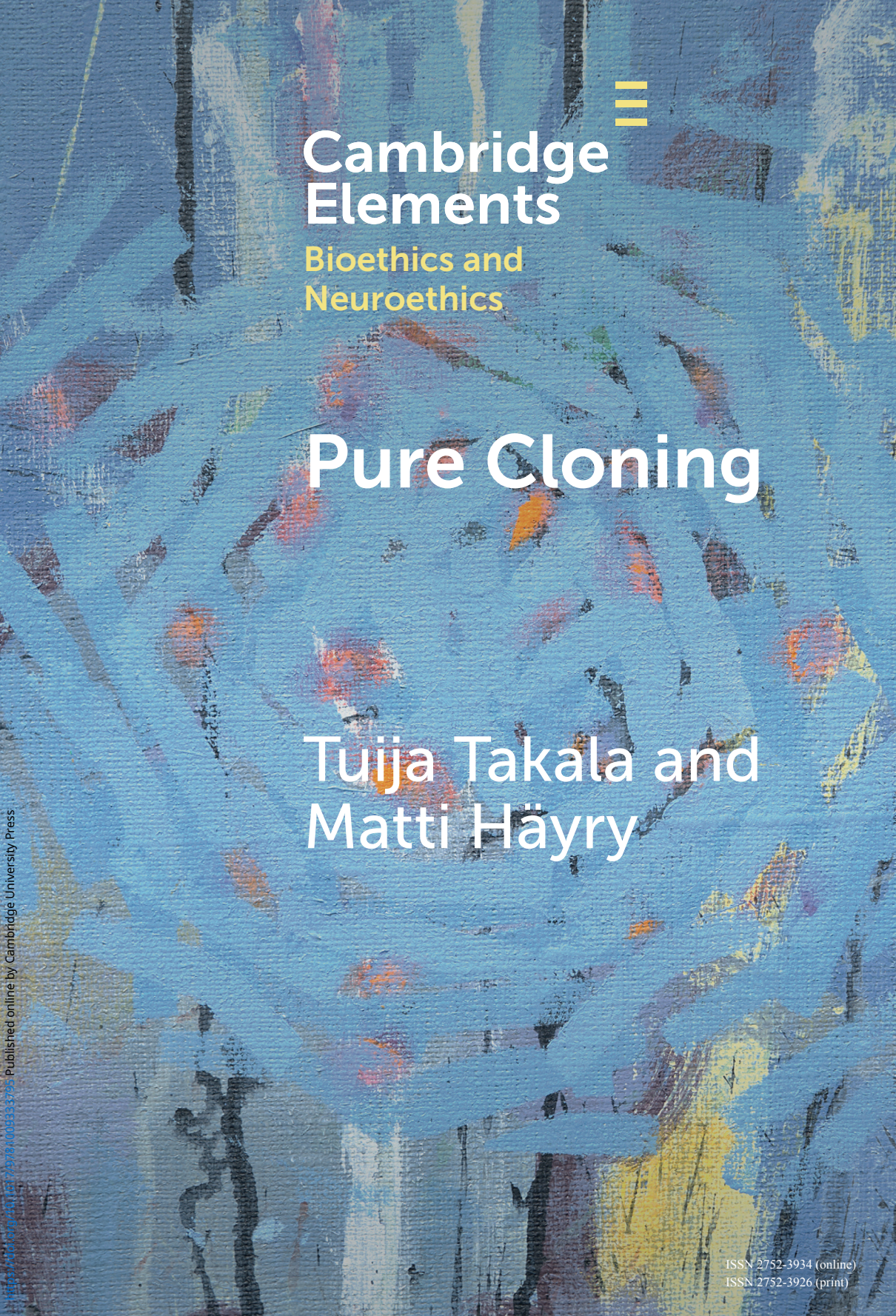

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PURE CLONING

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Pure Cloning

Elements in Bioethics and Neuroethics

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Abstract: This Element explores the rationality and morality of the kind of human reproductive cloning that does not involve genetic enhancements or other biological alterations in the individuals produced. The analysis is needed because, sooner or later, the technique will be safe enough to be tested; yet its pros and cons have not been sufficiently investigated. The literature abounds with defenses and criticisms of cloning but these do not distinguish between impure and pure forms, the one allowing the combination of reproduction and amendments, the other not. Therefore, cloning is condemned or condoned on grounds that have more to do with enhancements than the reproductive act. This Element shows how the conceptual landscape changes when the distinction is made visible and the arguments targeted at the production of a new life without the support or burden of the enhancement factor. This title is also available as Open Access on Cambridge Core.

This Element also has a video abstract: Cambridge.org/EBAN_Hayry

Keywords: Cloning, Ethics, Reproduction, Theoretical moralities, Ideological rationalities

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Contents

1 The Scope and Nature of the Inquiry

This Element concentrates on the rationality and morality of pure reproductive human cloning by the nuclear transfer method. Let us begin by defining the main concepts involved.[1]

1.1 Cloning

Cloning means producing entities that are genetically identical or almost identical with the original. In molecular biology, medicine, and biotechnology, the entities in question are organisms or their parts or populations of them. Bacteria and many plants and animals reproduce asexually by this method.

Scientific experiments on cloning started in the nineteenth century. Researchers split frog, sea urchin, and salamander embryos after the first cell divisions to see how the divided entities would develop.[2] We now know that if this is done early enough, entire individuals result, while later divisions produce half individuals or specialized tissue.

In the early twentieth century, plant physiologist Herbert Webber coined the term "clon" (from the Greek for "twig") to refer to grafting as a way of producing copies of good-quality plants.[3] The "e" was added by biologist J. B. S. Haldane in 1963 in a speech titled "Biological Possibilities for the Human Species of the Next Ten Thousand Years."[4]

1.2 Human Cloning

During the interim decades, science fiction and science writers had extended the scope of copying organisms to humans. Aldous Huxley's 1932 *Brave New World* had introduced the idea of "Bokanovsky's Process" – cloning humans by splitting embryos to produce copies of them on a mass scale.[5] Haldane, the eventual originator of the word "clone," had already in 1924 in his book, *Daedalus; or*, *Science and the Future*, envisioned humankind taking control over evolution by advances in biology.[6] The idea bore a connection with the emerging eugenic movement, which was championed, among others, by Huxley's brother Julian.

Embryo splitting has, since Huxley's time, become a real-life possibility in assisted reproductive technology, and it is allowed in some jurisdictions and disallowed in others.[7] Enhancing humans, Haldane's dream, promises (or threatens) to be on its way to the medical mainstream with the development of the clustered regularly interspaced short palindromic repeats gene-editing technique.[8]

Copying human embryos for therapeutic purposes became a reality with stem cell research and medicine, made possible by researchers' 1993 success in blastomere separation, or blastomere cloning.[9] Insofar as these practices involve embryonic human life, they are legally banned or restricted in many countries.[10,11]

1.3 Reproductive Cloning by Nuclear Transfer Method

Reproductive cloning rose to a new level when the first mammal was cloned by somatic cell nuclear transfer. Researchers at the Roslin Institute in Scotland, headed by Ian Wilmut, removed the nuclei of 277 sheep's ova and fused the ova with mammary gland cells from other sheep. Embryos began to grow in twenty-nine cases, and when the team implanted these into surrogate mother sheep, thirteen pregnancies resulted. One of them was carried to term, and a healthy lamb, Dolly, was born on July 5, 1996.[12]

Although embryo splitting and blastomere separation had been successful before, the Roslin Institute's work grabbed unforeseen attention. The immediate fear (and hope) was that humans would soon be cloned by the same means. Ensuing attempts have produced genetic copies (or near-copies, as the ova are from other individuals and mitochondrial inheritance cannot be ruled out) of at least cows, mice, rats, goats, pigs, rabbits, cats, horses, and dogs.[13] Despite the persistent claims of the UFO-embracing organization Clonaid and other unverified sources, there are no reliable reports of matured human offspring so far.

1.4 Pure and Impure Cloning

Our target in this Element is human reproductive cloning by somatic nuclear transfer without any modifications. This is what we mean by "pure cloning." Dolly the sheep was an unaltered child of her genetic mother, bearing the same genetic inheritance. She was her mother's biological replica. Whatever inheritable diseases or conditions the mother had, she also had. She was, in our sense, a pure clone.

Apart from Huxley's mass production of people by the Bokanovsky's Process, visions of pure cloning are relatively rare in both science writing and science fiction. The prospect that draws more attention is the possibility of producing enhanced, healthier, stronger, more intelligent, or compassionate humans. Critics draw attention to the opposite possibility, the creation of a genetic underclass to serve those well-off. Both alternatives require some modifications.[14,15]

Technically, pure cloning should be easier and safer than impure cloning. Transferring the nucleus from a somatic cell to an ovum is one thing; making

changes to it is another. This is why some researchers might want to attempt to complete the simpler feat first. They could also argue that the legal and moral arguments against enhancements would, in this case, be inapplicable.

1.5 Procedural Safety

Early on, the safety of cloning animals by nuclear transfer was questioned. Dolly seemed to be aging too rapidly, and this led to concerns about her telomeres being shortened. Had that been the case across the board, then, arguably, a part of her biological life would already have been lived by her mother. Telomere length varies from one kind of tissue to another, though, and no link to cloning could be verified.[16]

There was also a worry that some animals produced by the method were unusually sizable – a phenomenon known as the "large offspring syndrome." These individuals tended to have health problems when they were young. It turned out, however, that the syndrome has more to do with in vitro fertilization (IVF) than nuclear transfer, so cloning is probably not the culprit in the reported incidents.[17]

One persistent concern has been that cloning by nuclear transfer might cause developmental abnormalities, especially in primates. While other animals can be safely cloned, apes and monkeys have been seen as an exception. As science has progressed, however, improvements in the technique, including the use of more specialized cells and the optimization of culture conditions, have alleviated this apprehension. In 2020, a study on the cloning of macaque monkeys by modified nuclear transfer succeeded in creating healthy clones who show no signs of developmental abnormalcy.[18]

1.6 The First Clash of Impurity

The first influential exchange on cloning by academic ethicists occurred between two Protestant theologians: Paul Ramsey and Joseph Fletcher.[19] John Lederberg, a Nobel Laureate for Physiology or Medicine, had in a 1966 article defended cloning and genetic engineering as good new means to improve the human race.[20] The theologians reacted to this from diametrically opposed angles.

Ramsey was against the development and listed five major threats to his religious views. Christians, according to him, should see happiness in terms of family membership, but the suggested technological model would stress individuals and their isolated experiences. Morality should be conceived as a social endeavor, but the acceptance of cloning would reduce it into individualistic calculations. The Christian conception of personhood is embodied and

gendered, but technology would make it disembodied and abstract. Power should be seen in terms of domination between people, but the scientific interpretation narrows the scope to a struggle against natural forces. And procreation, the making of new community members guided by openness to the gift of life, would become mere reproduction, an attempt to manufacture optimal people products.[21]

Fletcher welcomed the new approach as an opportunity to move away from the age-old genetic gamble and toward better control over human lives. He identified, against Ramsey, happiness with individual preference-satisfaction; morality with the pursuit of happiness for ourselves and others; personhood as rationality and freedom to choose; power over nature as a reasonable goal; and directed reproduction as science's gift to humankind.[22]

1.7 Enter Mixed Motives

The clash between Ramsey and Fletcher reflected the starting point provided by Lederberg and other technology enthusiasts. It focused on cloning not only as a way of creating progeny but also as a way of changing it, allegedly for the better.

In a landmark contribution in 1982, Ruth Chadwick compiled a more comprehensive list of the arguments against both pure and impure cloning. She considered the claims that the practice would be unnatural, playing God, produce malfunctioning individuals, violate the individuals' rights to uniqueness and privacy, fail to create worthwhile lives, be against the preferences of the future individuals, and threaten society and the human gene pool.[23–27]

Reiterations of Chadwick's list, more or less intact, appear time and again in outcome-based defenses of making human copies. The novelty for our narrative is that many of the concerns she introduced – and promptly rejected – apply to pure and impure cloning alike. Accusations of playing God, for instance, are at their most intensive when reproduction and modifications are combined, but they have also been launched against making new individuals as such, without any enhancements.

