, der gør det klart, at alle borgere, uanset alder, religion, politisk orientering, seksuel orientering eller etnicitet har lige adgang til sundhedsvæsenets ydelser.

Der eksisterer dog mindst én iøjnefaldende undtagelse:

I følge dansk lovgivning (lov om assisteret reproduktion m.v. §23, stk. 5) er det tilladt for mænd, at få nedfrosset deres sæd, lige så længe de måtte ønske. Også efter en mands død.

Men ifølge samme lovgivning (§15) er det kun tilladt for kvinder at nedfryse deres æg i fem år. Efter fem års nedfrysning er der ingen kære mor, og æggene skal i følge loven destrueres.

Hvis kvinder er alvorligt syge, kan nedfrysningstiden dog blive forlænget.

Hvis en læge eller jordemoder i Danmark hjælper en rask kvinde med at nedfryse kvindens æg i mere end fem år, kan de risikere fængsel i op til fire måneder.

Fire måneders fængsel for at give kvinder de samme muligheder som mænd med hensyn til at kunne benytte sig af sundhedsvæsenets ydelser!

Ny bog diskuterer assisteret reproduktion

At denne forskelsbehandling i en dansk lovgivning er etisk rimelig, er svært at få øje på. Og det er vel og mærke en lov, der langt fra er udbredt i andre lande.

Udover Danmark og Norge er det kun lande som Rumænien og de Forenede Arabiske Emirater, der har en lignende femårs-grænse for nedfrysning af kvindes kønsceller.

For kort tid siden var jeg med til at udgive den tværvidevidenskabelige bog 'The Cryopolitics of Reproduction: A New Scandinavian Ice Age', der beskriver og kritisk diskuterer de skandinaviske landes love om assisteret reproduktion.

I bogen udfordrer vi, blandt mange andre emner, den del af dansk og norsk lovgivning, der omhandler femårs-grænser for nedfrysning af kvinders æg.

I det følgende vil jeg kort præsentere (og udfordre) nogle af de argumenter for og imod §15 i lov om assisteret reproduktion, som vi kunne observere i diverse etiske råd fra de skandinaviske lande.

Lad mig begynde med at præsentere to argumenter for at ophæve femårs grænsen for nedfrysning af kvinders kønsceller. Herefter følger en kritisk diskussion af argumenter, der forsvarer gældende lov på området.

Kvinder bør kunne bestemme over egen krop

Hvem, synes du, skal bestemme over en voksen kvindes krop – kvinden selv eller staten?

Jeg tror, at de fleste vil mene, at det skal kvinden selv.

For en fundamental etisk rettighed er, at vi ejer os selv, og at vi kan gøre, hvad vi vil med vores krop – bare vi ikke skader andre. Og kvinder skader ingen ved at få nedfrosset deres æg i mere en fem år.

Tværtimod kan en lovændring for længere nedfrysningstid øge chancen for, at børn bliver født med færre alvorlige genetiske sygdomme.

Hvis en kvinde nedfryser sine æg som eksempelvis 25-årig og igen anvender dem som 40-årig, er risikoen for, at barnet har genetiske sygdomme mindre, end hvis man anvendte den 40-årige kvindes 'nutidige' æg.

Det skyldes, at en 25-årig kvindes æg i gennemsnit er mindre disponeret for genetiske sygdomme end en 40-årig kvindes æg.

Desuden vil kvinder og par i fertilitetsbehandling også have fordel af en forlængelse af nedfrysningstiden. De kvinder, der med møje og besvær har gennemgået hormonstimulerende behandling og bagefter har fået udtaget nogle æg, kan, hvis vi forlænger nedfrysningstiden, måske nøjes med at få dette gjort én gang for alle.

Som det er nu, skal kvinder ofte gentage hele molevitten igen eller stresse et forløb igennem for at få de børn, hun og hendes eventuelle partner ønsker inden for fem år.

Så ved at udvide nedfrysningstiden, kan vi faktisk mindske stress og ubehag for kvinder og par i fertilitetsbehandling.

LÆS OGSÅ: Kvinde, hvor mange æg har du i banken?

Urimelig forskel i muligheden for at få børn

Udover at krænke kvinders selvbestemmelsesret er §15 i lov om assisteret reproduktion udtryk for en urimelig ulighed mellem mænd og kvinder.

Ifølge loven har mænd som nævnt mulighed for at nedfryse deres sædceller, så længe de ønsker. Det medfører, at mænd har bedre mulighed for at få børn ved hjælp af kunstig befrugtning end kvinder.

For at have sine kønsceller nedfrosset betyder, at man øger sin mulighed for at få børn – skulle man engang få brug for friske kønsceller, som man måske ikke kan producere længere på grund af eksempelvis sygdom.

Fakta

Om Forskerzonen

Denne artikel er en del af Videnskab.dk's Forskerzonen, hvor forskerne selv formidler deres forskning, viden og holdninger til et bredt publikum – med hjælp fra redaktionen.

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Dén forskel forekommer ikke rimelig, når vi her i Danmark hylder og arbejder for, at mænd og kvinder har samme muligheder for at få et godt liv.

Et liv, der ofte også indeholder, at man har et brændende ønske om at bringe børn til verden og skabe en familie.

LÆS OGSÅ: Flere kvindelige ledere, men mændene hjælper stadig ikke meget til i hjemmet

Det Etske Råds bekymringer er på videnskabelig glatis

I Det Etske Råds seneste redegørelse om emnet fra 2015 er der især to bekymringer mod at forlænge nedfrysningstiden af kvinders æg, som et flertal af rådets medlemmer tilslutter sig:

- Den ene bekymring er hensynet til barnets tarv. Etisk Råd er bekymret for, at de børn, der kommer til verden ved hjælp af denne teknologi, vil blive syge eller på anden måde skadet på grund af teknologien.
- Den anden bekymring handler om, at en forlængelse af nedfrysningstiden vil medføre eller understøtte en praksis, hvor kvinder får børn i en senere alder, end hvis nedfrysningstiden kun var fem år.