Representatives of The Vatican, for instance, reacted to Dolly's birth by stating that cloned humans would have no souls, as only God can provide them to us.[28] The statement was almost immediately retracted, but it shows how modifications are not a necessary ingredient to make cloning suspect. The same goes for unnaturalness, malfunctioning, ill-being, and privacy violations, partly also for threats to society and the constitution of the species.

1.8 Law and Opinion

Dolly's birth evoked an unprecedented reaction. Although Wilmut and his team only reported the cloning of a lamb, imaginations immediately ran to human reproduction. The United Nations Educational, Scientific and Cultural Organization banned cloning forthwith[29]; within a year, Argentina, Austria, Brazil, Denmark, Georgia, Germany, Iceland, Mexico, Norway, Peru, Slovakia, Spain, South Africa, and the United Kingdom had introduced legal bans; and in a few years' time over thirty countries had followed suit.[30]

It is difficult to tell what the public opinion on cloning humans was or is. People know that it is illegal and may think that this is a good precaution, but is the idea somehow universally repugnant? When the world's first child initiated by IVF was born in 1978, there was some indignation, but it was religiously fueled and has long since worn off. The same could easily happen with cloning.[31,32]

After the exchange between Ramsey and Fletcher, most world faith systems have defined their positions on the issue. The assessments currently range from Buddhist, Catholic, Conservative Protestant, and Islamic condemnation to Hindu, Jewish, and Moderate Protestant caution.[33] Secular views are trickier to detect, and they are often manufactured or embellished by theoretical moralities or ideological rationalities.[34,35]

1.9 Theoretical Moralities

Moral considerations have three main dimensions. Our choices, actions, and inactions have effects on ourselves and others. They can also conform to rules set by our reason or by external agencies like law, custom, or opinion. And, they can align with what is natural for us as members of our species or our communities.

In bioethics education, the need for students to understand this classification is sometimes questioned. What use is it to them to know that moral theories can be consequentialist (utilitarian or egoist), deontological (Kantian or legalist), or teleological (natural law or virtue ethics)?

The question is justified if their education is limited to learning the names of the doctrines. This should not, of course, be the case. The three-partition is simply a way of drawing attention to different aspects of moral considerations.[36] Concentrating on only one of them, or only one interpretation of them, will produce oversimplified and misguided analyses.

Take the case of LGBTQQIP2SAA+ people and their proper treatment in modern societies. This is often studied in the extant literature in more holistic, less analytical terms. It is, however, important to know what negative or positive effects different attitudes and regulations have on the people included in the various

subgroups that make up the wider umbrella group. It is also important to know what reason- and custom-based rules are or are not at play when their situations are considered. And it is important to know how perceptions of naturalness and virtue affect their lives. There can be other angles that should be considered, but a thorough investigation of these would probably not be a bad start for untangling the matter.

1.10 Ideological Rationalities

Rationalities come in various packages.[37–39] In a wide sense, some rationalities stress concrete, possibly measurable outcomes; while others emphasize symbolic, often ethical ideals.[40] Two of the main approaches in current bioethics, divided roughly along these lines, are the Georgetown four principles model with its derivatives and its rivals, including the Barcelona Declaration.[41]

The Georgetown four principles are, famously, beneficence, nonmaleficence, respect for autonomy, and adherence to justice. Originally a pragmatic compromise between common-morality credos and then between outcome-based (utilitarian) and rule-based (Kantian) ethics, the model has, in its later permutations, grown to embrace almost all ethical outlooks, including Aristotelian virtues. It does, however, retain a liberal, secular, individualist, and gender-blind ethos that leaves room for other alternatives.

A group of European scholars forged at the turn of the millennium a competing model, presented to the public in their Barcelona Declaration. They named a wider range of principles, or values, but their top four were autonomy, dignity, integrity, and vulnerability. Their analysis rejected any kind of utilitarianism and leaned toward more collective – as opposed to individualistic – readings of Kantian and Aristotelian ethics. On the political continuum, they relied on republican and communitarian solutions.

Feminist approaches, widely varied and ever-evolving, offer yet another viable alternative approach, or set of approaches, to bioethical analyses. Depending on the wave of feminism authors identify themselves with, the starting point can be consequentialist, deontological, or teleological; liberal, communitarian, or republican; but the concentration on women and other ignored or underrepresented groups, always gives them originality and an edge in hegemonistic ideological contexts.

1.11 The Plan

With the theoretical moralities and ideological rationalities giving us structure, we explore in this Element the arguments for and against cloning, especially pure cloning as we have defined it.

We begin our scrutiny with theoretical moralities. How, in more detail, did the clash between consequentialist and deontological philosophers develop, and what, if any, traces of it are still visible in today's debates? How were teleological concerns introduced and where, if anywhere, have they found their place in current discussions?

We then move on to ideological rationalities. When, how, and to what extent did moral theories give way to wider societal considerations? What deeper background assumptions were carried over from the more explicitly ethical to the more pronouncedly political considerations? On the issue of human reproductive cloning, where do the Georgetown, Barcelona, and feminist approaches stand now?

Our focus is on identifying common features in all these attempts. Most proponents and opponents of pure cloning agree that creating more human lives is desirable. They may disagree on the proper method, proponents condoning technological means and opponents favoring more traditional ways. Almost no one questions, though, the wisdom and rightness of producing new individuals. The default value of positive moralities and ideologies is firmly pronatalist.

Our endeavor reaches its culmination when we turn this position, for argument's sake, on its head, and assume a negative approach to the ethics of cloning. For consequentialism and deontology, this is an easy task because the potential negativity is already inbuilt in utilitarian and Kantian thinking. For teleology, the matter is more complicated. Yet even natural law theories can, when all is said and done, give grounds for challenging human reproduction.

2 Bioutilitarian Enthusiasm

The firmest proponents of reproductive and genetic technologies have come from the consequentialist camp, from philosophers who can for convenience be called bioutilitarian. The epithet signals their two main concerns: the value of (certain kinds of) life and the importance of (certain kinds of) outcomes in ethical evaluations.

2.1 The Value of Life

Bioutilitarians hold the life of persons in high esteem and can recognize sentient existence and its need for protection. They do not typically assign intrinsic value to nonpersonal or non-sentient life forms. By persons, they mean beings who have a fairly developed sense of themselves as continuous subjects of beliefs, hopes, and expectations. Unborn human beings are not, according to this view, persons, and embryos and early fetuses also fail the test of sentience.[42–50]

The bioutilitarian doctrine clashes fundamentally with religious (and related) views that acknowledge the dignity or sanctity of human life regardless of its developmental stage.[51] These views will be revisited once our investigation has progressed to other ethical theories. For bioutilitarians, embryos and at least early fetuses do not merit particular moral consideration. If they are valued by their bearers or conceivers, the worth is instrumental.

The stand excludes, from the outset, many arguments against reproductive practices and technologies. Abortion cannot be condemned for its denial of future lives; IVF cannot be rejected for its tampering with early human existence; and cloning, with or without enhancements, cannot be banned for its interference with embryonic development.

Bioutilitarianism is easily misinterpreted as nihilistic or denying the value of life altogether. This could not be further away from reality. The lives of persons are paramount to the champions of the creed, and many of them have held strong positions against ignoring the plight of nonhuman animals. It is just that concrete outcomes of actions are seen as more important than symbolic violations.

2.2 Selected Consequences

Not all outcomes of actions are, however, equal in the eyes of bioutilitarians. The first ones excluded from their calculations are the immediate immaterial results, often favored by non-consequentialist thinkers. Acts can be judged to be "improper" or "against the moral law" as such, but in bioutilitarian analyses, pointing this out simply begs the question. What follows, in more concrete terms, decides whether or not the acts are genuinely wrong; not what can be said about them before knowing the consequences.

Remote consequences are the next category to fall out of bioutilitarian assessments. The stem creed, utilitarianism, may state that an action is right when it produces the greatest net good, but since we cannot know everything that will ensue from our choices when we are making them, the range is usually limited to reasonably expected outcomes in the foreseeable future.[52] Views on what can be reasonably expected vary, however, and often on grounds that have little or nothing to do with what we can or cannot know.

A pessimist will give more weight to bad outcomes, an optimist to good ones, and both can claim to be realistic and rational in their evaluations. In technology assessments, this has led to the rise of two general rules: one widely recognized, the other implicit and only pointed out explicitly in relatively recent literature.

The pessimistic rule is called the *precautionary principle*. It states that potentially very harmful activities should not be undertaken before there is

scientific consensus that the dangers are unlikely to materialize. The burden of proof is on the risk-takers.[53–55] As we shall show, bioutilitarians have so far yielded to this guidance as far as cloning humans by the nuclear transfer method is concerned. Under the surface, opposite ideas may be brewing, though, in the expectation of better success rates in the future.

The optimistic rule can be called the *hopeful principle*. Its spirit is that potentially very beneficial activities should not be foregone unless they are demonstrably dangerous. The burden of proof is on the risk-averse.[56] Bioutilitarians tend to take this approach to most technological advances. As long as human cloning by nuclear transfer remains clearly unsafe, it should not be practiced. As soon as some threshold safety level is reached, however, the message will be changed.

2.3 Anybody's Good Will Do

Utilitarianism, in its classical forms, demands that everybody's good is counted equally in harm-benefit calculations. This requirement of impartiality gives the creed its claim to equality and formal justice. It leaves, however, a gray area when only some can be benefited. Is it right to keep improving the lot of certain groups of people, although it is clear that these benefits cannot be extended to others anytime soon? Some say yes, unproblematically, as it is still an overall net benefit. Others say no, or at least not self-evidently, as the good is distributed unevenly.[57]

Bioutilitarianism sides easily with the "yes, unproblematically" view. One of the justifications for this is an appeal to Pareto optimality. Also known as Pareto efficiency, this theoretical construction focuses on social changes that improve someone's wellbeing without threatening anyone else's. Purely from an aggregative utilitarian viewpoint, such social changes should, without question, be made. It does not help others if possible benefits are withheld from the ones who can realistically be profited. Only envy, or an abstract pursuit of ideological justice of some kind, can stand in the way.

In more general political philosophy, the idea can be challenged. Perhaps changes for the better for some should only be allowed when the worst-off in societies are also benefited. This, at least, was John Rawls's popular stand in *A Theory of Justice* (1971).[58] Similar thoughts have been expressed in other doctrines on justice and solidarity.

2.4 The Ford Pinto Case

Bioutilitarian assessments often concentrate on criticizing the opposition rather than making explicit calculations of the costs, harms, and benefits involved. Let

us present, therefore, an example from another field to elucidate the idea that should be focal to them. The field is the automobile industry, and our attention is turned briefly to the notorious Ford Pinto case.[59,60]

In 1968, Ford Motor Company decided to design and prepare their 1971 model applying a rule of 2,000/2,000: the car should weigh below 2,000 pounds and cost below 2,000 dollars. The engineering was seriously hampered by the time, weight, and cost limits, and this resulted in many construction flaws in the completed car – the Ford Pinto. One of them was that if the car was rear-ended at thirty miles per hour or more, its gas tank exploded, the doors jammed shut, and the people inside burned alive. Not a minor flaw by any account.

Ford knew, or should have known, about the defect. It had already been evident in their own premarketing safety tests. Despite this, however, the business decision was made to present the car to the buying public in September 1970. In January 1971, the United States National Highway Traffic Safety Administration banned rear-bumper and gas-tank designs like the ones causing the trouble in the Pinto. The rule did not, however, extend to models that were already in the market, which means that, strictly speaking, at the time, Ford did nothing illegal. The change was coming when they pushed the car to the market, though, and it was pushed to the market prematurely exactly to avoid the ban. Ford observed the letter of the law, but the forward-looking spirit of the law was not a part of their deliberations.

2.5 Ford's Cost–Benefit Analysis

Fast-forward a few years, and in 1977, the first lawsuit was brought against Ford. A rear-end collision had left one person dead and another badly burned. Ford eventually lost the case in 1978. The specific charge was the safety of the design and product liability related to it.

By this time, the problem with the car had been fixed, because the National Highway Traffic Safety Administration had extended the rule to old models as well. The lawsuits against Ford continued to pile up, however, as the 1971–76 Pinto models claimed, all in all, hundreds of casualties. At this point, Ford considered recalling those 71–76 vehicles for repairs but decided against it based on a cost–benefit analysis. This would become their momentary undoing.

Their calculation was simple. First, the benefits. If they had called the cars in, the benefit to society, in terms of reduced casualties and damage, would have been:

- 180 burn deaths prevented, the negative value of each death to society being 200,000 USD.

- 180 serious burn injuries prevented, the negative value of such injuries to society being 67,000 USD each.
- 2,100 cars and trucks not burned, value 700 USD per car or truck.

Added up, the total benefit to society would have been 49.5 million USD.

By the way, the casualness of putting a price tag on lives and injuries may sound appalling, but Ford was not to blame for that – the figures came from the National Highway Traffic Safety Administration.

Then, the cost. The expenses to the company for the considered recall would have been:

- 11 million cars, 11 USD per car to fix.
- 1.5 million light trucks, also 11 USD each to fix.

So, the total cost to the company would have been 137 million dollars.

Based on these figures, the Ford executives did the math. Since the cost would have been considerably higher than the benefit (137 > 49.5), Ford decided *not* to recall. The matter seemed to be settled.

In 1977, however, Ford's decision and its justification were exposed in the media, resulting in public outrage and scandal. As a reaction, Ford was compelled to recall the 71–76 models and have them repaired. The company's short-term reputation in the United States suffered, quite badly, but pretty soon Ford was again seen as one of the most esteemed car manufacturers in the world. The public memory is short.

2.6 The Costs and Benefits of Cloning

How could a similar cost–benefit analysis be conducted in the case of pure cloning? As mentioned, utilitarian bioethicists do not usually come forward with explicit comparisons. We can, however, identify some of the main factors in the discussion.

The benefits, for bioutilitarians, would be the lives of the new individuals and the prevented frustration of their parents. At current value estimates similar to the 1970s United States National Highway Traffic Safety Administration figures, human lives are statistically worth approximately 10 million USD, minor injuries ("superficial abrasion or laceration of skin; digit sprain; first-degree burn; head trauma with headache or dizziness [no other neurological signs]") prevented are worth approximately 30,000 USD, and moderate injuries ("major abrasion or laceration of skin; cerebral concussion [unconscious less than 15 minutes]; finger or toe crush/amputation; closed pelvic fracture with or without dislocation") prevented are worth approximately 450,000 USD.[61] With

the criteria in use, it would seem reasonable to price childlessness at somewhere around 100,000 USD.

How many lives are we talking about? An approximation could be based on a comparison with another assisted reproductive technology. Annually, 500,000 children are born as a result of IVF.[62] Cloning by nuclear transfer is a far more complicated technique, so perhaps one hundredth of that would be a fair guess to begin with.

With these premises (speculative, but that is all we have for now), the benefits to society gained by pure cloning could be:

- 5,000 children born, the positive value to society 10 million USD per child.
- 5,000–10,000 reproducers (5,000 if singles, 10,000 if couples) saved from childlessness, the positive value to society 100,000 USD each.

Added up, the total benefit to society would be 50.5–51 billion USD.

What about the costs, then? The main ones would be accrued first by the research needed to make the procedure safe, and then the production prices of the new individuals.

Since research into human reproductive cloning as such has been prohibited in most jurisdictions, its expenses are difficult to reckon, but an upper-limit ballpark guess is possible. Countries like the United States and the United Kingdom spend around 30 billion USD yearly on biomedical research. Since attempts to make cloning safe are only a fraction of this, their cost would probably be closer to one billion (comparable to the maximum gain of curing childlessness) than to tens of billions (the projected gain of having all the new children).

The production prices are even more difficult to estimate, but, allowing a wide range, we can give it a tentative try. ViaGen Pets company in Texas offers to clone dogs for 50,000 USD,[63] and early on, in 2001, Forbes estimated that the cost of illegal human cloning would be 1,747,500 USD.[64] For our purposes here, we can stipulate that these represent the lower and upper limits.

With these figures, the costs of pure cloning to society would be:

- Research and development making the procedure safe, not more than one billion USD.
- 5,000 human clones produced, 50,000–1,747,500 USD per clone.

Added together, these would amount to circa 1–10 billion USD (= no more than 1,000,000,000 + 250,000,000–8,737,500,000).

Using the figures presented, the verdict would be simple: the benefits far outweigh the costs (50.5–51 billion > 1–10 billion). Case closed. Except that there are challenges.

2.7 Challenges to the Bioutilitarian Analysis

Although bioutilitarians should present something like our cost–benefit analysis to make their case for cloning, they have been reluctant to do so. The reason is obvious. Most of the premises of such analyses can be questioned, and the ones that cannot do not unequivocally support their view.

To begin with, the Office of the Secretary of Transportation figures we used in calculating the value of human life are based on the predicted incomes of people killed or injured by traffic accidents. It is, in other words, blood money meant to cover losses inflicted by negligence or deliberate wrongdoing in transport-related activities and arrangements. It is a long way from there to arguing that a new individual not born would be a similar loss to society. As we shall show when we get to the reversed, or negative, theories of value, quite the opposite could be the case. Besides, if (5,000) new individuals are genuinely needed, their creation could be encouraged by other means.

Similarly, the production price of cloning is a questionable social cost, because society – or, to be more precise, the government – does not have to be involved in making the payment. The state can simply allow cloning by nuclear transfer for those who can afford it. This would not guarantee reproductive equality, but it would grant citizens their reproductive autonomy. The solution could be sufficient for liberal bioutilitarians.

The tens of billions out of the way, the weighing would be between the research costs and the benefits to the potential parents. If our figures are anything to go by, this could be a close call, about one billion in both cups of the scale; probably not a clear enough difference either way to make the decision safe in utilitarian terms. Add to this that the burdens are not necessarily social – the research could be competitively financed – and that the gains could be achieved in alternative ways – the aspiring reproducers could be cured of their aspiration – and it becomes obvious that the straightforwardly Fordist-utilitarian approach stands on shaky ground.

2.8 No Positive Utilitarian Case for Pure Cloning

Since bioutilitarians are well aware of these challenges, they steer clear of analyses like the one we presented, and advisedly so. Instead, they make vague references to the great benefits that could follow from assuming a permissive attitude toward exciting new technologies. By doing so, they resort to optimism and the hopeful principle and abandon the central tenet underlying their own approach: reliance on observable and measurable consequences.

The result is that there is no actual positive utilitarian case for pure cloning (we shall return to the negative utilitarian case against it in due course). No one

has proven, or even tried to concretely prove, that making babies by nuclear transfer as such would have benefits that outweigh the costs of the practice, let alone justify the harms possibly inflicted by it. The image evoked is more holistic and all-embracing: a future world with a scientifically enhanced, happy humankind. Whether or not such a world is achievable, it would be a world of impure cloning. The bioutilitarian imagination seems to be incapable of stopping at the pure production of unmodified new humans by the proposed method.

3 Kantian Criticism and Endorsement

Moving on from outcome-based to rule-based ethics, Kantian deontology has no difficulties in focusing on the purely reproductive aspect of cloning by nuclear transfer. The primary axiom of the system, the categorical imperative, lends direct support to the view that copying human genomes is morally wrong. It is easily interpreted as a clandestinely consequentialist or teleological rule, though, and this possibility should be recognized in examining the arguments.

3.1 Universal Law of Nature

The categorical imperative has different formulations, one of the most important being the requirement of universality:

> [A]ct only in accordance with that maxim through which you can at the same time will that it become a universal law.[65]

This is based on Immanuel Kant's philosophical tenets that morality presupposes freedom, freedom is only possible in our rational thinking, and rational thinking is the same in all human beings as autonomous agents. Hence, my reasons for action must be valid reasons for action for all other autonomous agents as well.[66–68]

In the matter of pure cloning, the formulation is open to a simplistic, outcome-oriented reading.[69] By having children by nuclear transfer, I commit myself to the rule that every human being is allowed to have children by the same method. But if all future procreation is limited to cloning, human variety, presumably an evolutionary advantage of sexual reproduction, will be lost. The gene pool will shrink, and the species will gradually lose its vitality.

This strawman version of the argument can be rejected by pointing out that the permission to clone is not an obligation, that so few would resort to nuclear transfer that it would not significantly impact the gene pool, and that the variety could be achieved in other ways, for instance, by genetic alterations.

The Kantian point is, however, deeper and does not depend on the material outcome of the practice. It comes into better focus with the introduction of another formulation of the categorical imperative.

3.2 The Humanity Principle

A Kantian rule often used in the cloning discussion is the humanity principle:

> Act in such a way that you treat humanity, whether in your own person or in the person of any other, never merely as a means, but always at the same time as an end.[70]

Cloning, according to its critics, can break this rule in multiple ways. The individuals created by cloning would not be ends in themselves; they would be instruments for their parents' ends. This core wrong has several unfortunate corollaries and implications.

Utilitarians like to pick out the psychological consequences because they are the easiest to lay off.[71] The claim then is that the parental insistence of having a copy instead of a genuinely new individual dwarfs the clones' sense of self and makes them feel like lesser human beings. "They didn't want me. They just wanted a rerun of Auntie/Uncle Parker."

As stated, this is easy to shoot down. It is pure speculation to surmise that the clones' sense of self or self-worth would be reduced by the knowledge of their untraditional origins. Additionally – and this is a recurring theme in this chain of arguments and counterarguments – reproducers cannot help having instrumental motivations. The case has even been presented that if children would have to be made for the sake of the children themselves, there would be none.[72]

Teleological ethicists favor the semi-Kantian reading that clones would be robbed of human dignity due to their artificial origins. If the concentration is on the new individuals, however, this assertion in its literal form is tricky. As evidenced by The Vatican's quick retraction from the view that clones have no souls, no one wants to make the claim that some future people would be somehow essentially inferior to others. The issue of dignity has to be approached more contextually, as a social or political phenomenon.

3.3 Humanity as a Gift

One of the concerns raised in the debate is that cloned individuals would not get to choose their qualities and features. They would be denied this and forced to exist as entities about whom many things are known even before their birth. Their autonomy and privacy would be in jeopardy.

Michael Sandel, not a particularly Kantian philosopher, has dismissed this concern in its person-specific sense while acknowledging its wider social relevance. Children can never be asked what qualities and features they would like to have, and some information about their physiology and inheritance is always available. Cloning is, in this respect, no different from other forms of reproduction. It would not violate the progeny's humanity, or instrumentalize it, any more than traditional childbearing would.[73] (We shall return to the "any more than" part of this statement in due course.)

Sandel goes on, however, to argue that the element of attempted design does make cloning wrong. The pursuit of technological control in reproductive matters makes humankind forsake the important notion of life as a gift. We can, of course, mold ourselves and our offspring to a certain degree with our selective and therapeutic choices. But we should keep in mind that some things remain beyond our power – new lives have a spontaneous, gift-like aspect that is not and cannot be of our making.[74]

Ignoring the given in our lives is, according to Sandel, dangerous because it alienates us from one another and reduces solidarity between us. We live our lives as members of communities; and we should always remember that our personal or familial, economic or political success is based on, and intertwined with, our collaboration with others, instinctively, traditionally, or deliberately. When parents begin choosing their children, they subscribe to the false individualistic concept that we can make our own and our offspring's fates. This weakens our social ties and wreaks havoc on the mutual collaboration that makes our lives good.[75]

3.4 Humanity as Grown

Jürgen Habermas has presented yet another variation of the Kantian themes in the context of cloning. His argument is that reproduction by nuclear transfer would spell the end of humanity as we know it.[76]

Habermas's starting point is that in the name of universality and liberal democracy, our deeply rooted political ideals, all people should be treated as moral equals: their bodily and personal integrity should be equally respected. To achieve this, according to Habermas, we need to understand the dual nature of human beings as partly "made" and partly "grown."[77]

Our "made" part has come about as a result of our own and other people's choices and actions. We have received an education initially chosen by our parents or carers, and we have gained experiences following our own decisions. The ensuing career, lifestyle, and values define how we *have* our corporeal identities; how we are in conscious possession of our bodies.[78]

Our "grown" part, however, defies all attempts at planned design. We are biologically what God or nature made us and have features that were there before care, nurture, and other human interventions on our physique started. These define how we *are* (one with) our corporeal identities; how we are our bodies and have been them even before we became aware of their existence.[79]

Habermas believes that respect for our integrity must be extended to our grown essence as well as to the made one. Our dignity as something not known to others or even ourselves is as important as our autonomy, to use a more familiar Kantian vocabulary. True democracy requires that we all take each other fully into account in our political negotiations, and this applies both to the views that we express (made) and to the sense that we are mysteries to one another (grown). Making assumptions concerning people's biological and historical nature means failing to meet them as indecipherable ends in themselves.[80]

Cloning human beings would, in Habermas's view, be an attempt to make people known and thereby eliminate the secret of their grown essence. The practice would question the dignity of one fraction of humankind and therefore destroy the foundation of our liberal democratic way of life. This is not a claim about the value of individuals produced by cloning as such. It is a claim about the pursuit of hazardous goals by the use of new reproductive technologies.[81]

3.5 No One Gets to Choose

Going back to the roots of the Kantian arguments, the initial concern was expressed in terms of choice. Cloned or prenatally modified individuals are not allowed to choose their qualities and features. Their lives are forced upon them by others.