En central udfordring for disse meget velmenende bekymringer er imidlertid, at de er på glatis i forhold til den videnskabelige viden, der er på området.

Det er mændene, der forsinker kvinderne

For det første peger forskningen i retning af, at børn, der er kommet til verden ved hjælp af optøede æg, har færre sygdomme.

Æggene, som børnene stammer fra, er omhyggeligt udvalgte, og de børn, der kommer til verden ved kunstig befrugtning, er om nogen ønskebørn. Vi vil her i Danmark kunne skabe flere ønskebørn og familier, hvis loven blev ændret.

For det andet viser forskningen, meget entydigt, at grunden til, at nogle få kvinder først får børn, når de er omkring 40 år ikke skyldes, at de er vidende om, at de kan få teknologisk hjælp til, at få børn i en sen alder.

Årsagen er primært, at mens kvinder gerne vil have børn, når de er omkring de 30 år, vil en del mænd ikke have børn, når de selv er 30 år. Mændene ønsker at vente.

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Ny bog om reproduktionens politik

Det biologiske ur tikker ikke så hurtigt for mændene.

Så grunden til, at nogle kvinder får eller prøver at få børn omkring de 40 år skyldes især, at mændene ikke er klar, når kvinderne er klar.

Men hvorfor er det så kvinderne, der skal betale prisen for mændenes nølen og kun må nedfryse deres kønsceller i fem år?

Er det virkelig så skidt at have en (lidt) ældre mor?

Et tredje argument for gældende lov, man tit hører i debatten, er, at det er synd for børnene, når kvinderne får børn i en senere alder.

Måske fordi man mener, at børnene har deres mødre i kortere tid, end hvis de kom til verden med en yngre mor, eller fordi en lidt ældre mor ikke er så fysisk frisk som en 25-årig mor.

Eller, som det hedder i Det Etske Råds redegørelse, kan man argumentere for en »samfundsmæssig praksis, der tilskynder kvinder til at få børn tidligere, fordi det alt andet lige fremmer børnenes livsmuligheder, at mødrene ikke er alt for gamle.«

Men så længe der er tale om børn, der har rigtigt gode liv – og det viser alle undersøgelser, at de har – er det svært at se, hvorfor det skulle være synd for dem at blive til, eftersom alternativet ville være aldrig at være blevet født.

Samtidig vil ægfrøsning som nævnt mindske risikoen for, at børn bliver født med genetiske sygdomme, eftersom denne risiko er mindre, når man bruger unge æg.

LÆS OGSÅ: Studie af 1,5 mio. danske kvinder slår fast: Det koster kassen at få børn tidligt

Nyt borgerforslag vil forlænge nedfrysningstiden

At kvinder ifølge dansk lov således bliver lagt på is, når der handler om at få børn og selvejerskab over egen krop, er derfor etisk problematisk.

At man samtidig straffer sundhedspersonale, der vil hjælpe kvinder med at bevare deres nedfrosne æg, er svært at forstå i et foregangsland som Danmark, hvor vi sætter ejerskab over egen krop højt, og hvor vi mener, at kvinder og mænd skal have lige adgang til at få de børn, de ønsker at bringe til verden.

Det er derfor forståeligt, at et nyt borgerforslag, der handler om at forlænge nedfrysningstiden for ubefrugtede æg, i skrivende stund har modtaget cirka 35.000 støtteerklæringer på under to2 måneder.

LÆS OGSÅ: Dansk teknologi videoovervåger tusindvis af kvinders æg

LÆS OGSÅ: Kvinde føder sundt barn efter transplantation af nedfrosset

æggestoksvæv

Alle må bruge og viderebringe Forskerzonens artikler

På Forskerzonen skriver forskere selv om deres forskning. Vi mener, det er vigtigt, at alle får mulighed for at læse om forskning fra forskerens egen hånd.

Alle må derfor bruge, kopiere og viderebringe Forskerzonens artikler ud fra følgende enkle krav:

- Det skal krediteres: 'Artiklen er oprindeligt bragt på Videnskab.dk's Forskerzonen, hvor forskerne selv formidler'. Hvis artiklen bringes på web, skal der linkes til artiklen på Forskerzonen.
- Artiklen må ikke redigeres og skal bringes i fuld længde (medmindre andet aftales med forskeren).
- Du skal give forskeren besked om, at du genpublicerer.
- Artikler, som er oversat fra The Conversation, skal have indsat en HTML-kode til indsamling af statistik i bunden. HTML-koden finder du i den originale artikel på The Conversations hjemmeside ved at klikke på knappen "Republish this article" ude til højre, derefter klikke på 'Advanced' og kopiere koden. Du finder linket til artiklen på The Conversation i bunden af Forskerzonens oversatte artikel.

Det er ikke et krav, men vi sætter pris på, at du giver os besked, hvis du publicerer vores indhold (undtaget indhold fra The Conversation). Skriv til redaktør Anders Høeg Lammers på ahl@videnskab.dk.

Læs mere om Forskerzonen i Forskerzonens redaktionelle retningslinjer.

Kilder

- Thomas Søbirk Petersens profil (RUC)

- 'The Cryopolitics of Reproduction on Ice: A New Scandinavian Ice Age', Emerald Publishing Limited (2019)
- 'Opbevaring og brug af ubefrugtede æg: Udtalelse om opbevaring og brug af ubefrugtede æg', Det Ethiske Råd (2015)
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