This observation, of course, has an interesting corollary. Children born without new technological interventions do not get to decide, either,[82,83] and by the logic of choice alone, their lives are forced upon them, too. We shall return to this possibility in Section 8.

In the meantime, we have already seen that the vocabulary of choice does not yield entirely accurate descriptions in all cases. Habermas, for one, is not as worried about the denial of the choice as he is about keeping the mystery of individual identities afloat.

3.6 Rational Consent

Apart from criticisms of cloning, some cautious Kantian endorsement has also been in evidence. Ronald M. Green has presented an analysis of the humanity principle that questions its power against reproductive technologies.[84]

Green argues that the principle can be given three interpretations. We should not harm people (hurt them, steal their property) or confuse their minds unduly (let them use opium). We should not use our bodies improperly (engage in extramarital sex) or let others do so (allow prostitution). And we should not do to people what they would not rationally consent to. The first two, according to Green, simply reiterate the conservative ethos of Kant's time; and while the third is more promising, it does not necessarily support any reproductive prohibitions.[85]

As for harming people, our assumption all along has been that we are talking about safe, harmless pure cloning, so the objection is inapplicable to begin with. As for confusing people's minds, we shall return to the question after considering Green's other points.

Analyzing the third interpretation, Green observes that people use each other as means all the time. They buy and sell other people's property, work, and talents to achieve their own goals without any particular thought of benefiting the others. This is not wrong, and it does not mean that the others would be treated as mere means. That occurs only when they would not, if and when asked, give their rational permission to the exchanges and arrangements.[86]

The requirement of rationality is crucial yet slightly equivocal here. Especially in reproductive choices, actual consent would be impossible to acquire, as the potential new individual is not available for consultation at the time the decision is made. The so-called rational consent is introduced to substitute the real thing. It is a guess or a hope of a promise rather than a genuine test of reasonableness. It is a question and an answer in the same package. Would the unborn like to be? Yes, of course, they would. We shall come back to this presumption in our treatment of the negative readings of moral theories.

3.7 Parental Love

Green goes on to fortify the assumed consent of the unborn by presenting a principle that he thinks solves nearly all conundrums in the ethics of reproduction. It is a psychological generalization and states that Parental Love Almost Always Prevails. Originally intended to reassure that parents will learn to love and care for their children, whatever their gender, abilities, or needs for extra attention, Green extends it to genetically selected and modified offspring as well. It is always good to come into being because parents will be there to guarantee life's goodness. The rational consent of the unborn is a given.[87]

A critic might, of course, point out that while Green's principle may be valid, it leaves some crucial questions unanswered.

What if the parents are not there? It is not unknown for people to die or become absent after they have had children. If they do, their offspring will not be covered by their "almost always" love and could perhaps have done better by withholding their consent to being born.

What if the parents do not care? New individuals, clones or not, may draw the short straw with the "almost" clause and have progenitors who do not share Green's views on appropriate parenting. The necessity of child care services in even the most affluent countries seems to testify to the prevalence of this phenomenon.

What if the parents cannot? The reproducers may be present and caring, yet incapable of catering to the physical and emotional needs of their children. This is another reason for the existence of child care services. No ill will is necessary; it may just be that parental love is not enough to guarantee the offspring's quality of life.

3.8 Confused Families

Green dismissed Kant's point about confusing people's minds summarily as an example of his conventional conservatism. This is by no means unreasonable, especially considering Kant's main example. Opium is condemned for its intoxicating effect, while wine is hailed as a lubricant of sociability. Medical and recreational details aside, the distinction Kant drew here was between Christian and Islamic cultures, as he understood them, rather than between a non-instrumentalizing practice and an instrumentalizing one.

Cloning does, however, have a consequence that could be theoretically more relevant in the Kantian context. If the individual cloned – the donor of the nucleus – belongs to an earlier generation, family roles can be confused, with dire implications.[88] To see how this could be regarded as a violation of the categorical imperative, let us take a look at the institution of truth-telling.

In Kant's moral philosophy, lying is always forbidden, albeit that on particular occasions withholding the truth could promote people's wellbeing or even save lives.[89] The prohibition is based on the wider ramifications of universal truth-telling and its alternatives. If we stray from the rule at our own discretion when it is convenient and perceivedly beneficial, others cannot know when we are telling the truth and when we are lying. Eventually, they will lose their trust in us. Since, however, no relationship or (more widely) no society can be viable without trust, we cannot allow such a development. This is why we must always

be truthful, whatever detrimental implications the practice may have in isolated cases.

Cloning is comparable to lying in that it, too, could undermine an irreplaceable social institution. Family life has customarily been based on clear role distinctions. People have known who belong to their own generation and who to generations preceding and succeeding it. Clones would create anomalies in this network. If a woman clones herself, she becomes the mother of her identical twin sister. To the woman's siblings and cousins, the new individual will be both of their generation and of the next. If everyone reproduced by cloning, family structures, as we know them, would be broken. The categorical imperative, as a protector of essential institutions, would be violated.

3.9 Kantian Cases for and against Pure Cloning

Kantian cases have been presented both for and against reproductive human cloning by nuclear transfer, with and without adjacent genetic modifications. The cases for are mostly reactive, denying the value of criticisms, whereas the cases against are stand-alone arguments usually based, in one way or another, on the various interpretations of the categorical imperative.

The most positive accounts follow Green's line of thought. Clones, like anyone else, would consent to be born, and parental love will solve all residual problems. Claims about loss of solidarity, rejection of human values, and corruption of family hierarchies are abstract narratives without concrete content. People produced by the nuclear transfer method would be people like everyone else, and insisting otherwise is over-theorizing a simple practical issue.

The crux of the critical Kantian accounts is that the cloner treats the new individuals as mere means – denies their autonomy – by forcing them to live with identities chosen by other people. Sandel and Habermas offer their own interpretations of this idea by prophesying the loss of solidarity and the end of humanity.

Green challenges these on common-sense grounds. No one's identity is ever entirely chosen by others. In addition to the donor's biological contribution, cloning requires an egg with mitochondrial DNA, and this changes the inheritance of the resulting individual. Even if a woman cloned herself, thereby making all the genetic material her own, there would be other identity-shaping influences: environment, nurture, education, customs, morality, law, and so on. What would be so special about the nucleus of a somatic cell?

The fact that our identities are partly chosen by others, furthermore, has seldom been seen as a problem. Our way of living and our values are strongly

dictated by our families and cultures; and with them, to a great extent, who and what we are. There have been recent attempts to question this all-pervasive tradition of mental cloning[90,91]; and we shall return to the theme in due course. First, however, let us take a look at the teleological theories that make the intergenerational transfer of ways of being one of the cornerstones of law and morality.

4 Aristotelian Doubts

Teleological ethics holds that what is natural and essential to living beings is also what is right and proper for them. To a degree, this means seeking pleasure, avoiding pain, and acting according to our reason. These consequentialist (utilitarian) and deontological (Kantian) considerations can and should, however, if we trust teleological thinkers, be complemented by more integrative psychological and social principles. The main contenders are Aristotle's metaphysics and virtue ethics, the natural law theory based on Aristotle's views, and contemporary ideas of technology as an instrument of improper control.

4.1 Aristotle on Goals and Practical Reason

Aristotle postulated that all beings in the world have a *telos* (Greek for end, destination, purpose, or aim). This applies to inanimate things as well as to living beings. Heavy objects aim to go down, and light objects aim to go up. Plants, the lowest form of life, live, feed, and propagate. Animals, the next level of life, live, feed, and propagate like plants, but they also move toward pleasure and away from pain. Human beings, the most complex ones and the highest up in the hierarchy, are living and moving beings and have plant and animal souls for the lower functions. Like plants and animals, they aim to survive, get nourishment, have children, and bring them up. In addition, however, they have practical and theoretical rationalities.[92]

Practical rationality means that humans act in their own best interest. They sense what they want, they have an idea of how to get it, and off they go pursuing it. Put in another way, they do things guided by practical syllogisms, of the form:

I want to have children.
I know that I cannot have children unless I use nuclear transfer cloning.
I use nuclear transfer cloning.

The psychological process here is that our practical reason makes us behave in the way dictated by what we want.[93] The next step, the move from psychology to ethics, is more complicated. Aristotle's original idea was that it is good for

beings to do what they naturally or spontaneously do – and want to do. But what if we want something that does not seem right? What if we want to be unkind? Would it then be ethical for us to be unkind and act in unkind ways? Obviously, the model needs some checks and balances.

4.2 Aristotle on Virtue as the Golden Mean

Aristotle's own solution was to identify good individual behavior with the successful performance of one's social role. We all have our tasks in our communities, and those tasks may require us to act in specific ways. It is occasionally appropriate for a surgeon to cut other people with a knife, but the norm cannot be extended to everyone. Morality is, up to a point, role-dependent.[94]

Due to his own social status, Aristotle was especially interested in the proper conduct of free men, wealthy citizens of Greek city-states. He believed that to live the best, and the most productive, lives they should avoid all excesses and keep the golden mean in their emotions, attitudes, and actions. A virtuous man does not feel too much or too little, nor does he overreact or underreact to life's advantages and adversities.

The clearest example of being in control of one's emotions is courage.[95] There are things that we have good reason to fear, and we should let that feeling guide us – but in moderation. Too little fear in the face of danger makes us rash, and too much makes us cowardly. Courage means finding a balance between these.

A similar form of assessment applies to significant events in our lives and our reactions to them. As an example, Aristotle thought that when we are endowed with major honors, the virtuous thing to do is to receive them with proper pride. Too much enthusiasm would signal the vice of vanity, and too little would reveal our pusillanimity, or smallness of the soul.

Armed with this model, we can return to the practical syllogism on cloning and see the importance of its opening premise: "I want to have children." Desiring offspring too keenly can make us forget other considerations that matter to us, including but not limited to the future individuals' interests. Would cloning harm them? Desiring offspring too feebly, on the other hand, could make us give up too easily, to forgo technological assistance that would help us to produce new citizens. Who will then pay our pensions?

A well-educated man would, according to Aristotle, know what the proper attitude toward human cloning is. More generally, the belief in the wisdom of the reasonable person lives on in natural law and related theories – and it will

return to our narrative later. Before that, however, let us see how a criticism of the golden mean steers the discussion toward more absolute approaches.

4.3 Moral Absolutes

Not every moral question allows a middle-of-the-road solution. Murder is an example. Faced with someone willfully taking the life of an innocent person against the person's wishes, the good citizen of the Greek city-state or the reasonable person does not usually stop to consider excesses and deficiencies. This is a black-and-white wrong, vicious; there are no two ways about it, no golden mean.

Aristotle could have conceptualized the matter differently, for instance, in terms of taking lives as a practice. Doing it too lightly would, of course, be vicious; but so could refraining from it in compelling circumstances. What if a person in agony begs for it? What if a mass murder could be prevented by it? Different people react to different reasons, but almost everyone has a scenario in which the demise of a human being might be justified, after all.

Aristotle's message was, however, Christianized (more on that momentarily), and virtues assumed a more absolute outlook. Temperance and modesty are a case in point. In Aristotle's original version, it was possible to enjoy bodily pleasures too weakly and feel shame too strongly. These resulted in the vices of insensibility and bashfulness, both virtually absent in later Christian ethics. Temperance had come to mean the absolute denial of pleasure, and modesty an absolute commitment to a sense of shame.

Cloning humans by nuclear transfer could be an absolute wrong like murder and lust, and if so, no negotiations or balancing acts are possible. The practical syllogism would have to take a new form, something like this:

I want to act virtuously.
I know that I cannot act virtuously unless I refrain from nuclear transfer cloning.
I refrain from nuclear transfer cloning.

Now, the middle premise could be the conclusion of a prior Aristotelian weighing exercise. Perhaps our practical reason has told us that cloning by nuclear transfer would be rash, showing too little fear in the face of a new technology.

This is not, however, the way teleological thinking normally works. The idea of too little fear is too easily associated with neglected harm, consequentialism, and utilitarian calculations. The alternative, based more obviously on the

essence of what it is to be human, has been developed over the centuries in natural law theory.

4.4 Aristotle, Augustine, and Aquinas on Theoretical Reason

Apart from practical rationality, Aristotle postulated that human beings are also theoretically rational. Beyond counting and balancing what is good for them, they have the capacity to seek knowledge of the universe they inhabit.[96]

In his own quest for knowledge, Aristotle concluded that there must be something that accounts for all the motion in the world: heavy objects going down, light objects going up, animals toward pleasure and away from pain, and so on. He named this something the unmoved mover – a godlike entity that is the cause of everything yet does not itself have a cause. Despite the godlikeness, however, Aristotle's unmoved mover had no interest in humans or anything else in the universe.[97]

The emergence of Christianity began to change philosophical views on the supreme being, and Augustine of Hippo came to a different conclusion. God, as in the Christian doctrine, is a caring creator; and humans, as in Platonic and Neoplatonic teachings, can complete themselves only by a union with their creator. The quest for knowledge becomes, in Augustine's theory, a quest for seeing the face of God.[98]

Fast-forward a millennium, and Thomas Aquinas came up with a combination of these that is still around as the Roman Catholic doctrine of Neo-Thomism. It is based on the idea that while God alone has set the rules by which the world works and by which we should conduct ourselves, we can grasp these rules by combining our theoretical and practical rationalities.[99]

4.5 Aquinas on Kinds of Law

Aquinas distinguished between four kinds of law, all of which converge in ideal circumstances but not always in real life. Divine eternal law exists in its complete form only in God's mind, but it is the foundation and yardstick of all the others. Divine positive law comprises holy scriptures and religious teachings, and it is revealed incompletely to Jews and completely to Christians. Natural law is the expression of the divine eternal law in the world, and we can find out its requirements by our reason and moral sense. Secular positive law consists of the existing, either prevailing or historical, legislation and regulations set by governments and rulers.[100]

The list gives us several ways of approaching cloning by nuclear transfer. The first is to note that it is legally forbidden in most regions, hence against the last of Aquinas' laws. Having said this, secular positive law is perhaps the most

insecure criterion of the four. Legal positivists rely on it, but natural law theory allows the criticism of extant rules if they seem to clash with the other sources.

Theological authorities could point out parts of the Christian and Jewish teachings that seem to condemn pure cloning. The main commandments do not address the practice directly, but tradition could be used to find convenient advice. We shall return to this shortly, but let us first clarify the role of natural law in Aquinas' system.

Natural law is knowable to us via two routes: our conscience and our reason. The first option is inferior in that, although our moral sense can correctly identify the principles of right and wrong, it can make mistakes in applying them. This is why the person in the street is not the most trustworthy ethical authority.[101,102] The second alternative, reason, is the one Aquinas preferred. We can get the closest to the natural – and by implication, divine eternal – law by using our intellectual and investigative faculties.

4.6 The Role of Wise Experts

The scrutiny needed to unearth the dictates of the natural law in particular cases like cloning is exhaustive and requires fully developed rational skills, both practical and theoretical. Aquinas, judging by his extensive oeuvre, would have known what to do about the practice – as would Aristotle's virtuous citizen. Since, however, neither of them has left us direct instructions on cloning by nuclear transfer, we must find the answer by other means. Our moral sense, due to its fallibility, is not the answer, and neither is our reason – faith in these may have been solutions for British empiricism (Shaftesbury)[103,104] and German rationalism (Kant)[105–107] but not for teleological ethics.

Applying natural law theory, it seems, ultimately requires the involvement of wise experts who can judge what is right and what is wrong. According to the twentieth-century formulation of John Finnis,[108,109] they could start from a preset list of primary human goods and then proceed toward normative guidance. For reason or reasons unknown, however, the model is seldom employed like this in practice.

The conversion of the basic Aristotelian and Aquinian goals of survival, shelter, procreation, and the pursuit of knowledge into a more nuanced catalog of human desirables presents no difficulties. Finnis listed, as primary goods, life, knowledge, play, esthetic experience, sociability or friendship, practical reasonableness, and religion.[110]

Here comes the twist, though. When Finnis criticized human cloning shortly after Dolly's birth,[111] he did not refer to any of the substantive goods he had previously named. The clone would, he conceded, have a unique life, with

opportunities to seek knowledge, participate in play, enjoy esthetic experiences, and friendship. The wrongness of producing genetic near-copies of humans is a more complicated matter and has to do with a particular Roman Catholic reading of practical reasonableness informed by religious considerations.

4.7 All Roads Lead to Rome

The view advocated by Finnis represents the natural law school. It does bear a distinct resemblance to the Habermas-championed deontological take – but that is only to be expected. Both are, after all, attempts to found ethics on the essence of humanity instead of the calculation of consequences.

Legislation should, Finnis notes, always be based on a solid, consistently trustworthy notion of public reason. In matters of life and death, he argues, this notion cannot rely on preferences or choice. He uses the simple example of homicide to elucidate the point. If a sleeping person is killed, no one's preferences are frustrated so that they would notice it. After the deed, there is no one to experience any personal loss anymore. Nonetheless, homicide is self-evidently wrong, and the fact that this approach cannot condemn it proves that a deeper understanding of life's value, beyond preference-satisfaction and frustration, is required.[112]

The deeper understanding embraced by natural law theory and the Roman Catholic Church grants the fundamental rights to life, respect, justice, and equality to born and unborn human beings alike. It rejects "the unprincipled will to private power,"[113] epitomized by the reliance on choice and personal preferences in public discussions like the abortion debate in the United States.

Only an unwavering anti-choice commitment enables, according to Finnis, reasonable verdicts in such diverse cases of reproductive ethics as abortion and cloning. Killing the unborn is wrong because the unborn have the right to life. Bringing clones into existence is wrong because clones have the right to reciprocal respect by and equality with their makers.

The latter point is interesting in that it seems to give prospective clones the right not to be born. We shall generalize this observation once we get to the negative-ethics part of our analysis. For now, we just discreetly sideline the possible nonidentity issues raised by the view. (How can we talk about "their" rights when "they" do not exist yet and, if we get our way, will never exist?)

4.8 Control from IVF to Cloning and Beyond

For Finnis, cloning is yet another perilous step on a road leading from spontaneous procreation to planned reproduction. Although copying human genomes by the Dolly method was a notable development, it had already been preceded

by, for instance, family planning, contraception, and the use of IVF in producing offspring.

Finnis quotes another natural law theorist, Germain Grisez, to illustrate the manipulative nature of creating test-tube babies:

> What exactly is the act of *in vitro* fertilization? It is not an act of sexual intercourse open to new life but a technological act resulting, when successful, in the production of a new human individual. It precisely aims at supplying someone with a baby by bringing a possible baby into being, and the choice of *in vitro* fertilization precisely is to (try to) produce a baby by this procedure. So, to choose to bring about conception in this fashion inevitably is to will the baby's initial status as a product.[114]

The difference made here is between "sexual intercourse open to new life" and "the production of a new human individual." Grisez continues:

> How do moral principles apply to this act? Products as such are assigned their meaning and value by the human makers who produce them and the consumers who use them, and so the status of any product as such is subpersonal; . . . . This initial relationship, of those who choose to produce babies with the babies they produce, is inconsistent with, and so impedes, the communion which is appropriate in any relationship among persons touching on their basic goods.[115]

The outcome of IVF is, then, an asymmetrical power relationship between parents and children; one that, on the deepest level of parental intentions, is disrespectful, unequal, nonreciprocal, and immoral.

4.9 Reproductive Adultery

Just before we plunged into natural law theory, we noted the possibility of applying divine commandments to practical matters more directly. Human beings are fallible and at least George Berkeley, the eighteenth-century idealist philosopher and Bishop of Cloyne, believed that we could build a system of public morality on the precepts revealed to us in the key prohibitions of the Jewish and Christian faiths. The prescriptions Berkeley identified for his own theoretical purposes were the duties not to resist the supreme power, not to lie under oath, not to commit adultery, not to steal, not to commit murder, and not to do evil so that good may come of it.[116–118]

For our endeavor, adultery is the key. Cloning by nuclear transfer does not, of course, involve carnal unfaithfulness, as before the implantation of the embryo everything is done in a laboratory. It can, however, involve something that might be called reproductive adultery. Unless the somatic cell comes from the future mother's partner, she will be impregnated by a genome that is external to

the planned parental relationship. Cloning, then, would have to be condemned as a violation of one of the main commandments Jews and Christians are supposed to observe.

Arguing that the intention is good and that the potential parents want the child to have all the comfort and dignity of a spontaneous life does not help. The last-mentioned prescription, the duty not to do evil so that good may come of it, contradicts this. In the words of Germain Grisez, "the choice to produce the baby is the choice of a bad means to a good end, because the baby's initial status as a product is subpersonal."[119] Here, the divine and natural laws converge, as they, according to the Neo-Thomist theory, should.

Grisez confines his point to children brought into life by IVF. In our negative-ethics considerations, we shall suggest that this can be extended to all human reproduction.

5 Principlist Pragmatism

The Georgetown four principles model created by Tom Beauchamp and James Childress has for decades offered an alternative to the application of traditional ethical theories to moral issues in medicine, healthcare, and biomedical research. The current version – the model has been updated several times since 1979 – finds the foundation of the principles of respect for autonomy, nonmaleficence, beneficence, and justice in common morality. This has always been present in the background, but in the earliest editions of the seminal *Principles of Biomedical Ethics*, there was also the suggestion that their own background theories, utilitarian and Kantian, were a sufficient basis for a universally acceptable moral view.[120–123]

5.1 Common Morality, Principles, and Principlism

Common morality, according to Beauchamp and Childress, is the same for everyone, everywhere:

> Some core tenets found in every acceptable particular morality are not relative to cultures, groups, or individuals. All persons living a moral life know and accept rules such as not to lie, not to steal others' property, not to punish innocent persons, not to kill or cause harm to others, to keep promises, and to respect the rights of others. All persons committed to morality do not doubt the relevance and importance of these universally valid rules. Violation of these norms is unethical and will generate feelings of remorse.[124]

After admitting that the meaning and extent of some of these rules can be reasonably debated, the authors stress that *the common morality* (definite article

firmly included) "is applicable to all persons, in all places, and we appropriately judge all human conduct by its standards."[125] They go on to specify:

> The following norms are examples (far from a complete list) of generally binding *standards of action* (that is, rules of obligation) found in the common morality: (1) Do not kill, (2) Do not cause pain or suffering to others, (3) Prevent evil or harm from occurring, (4) Rescue persons in danger, (5) Tell the truth, (6) Nurture the young and dependent, (7) Keep your promises, (8) Do not steal, (9) Do not punish the innocent, and (10) Obey just laws.[126] [italic in the original]

They then follow this norm catalog up with a collection of adjacent *moral character traits*, or virtues:

> (1) nonmalevolence (not harboring ill will toward others), (2) honesty, (3) integrity, (4) conscientiousness, (5) trustworthiness, (6) fidelity, (7) gratitude, (8) truthfulness, (9) lovingness, and (10) kindness.[127]

The picture is completed by moral *rights* and *ideals* expressing the same common morality which, unlike particular moralities, is binding to all moral persons.

It is worth adding that while the common morality is binding to all moral persons everywhere now, it is not timeless or a priori (like theories of ethics). It has come into being like any particular professional morality, including medical ethics. In the authors' words: "Both are learned and transmitted in communities."[128] This opens the door to the possibility of moral change, which will occupy our attention later.

We shall return to some of these foundational elements of the common morality after a preliminary round of more standard applications of the four principles has been completed. The order in which we present the principles deviates from the normal procedure. We start with beneficence and continue then through nonmaleficence to autonomy and justice. This better reflects the course of everyday decision-making and allows us to proceed from the simpler to the more complex.

5.2 Beneficence

We do things for a reason, and that reason is often a benefit of some kind, to ourselves or to others. In the biomedical ethics of Beauchamp and Childress, beneficence means that professionals ought to help their patients by preventing and removing evil or harm and by doing or promoting good.[129]

Their examples of prima facie rules of obligation supported by the principle are:

1. Protect and defend the rights of others.
2. Prevent harm from occurring to others.

3. Remove conditions that will cause harm to others.
4. Help persons with disabilities.
5. Rescue persons in danger.[130]

In contrast to the stricter rules of nonmaleficence, "rules of beneficence present positive requirements of action, need not be followed impartially, and generally do not provide reasons for legal punishment when agents fail to abide by them."[131]

How does this apply to the reproductive cloning of human beings without any additional enhancements? In the light of the examples, there are both pros and cons. Allowing pure cloning could promote the parents' right to make their own reproductive choices and prevent the possible harm of remaining childless. Not allowing the practice would prevent possible violations of the rights of the new individuals and preemptively eliminate any harm that might be caused to them.

These are quite abstract concerns. We have used an example to illustrate the benefit more concretely in a rare but not impossible situation:

> Consider . . . the case of parents who have simultaneously lost their newly-born child *and* found out that they cannot have any more children of their own by other known methods. Would it be wrong of them to want a new child, a genetic copy of the lost infant, if the child were healthy and could only be produced by cloning the infant who no longer lives? And would it be wrong of genetic engineers to assist them?[132]

If the common morality can detect no wrongdoing here, then there could be a positive requirement for action. It would be limited to this kind of case, with the specified caveats, and there would be no need to universalize it to all potential parents. But it would be there.

5.3 Nonmaleficence

Where beneficence is about making things better in the future, nonmaleficence is about not making them worse. Medical and related professionals "ought not to inflict evil or harm."[133]

Examples of more specific rules of obligation include:

1. Do not kill.
2. Do not cause pain or suffering.
3. Do not incapacitate.
4. Do not cause offense.
5. Do not deprive others of the goods of life.[134]

Beauchamp and Childress emphasize that these, like the rules of beneficence, are prima facie, not absolute.[135]

Pure cloning would not kill anyone, but it could inflict other evil or harm. Depending on the concept of causation used, it either can or inevitably will cause pain and suffering to those born. Something in cloning as a technique or as a frowned-upon practice could make clones especially susceptible to physical, mental, or social adversity. And, of course, everyone's existence, every lived life, contains some episodes of serious unpleasantness – a point to which we shall return later. Incapacitation and deprivation of the goods of life are also possible, albeit difficult to verify in advance.

Allowing human reproductive cloning would, judging by the legal reactions, cause much offense in contemporary societies, and this could be considered as an argument against permitting the practice. There are, however, limitations and uncertainties in its application. We currently do not know how much of the anti-cloning offense is manufactured by religious and reactionary attitudes that we do not particularly want to encourage.[136,137] In addition, the status of offense as a justification, especially in law but also in professional ethics, is limited. Not inflicting harm is a clear obligation; not hurting communal feelings is not in the same category.[138,139]

Since cloning produces near-identical copies of existing individuals, it has an interesting implication that has gained importance during the decades since Dolly. A heightened awareness of online security has forced the focus on identity crimes. Here is how a service provider describes the phenomenon of identity cloning:

> Identity cloning is a sophisticated form of identity theft in which an individual maliciously assumes another person's identity, typically for personal gain or to evade legal consequences. This deceptive act involves the replication of various personal details, such as a person's name, Social Security number, address, and other pertinent information, to create a false persona.[140]

The analogy with physical cloning is far from watertight, but there are intriguing parallels. What if the new individual, sometime in the future, decides to commit illegalities and make the original somatic-cell donor the culprit? With criminal investigation and the judiciary placing strong trust in DNA evidence, would this constellation make the cloners accessories to the crime? As in the case of utilitarianism, no complete analyses of possible harms have been made. Maybe it would be time.

5.4 Autonomy

Beauchamp and Childress have been criticized for overemphasizing autonomy and thereby heralding their own country's commitment to individualism and consumer preferences.[141] While the health system in the United States does place considerable weight on the consent of the patients it serves, partly to avoid litigation, the authors of the four principles have repeated time and again that none of their four rules has priority over the others, nor does their view suffer from any other related deficiencies:

> Not only do we hold that the principle of respect for autonomy lacks priority over the other principles, but we maintain that it is not excessively individualistic to the neglect of the social nature of individuals, not excessively focused on reason to the neglect of the emotions, and not unduly legalistic by highlighting legal rights while downplaying social practices.[142]

What this means for our analysis is that the reproductive cloning of humans does not have to be permitted simply because some potential parents would autonomously choose it. Other benefits, as well as harms and justice, may alter the judgment.

When it comes to assessing particular decisions, Beauchamp and Childress aim to keep the bar low with "the premise that the everyday choices of generally competent persons are autonomous."[143] They set, consequently, only three basic conditions. Choices, to be autonomous, have to be intentional, based on a substantial degree of understanding, and free of controlling influences. Intentionality means that the decision-maker has a plan involving what will be done and what good and bad consequences could ensue. A substantial degree of understanding includes sufficient competence and knowledge but does not require a full comprehension of every detail and dimension of the situation. Controlling influences can be internal, as in the case of mental illness, or external, usually influenced by other people.[144]

In the context of medicine and biomedical research, respect for autonomy assumes a tangible form in the requirement of informed consent. Beauchamp and Childress transform their three criteria into valid permission by requiring seven components, divided into three groups:

I. Threshold elements (preconditions)
   1. Competence (ability to understand and decide)
   2. Voluntariness (in deciding)

II. Information elements
   3. Disclosure (of material information)

4. Recommendation (of a plan)
5. Understanding (of 3 and 4)

III. Consent elements

6. Decision (in favor of the plan)
7. Authorization (of the chosen plan)[145]

Applied to our case, the parents who want to clone the lost child may well be able to give their informed consent to the procedure. They do not understand everything that is involved – no one currently does – but their knowledge may, within the model, be sufficient. Their voluntariness can be hampered by the controlling influence of having a culturally-induced desire to have offspring that carries their genomes. We shall come back to this detail, but for now, that can be deemed as a permissible external prompt.

Another matter that we have to return to is the missing consent of the future child. Autonomous consent can, according to Beauchamp and Childress, be explicit, implicit, or presumed, but none of these self-evidently reaches as-yet-not-existing individuals. Explicit would have to be expressed by the new beings, implicit would have to be implied by their actions, and presumed would have to be based on assumptions about their preferences.[146] The first two being impossible, the assumption is often made that anyone would be happy to be alive, hence consent to coming into being is forthcoming, but this view has been under challenge for a quarter of a century.[147,148] More on this in due course.

5.5 Justice

The principle of justice demands attention to fairness and equality. Beauchamp and Childress concentrate on distributive justice from a liberal point of view and name six approaches: utilitarianism, libertarianism, communitarianism, egalitarianism, capability theories, and well-being theories.[149] All these have their natural applications in different medical, healthcare, and research issues, but they are also antagonistic in many areas. This is clearly visible in the case of pure cloning.

We have already seen, in Section 2, that utilitarian calculations do not unequivocally support or condemn the reproductive cloning of human beings. Bioutilitarians, in their science enthusiasm, tend to believe that all technological advances are good and ought to be at least tested, but a reasoned analysis shows that the benefits, costs, and risks of pure cloning are too difficult to measure and compare for a safe verdict.

In Section 2, we also touched upon libertarian and egalitarian themes. If citizens are allowed to do what they can afford to do and some of them can

afford to have children by the nuclear transfer method, cloning is legitimate and only the rules of the market – supply and demand – should regulate it. If, however, having children by pure cloning is something that every rational person values, the unequal access to the service depending on one's financial situation could be an issue. Capability and well-being theories would probably align themselves with egalitarianism on the latter point.

Sections 3 and 4 on Kantian and Aristotelian ethics presented, in theoretical form, some of the concerns that may crop up in communitarian considerations. Traditional duties, prohibitions, and entitlements can then take precedence over calculations of social utility or the dictates of the state and the market.[150] The initial reaction that saw human cloning banned within weeks from the news of Dolly had a solid communitarian foundation, as do most current restrictions.

Beauchamp and Childress lean toward the egalitarian-utilitarian direction and end up proposing

> recognition of global rights to health and enforceable rights to a decent minimum of health care in nation-states, while recognizing that adequately securing these rights in political states and globally is an exceedingly ambitious and difficult path to pursue even when the goals of policy are strongly supported by principles and theories of justice.[151]

If this, then, is what justice actually means in the model, pure cloning can hardly be all that high up on any list of national or global priorities. The parents seeking to replace their lost child with a near-copy have a claim, but a claim that pales in the face of the health authorities' need to provide a decent minimum of care to the population as a whole.

5.6 The Principles and Their Background Revisited

The four principles seem to leave us in the same kind of uncertainty that utilitarianism already did. There are pros and cons, but they are difficult to weigh. We have identified helping the parents in our imaginary case as a benefit and the possibility of physical identity theft as a risk, but it is difficult to get further than that in the assessment. The autonomy of the parents would probably be respected by cloning; whether or not the autonomy of the child would is a separate matter. Justice as an assurance of a decent minimum does not support the case.

The foundation of the four principles approach can also be challenged. It is firmly based on the assumption that one common moral language, *the common morality* for all people in all places, exists and has been encapsulated in the principles of respect for autonomy, nonmaleficence, beneficence, and justice. This has been questioned on many levels. Do universal moral concepts exist in

the first place?[152,153] Do they always generate rights in the way assumed by Beauchamp and Childress when they maintain that all "persons living a moral life know and accept rules such as not to lie, not to steal others' property, not to punish innocent persons, not to kill or cause harm to others, to keep promises, and to respect the rights of others"? And are the four principles a part of every culture's vocabulary?

As for the last question, it has been suggested, for instance, that the concept of autonomy does not appear at all in Buddhist morality. In its background worldview, everything is interconnected, and so individuals as independent, self-directing agents are an illusion. Buddhists do, of course, recognize untoward phenomena that principlism links with autonomy, such as coercion, but they are identified and resisted on other grounds. Buddhism is strong in its resolve to eliminate suffering, which makes the principle of nonmaleficence a natural port of call in this case.[154,155] The question, then, is: If one of the four basic rules does not work within a faith system with half a billion followers worldwide, how global is the rules' reach?

The Beauchamp and Childress interpretation of autonomy has also been challenged within the Western culture. Some see it as an overly individualistic, hedonistic, ableist, and eventually oppressive or nihilistic notion that makes a mockery of serious moral concerns. They have, in some cases, gone on to produce their own principles to counter the four.[156,157]

6 Values Beyond Utility

Jacob Dahl Rendtorff and Peter Kemp presented in 2000 a detailed alternative to the Georgetown model in their Barcelona Declaration.[158,159] The declaration was formulated within a multi-partner project funded by the European Commission, and it, too, named four main principles: autonomy, dignity, integrity, and vulnerability. The idea was to use the notions of Continental European rather than Anglo-American philosophy and emphasize the ideals of communality and the intrinsic morality of human actions. The geographic identification is not exact, but it indicates correctly that the declaration relies on Christian and social democratic values more than Beauchamp and Childress did.

6.1 Autonomy Differently

Respect for autonomy is the leading rule in both models, but it is interpreted differently in them. In the Georgetown reading, the authors' protestations notwithstanding, the stress is on the voluntary choice of competent individuals to give their permission to suggested procedures. This is seen in the importance

of informed consent and in the way it is formulated. The Barcelona reading is based on the observation that self-direction, or "being a law to oneself," has social and communal dimensions and restrictions. The ensuing difference is dramatic. In the words of Rendtorff and Kemp:

> Autonomy should be considered as a principle of the self-legislation of rational human beings taking part in the same human lifeworld. This does not exclude the recognition of pluralism as a political fact of modern society. But it is necessary to work with a more comprehensive idea of autonomy, recognising the tensions between different conceptions of the good. The republican sense of autonomy is based on the vision of "the good life for and with the other in just institutions."[160]

Respecting the republican form of autonomy means recognizing the will of individuals when (and only when) it conforms to the "general will" of the community, society, church, or state.[161]

This changes the verdict on pure cloning completely. The devastated parents of our marker case may well have a preference to clone their recently lost child, but this preference as such has little or no weight. If cloning is offensive or against religious teaching, the will of the parents is not compatible with "the good life for and with the other in just institutions" and should not have decisive authority. Unless the vision of the good life changes to support the use of nuclear transfer in human reproduction, the only thing we had, in the non-republican moral universe, going for pure cloning evaporates.

6.2 Dignity

Rendtorff and Kemp then go on to give content to their vision by characterizing their second, but perhaps most important, rule, dignity:

> (1) It expresses the intrinsic value of the human being in a community or society. (2) It includes respect for the moral agency of the human subject. (3) It means that every human being must be considered as being without price and unable to be commercialised. (4) This includes that human dignity refers to the indeterminant position of human beings in the universe. (5) Self-esteem, proudness, shame, feeling of inferiority and degradation are essentially matters of human dignity expressed in the intersubjective relations between individuals. (6) Dignity can establish restrictions on interventions in human beings in taboo-situations, because of the necessity of human civilised behaviour. (7) Finally, dignity relates to metaphysical experiences of human beings in existential limit by degrading treatment.[162]

The diversity within the project group membership may show in this passage, as it seems to contain communitarian (1), Kantian (2 and 3), Christian (4 and 5), common-decency-based (6), and existentialist (7) elements. (We are not

absolutely sure about any of these attributions, only that they seem to include a variety of "European" or "republican" concerns.)

The protection of human dignity has been the single most important reason for cloning bans all over the world, and the Barcelona Declaration was drafted during the Dolly time.[163–165] It is, therefore, slightly perplexing that none of the seven characterizations is directly applicable to human reproduction by the nuclear transfer method. The third (3) has been indirectly employed by arguing that clones would be products of human design and those products typically have a price and can be commercialized. Isolated like this, however, the argument is not at its most convincing.

What Rendtorff and Kemp and the group had in mind is probably akin to what Jürgen Habermas and Michael Sandel say about the chosen and the given in our lives, summarized here:

> We are free and autonomous mental beings (and as such aware and in control of ourselves and our aims) but also valuable and dignified bodily beings (carrying in us an element which is unknown and untouchable even to us).[166]

One particular clone being born does not, in one blow, take away our given dignity, or not even the given dignity of that individual. More generally, however, cloning and its acceptance would be another step in the wrong direction.[167] Combined with all the other reifying and objectifying influences of our time, it would nudge us further away from democracy, solidarity, and the proper understanding of humanity.

6.3 Integrity

Rendtorff and Kemp continue on the theme of republican over permissively liberal values with the principle of integrity. This, for them, calls for "a coherence that in a certain sense must not be touched." They specify four meanings:

> (1) Integrity as a narrative totality, wholeness, completeness. (2) Integrity as a personal sphere of self-determination. (3) Integrity as a virtue of uncorrupted character, expressing uprightness, honesty and good character. (4) Integrity as a legal notion, where it expresses the moral coherence of the legal or medical system.[168]

This is a mixed bag. The first and last elements (1 and 4) define a systemic integrity consistent with the republican notion of the general will, distinguishing the Barcelona approach from the Georgetown tack. The middle elements (2 and 3), however, seem to be talking about individuals, their autonomy, and their morality. Maybe the reading should be somehow holistic, stating that

agents have their sphere of self-determination as long as they do not try to go against propriety as seen in their community, society, and nation.

What, if anything, the principle of integrity adds to the Barcelona verdict on cloning is difficult to pinpoint on this evidence alone. The specifications either empower the parents of our case or subject them to the general will. But we may be barking up the wrong tree here. The project funded by the European Commission ran during 1995–98, and cloning is not mentioned in its main reports – presumably because they were written before the Dolly news. The emphasis is on earlier concerns, especially on abortion, IVF, and embryo research.

In those discussions, the concept of integrity was employed to criticize any techniques that would require killing humans at any developmental stage. Rendtorff and Kemp touch on this view by saying that integrity "refers to the totality of life saying that it should not be destroyed."[169] The explicit connection is not made, probably because it would have spelled the end of all research on human embryos, an implication that would have been too drastic for general distribution in the scientific community. For research on human cloning, this would have meant a total ban – something that has not happened. For cloning in our imaginary case, where the technique has been completed, it would have no direct consequences, as embryos no longer need to be killed. There could be residual, indirect concerns about using a method that has been developed unethically, but the significance of such concerns is not clear.[170]

6.4 Vulnerability

The Barcelona principles of autonomy, dignity, and integrity already set the declaration apart from the Georgetown approach. Respect for vulnerability, however, takes the difference to a new level. Rendtorff and Kemp write:

> Vulnerability should be considered as a universal expression of the human condition. . . . However, vulnerability has been largely misunderstood in modern society, which has been guided by a socalled vulnerability reducing agenda, which aims to eliminate all vulnerability, i.e. suffering, abnormality, deafness and disability, in order to create perfect human beings. Respect for vulnerability must find the right balance between this logic of struggle for immortality and the finitude of the earthly presence of human suffering.[171]

This one deserves a closer analysis. What are the authors saying here? What are they *not* saying?

They are saying that human beings are vulnerable and that we should admit it. We should not fool ourselves into thinking that our physical and mental frailty can be taken away by social engineering or advances in biomedical technology.

If we accept that illusion, we set ourselves an impossible goal and probably end up hurting ourselves and others in trying to reach it.

They are also saying that human beings are different, and their vulnerabilities are difficult to understand from a viewpoint of "normality" if they involve unavoidable "suffering, abnormality, deafness, and disability." This list probably reflects the 1990s rise of the social understanding of disabilities and the idea of many of them being a part of human variety instead of needless and preventable burdens.[172]

They are not saying that suffering should be wantonly caused or negligently allowed. Although it is a part of human life, it should be minimized where possible and should be prevented when given an obvious chance. It is just that "the right balance" must be found between the "logic of struggle for immortality and the finitude of the earthly presence of human suffering," as Rendtorff and Kemp put the matter.

What this means for pure cloning is more difficult to decipher. Since the enhancement dimension has been excluded, it does not seem to be a part of the immortality project. On the contrary, in our imaginary case, vulnerable parents want an equally vulnerable child to share their earthly presence. Indirectly, as cloning can be linked with genetic manipulation, the connection can perhaps be made. Considerations of vulnerability then join those of republican autonomy, human dignity, and communal integrity in their condemnation of the preference-and utility-driven technological ethos.

6.5 Baudrillard and the Death of the Other

The background of the Barcelona Declaration being in Continental European philosophy, its findings can be further elucidated by thoughts about postmodernity and cloning. Gilles Lipovetsky describes Jean Baudrillard's view on the matter:

> Already, in *La transparence du mal*, Baudrillard enters into this discussion of the same and the Other. He states that the universe of simulation in postmodernity excludes the Other. This is, for example, the case with cloning as a postmodern phenomenon. In the end, the development of genetic and reproductive technologies implies that the individual in the postmodern universe does not have to be in a relation to something else. As a clone it no longer has any parents or relation to death. Cloning is a genetic incest that is so radical that everything is identical, and the Other no longer is present: We only meet ourselves again and again. Such a postmodern universe reminds us of death, the pure narcissistic repetition of the same without possibility, through the creation of life, to meet the foreign and the Other.[173]

Although the language is different, the connection with the "given" part of our human dignity is obvious here. We have to remain hidden and alien to ourselves and to others to maintain our modern humanity. Jürgen Habermas and the Barcelona Declaration group are here in agreement with Baudrillard in his diagnosis of our time.

Nothing literal needs to be read into analyses like this. Human clones would, of course, be in relation to other people. They would, of course, have parents. They would, of course, be mortal. They would, of course, be different from one another and even from the individuals whose genome they replicate. They would, of course, be new people with new ideas and ideals. Their humanity would, to all ends and purposes, be intact.

The warning, again, is against an attitude of human omniscience and omnipotence, against hubris, against playing God.[174,175] Reproductive cloning by the nuclear transfer method is not the main culprit here, postmodernity with its superficiality and banality is.[176]

6.6 Cumulative Corruption

Baudrillard's condemnation of human cloning preceded the creation of Dolly by years – and there were others who anticipated what was coming with trepidation. After Jerry R. Hall and Robert Stillman at George Washington University in the United States had, in 1993, created the first known artificial human clones (identical twins are natural clones) by embryo splitting,[177] Munawar Ahmad Anees drew attention to the cumulative power of technology in reproduction:

> Only three decades ago, the so-called genetic code was discovered as a sequence of four bases across the helical structure of DNA. Today, through the Manhattan of Biology – the Human Genome Project – we are engaged in a gargantuan endeavour to conclude our genetic lithography. Within this short span of time, many a taboo stand obliterated: artificial insemination by donor (AID), in vitro fertilization (IVF) and, surrogate motherhood, to name just a few variations on the theme that are now commonplace.
>
> It would seem as though Hall and Stillman's work is at the same crossroad as that of Watson and Crick when they delved into biochemical intricacies of DNA. . . . This . . . "modest" beginning forebodes the genesis of what is in store for the coming decades. Reproductive technology in its bigoted, domineering and, misogynist role is never regressive. It can only act with a propulsive habit. Obviously then, short of any doomsday scenario, cloning has no other discretion except to evolve into a technique of greater instrumental value and refined efficacy.[178]

Anees then proceeds to describe the morally corrupting effect of this development:

> The march of self-sustaining technology goes on. With every little innocent-looking discovery it reminds us that the act of knowing is becoming contingent upon technology. Our knowledge-mediated behaviour is, thus, reactive rather than incipient. Perhaps, the defining and enabling role of technology is an expedient prelude to the postmodern condition.
>
> Similarly, the moral and ethical impasse borne out of cloning has many layers. In the same way that making "test tube babies," accomplishes human reproduction without sexual intercourse, cloning replaces procreation with replication, giving a new twist to the scaffold around which we are accustomed to build the edifice of the human family.[179]

These are considerations that are readily understood in conservative circles, where traditional family values are seen to be under threat from new technologies. From the more – for want of a better word – liberal viewpoint, they are unnecessary scaremongering in the face of inevitable developments. The gap is wide and deep.

7 Feminist Variation

International bioethics was, at the turn of the millennium, split roughly into four camps, with subdivisions within each. The Georgetown Principles and the Barcelona Declaration signpost two of them, the former having natural affiliations with liberalism, utilitarianism, and analytic philosophy, the latter with republicanism, Neo-Thomism, and Continental philosophy, both occasionally leaning toward Kantian thinking. The third is postcolonial bioethics, which can either seek guidance from the Barcelona-Declaration-type-of approach or from the indigenous ways of thinking in Africa, Asia, South-America, and all the other regions and localities that do not automatically swear by the ostensibly American (United States) or European terminology. We leave this dimension to scholars who are better acquainted with it.[180–183] The fourth notable approach is feminist bioethics.[184–188]

The orthodox attitude on reproductive human cloning within current feminism seems to be categorical rejection. The patriarchy perpetuates its hegemony through medical science, which oppresses women by technologically controlling and abusing their spontaneous child-bearing capacities. This is not the whole picture, though.[189]

7.1 Mary Wollstonecraft on Universal Science

Not all feminists have thought that reproductive science is inherently bad. It was, for a long time, solely in the hands of men, and women were excluded, but the remedy could be in getting better positions for women in science

and – partly subsequently – better science for the good of all humanity, regardless of gender.

Mary Wollstonecraft (1759–97), the eighteenth-century British writer, philosopher, and women's rights advocate, seems to have held this view. She herself showed the way by applying Newtonian physics, more specifically the universal law of gravity, to the human condition. People are held in their traditional roles by coercion. Freed from that coercion, they would all find – gravitate toward – their proper roles in societies, in accordance with the natural law and in line with their natural rights and genuine inclinations and skills.[190]

Wollstonecraft did not believe in the prevailing pseudo-scientific view that women are inherently intellectually inferior to men and, unlike men, "give a sex to mind." The perceived stupidity, which was not limited to one gender, was a result of poor education and lack of resources. As for the sexes, she wrote:

> Women will be either friend or slave of man. We shall not, as at present, doubt whether she is a moral agent or the link which unites man with brutes.[191]

The alleged "link" position was associated with motherhood. Wollstonecraft did not deny its requirements – children need to be nursed and reared – but argued that if women have souls, the only functions of these souls cannot be to "draw nutrition, propagate, and rot."[192]

Instead of being confined to domestic slavery, women should be scientifically and medically educated. Wollstonecraft went as far as to suggest that women should be taught anatomy – a scandalous proposal in a time and age that considered even the study of botany improper for them.[193,194]

It is, of course, impossible to say with any precision or certainty what Wollstonecraft would have thought about pure cloning, a technology that only became a reality for mammals two centuries after her death. But, scandalous or not, she would, no doubt, have recommended its exploration by women and men alike. On using this or any other technology to produce new individuals, we have to rely on the testimony of her daughter's work.

7.2 Mary Shelley on Making People

Mary Wollstonecraft Shelley's (1797–1851) most famous work is her 1818 Gothic horror novel, *Frankenstein; or, The Modern Prometheus*.[195] The story has many levels and interpretations, but the inescapable message is that those who rely on modern science without precaution are playing with fire.

Victor Frankenstein studies chemistry at an established university and is captivated by his professor's words on chemistry:

> "The ancient teachers of this science," said he, "promised impossibilities and performed nothing. The modern masters promise very little; they know that metals cannot be transmuted and that the elixir of life is a chimera but these philosophers, whose hands seem only made to dabble in dirt, and their eyes to pore over the microscope or crucible, have indeed performed miracles. They penetrate into the recesses of nature and show how she works in her hiding-places. They ascend into the heavens; they have discovered how the blood circulates, and the nature of the air we breathe. They have acquired new and almost unlimited powers; they can command the thunders of heaven, mimic the earthquake, and even mock the invisible world with its own shadows."[196]

Frankenstein vows to "pioneer a new way, explore unknown powers, and unfold to the world the deepest mysteries of creation." This turns out to be a mistake.

He studies anatomy and the birth and death of living beings day and night until he cracks, in a flash, the mystery of life:

> I paused, examining and analysing all the minutiae of causation, as exemplified in the change from life to death, and death to life, until from the midst of this darkness a sudden light broke in upon me – a light so brilliant and wondrous, yet so simple, that while I became dizzy with the immensity of the prospect which it illustrated, I was surprised that among so many men of genius who had directed their inquiries towards the same science, that I alone should be reserved to discover so astonishing a secret.[197]

Shelley does not tell her readers how exactly Frankenstein gives life to inanimate objects, but electricity has become popular in later interpretations.

Frankenstein decides to use his newly found powers to create a human being. He collects body parts from dissecting rooms and slaughterhouses, puts the pieces together with his superior anatomical skill, and animates the product by his life-giving method. The expectation, of course, is that the creature will be strong, intelligent, kind, and beautiful.

What we learn from the rest of the story is that three out of four of the expectations are met. Frankenstein's creature turns out to be big, wise, and friendly toward those who show him kindness. Unfortunately, however, he is not beautiful. He is, in fact, so hideous to behold that Frankenstein cowardly flees and leaves him to his own devices. From the creature's increasingly unhappy encounters with other humans, a story of vengeance and mutual hatred emerges.

7.3 Margaret Fuller on the Mind of the More Electric Sex

The thinking of these early modern women's rights activists elucidates our current debates on the power, limits, and genderedness of human knowledge. Wollstonecraft was a thinker of the Age of Enlightenment and believed that

a gender-neutral science could solve all humanity's problems. Shelley lived in the Romantic era, and *Frankenstein* was a criticism of science enthusiasm. Especially Enlightenment scholars with Romantic passions, like Victor Frankenstein, were a clear threat. Would women fare better in his role, as Shelley's mother had suggested?

A partial endorsement of such a view can be found in the philosophy of Margaret Fuller (1810–59), a New England Romantic celebrity of her time. Her transcendental commitment led her to see the world in terms of differences and polarities.[198] Lois N. Magner describes Fuller's view:

> Unlike Wollstonecraft, Fuller could embrace the concept of duality even as applied to the minds of men and women; it was not ridiculous to Fuller to give "a sex to mind." While many other feminists concentrated on minimizing the differences between the sexes, Fuller's *Woman in the Nineteenth Century* is an exposition of the "radical dualism" in the nature of male and female.[199]

Unlike Wollstonecraft, Fuller believed in mesmerism and magnetism and their healing powers. Magner continues the description:

> In keeping with the romantic notion of electricity as the very soul of the universe, Fuller describes the masculine/feminine duality in terms of electrical polarity. The special genius of woman is "electrical in movement, intuitive in function, spiritual in tendency." Indeed, women have intuitions which are more rapid and correct than those of men and a heightened sensitivity to "atmospheric changes," but women are also relatively deficient in classification, particularly the "instinctive seizure of causes."[200]

Fuller's women would not, then, have been the best in modern chemistry as described by Victor Frankenstein's professor – "these philosophers, whose hands seem only made to dabble in dirt, and their eyes to pore over the microscope or crucible"[201] – but they might have intuited what could go wrong with the experiment.

This is now a strong interpretation on slightly poetic grounds, but Fuller's references to electricity create vivid images that are worth bringing into light. According to her, women of genius are prone to mental problems and social castigation. Magnetic influences causing unhappiness are stronger on them than on men; and "a woman 'overladen with electricity' was frightening to others; such a woman could be distinguished as one 'whose depth of eye and powerful motion announced the conductor of the mysterious fluid.'"[202] Two questions arise: Who would respect these women's intuitions? And if Frankenstein has to use electricity from an external source to create life, do women have it in themselves?

7.4 Charlotte Perkins Gilman on Female Superiority and Evolution

All feminists agree that if and when women in general are worse in some tasks than men in general, the reasons are more likely to lie in circumstances and education than inherent gender-related properties. Charlotte Perkins Gilman (1860–1935), a controversial figure in the rising feminist movement in the United States of the late nineteenth century, argued that far from being inferior to men and subhuman incubators, women are in fact superior to men and in a sense super-human.[203] In Lois N. Magner's words:

> By 1919, Gilman was ready to assert that woman was not only a human being, but actually "human plus"; during her reproductive years woman was both human being and female. But when woman outgrew her sexual role she became "the only pure human type"; the male, in contrast, does not outgrow the disability of sex until he reaches an advanced age."[204]

Combine this with electricity being, as Fuller proposed, innate to women, and the evidence against Frankenstein, and perhaps the modern male cloners, accumulates. More on that simile momentarily.

Gilman believed in Darwinian, gradual evolution. This made her think that while a "female mind" is a misconception – as Wollstonecraft also believed – it is possible that the differences between men's and women's brains are biologically based and not only socially constructed and politically imposed. Things are, however, perpetually changing, and, according to Gilman, humankind was ready to evolve. The conservatism supported by the accumulation of age-old prejudices was beginning to give way to a scientifically based, liberal or anarchist, social arrangement. One of the casualties of the change would be the ultimate patriarchal relic, the traditional family.[205]

7.5 Shulamith Firestone and Ectogenesis

The change could be gradual, as originally hypothesized by Charles Darwin for organisms, but during the twentieth century, the alternative idea of saltatory evolution became more popular. In biology, this is called mutation; in social and political life, revolution. Shulamith Firestone (1945–2012), the Canadian-American radical feminist writer and activist, an instigator of feminism's second wave, believed that a drastic change in reproductive technology is needed to gain equality for women.

In her book, *The Dialectic of Sex: The Case for Feminist Revolution* (1970), Firestone rejected all romanticized ideas of pregnancy and childbirth as women's beautiful privileges and noble duties. Having to gestate, give birth, and nurse new humans is an unequivocal burden that sets women back in any

competition with men.[206] Unless men can be similarly burdened, the only way out is via technological advances. Firestone uses an analogy to socialist revolution:

> So that just as to assure the elimination of economic classes requires the revolt of the . . . proletariat . . . and . . . their seizure of means of *production*, so to assure the elimination of sexual classes requires the revolt of . . . women . . . and the seizure of control of *reproduction*: . . . their . . . seizure of control of human fertility – the new population biology as well as all the social institutions of childbearing and childrearing.[207]

She then distinguishes her approach from earlier feminism:

> And just as the end goal of socialist revolution was not only the elimination of the economic class *privilege* but of the economic class *distinction* itself, so the end goal of feminist revolution must be, unlike that of the first feminist movement, not just the elimination of male *privilege* but of the sex *distinction* itself; genital differences between human beings would no longer matter culturally.[208]

After these preliminaries, she moves in for the kill:

> The reproduction of the species by one sex for the benefit of both would be replaced by (at least the option of) artificial reproduction: children would be born to both sexes equally, or independently of either, . . . the dependence of the child of the mother (and vice versa) would give way to a greatly shortened dependence on a small group of others in general. . . . The tyranny of the biological family would be broken. And with it the psychology of power.[209]

For Firestone, the logical step toward a sexual revolution would be the development and availability of artificial wombs for gestation outside the woman's body (failing inserting wombs into men). She also welcomes all other forms of reproductive medicine and technology that she is aware of.[210] Cloning as such is not mentioned, but her critics have assumed that her permissive views could be extended to it, as well as to any other techniques that would break the links between sex, gender, reproduction, and family.[211]

7.6 Cloning an All-Fe/Male World

Everything Firestone said is, of course, antithetical to the subsequent wave of feminism, which returned to the ideas of gender difference and the caring role of women, especially mothers, in special relationships.[212–214] For this third kind of feminism, one of the main criticisms against both Victor Frankenstein and possible future human cloners could be that they are playing Woman – a variation of the playing God argument. Fertile women only need a little

semen and nine months for making a baby naturally. Scientists need spectacular resources and the compliance of many women, not always obtained voluntarily, to reach the same end. And yet they can fail and cause problems.

There is another possible development, however, to which we want to draw attention: a world with only women or men. John Harris has since 1985 been worried about this.[215] Here is his just-post-Dolly iteration of the concern in 1998:

> A curious, but by no means insignificant, by-product of the massive work that is progressing in human embryology is the possibility of artificial parthenogenesis. This is the process whereby the unfertilized human egg . . . can be simulated to grow without fertilization. The result is a female individual who is a near clone of the mother.[216]

Parthenogenesis had been hailed by Firestone as one of the liberators of women, and, after Dolly, cloning by nuclear transfer would in principle get the job done, with interesting consequences. As Harris continues:

> If a group of women with the appropriate technological resources so chose, they could form a viable exclusively female society, with the capacity to reproduce without any recourse to men at all, even in the humble role of sperm donors or "breeding bulls." Moreover, . . . women who wanted children but who were resolutely opposed to associating with men could . . . have children of their own, their *very own*. . . . Of course they could only have females by this process, but, presumably, such women would not regard this as an important disadvantage of the procedure.[217]

This, Harris believes, would be a mistake because a world without men would be inferior to a world with them.

Be that as it may, pure cloning and ectogenesis combined could also result in an all-male world. Eggs would either have to be stored or produced artificially, but these would hardly be insurmountable problems with the current state-of-the-art in reproductive technologies, stem cell research, and synthetic biology.[218] New individuals could be produced by implanting only men's somatic cells into the emptied or synthetic ova and then gestating them in artificial wombs. The latter quotation from Harris could be edited to read:

> If a group of men with the appropriate technological resources so chose, they could form a viable exclusively male society, with the capacity to reproduce without any recourse to women at all, even in the humble role of egg donors or "incubators." Moreover, . . . men who wanted children but who were resolutely opposed to associating with women could . . . have children of their own, their *very own*. . . . Of course they could only have males by this process, but, presumably, such men would not regard this as an important disadvantage of the procedure.

Not to make predictions about the prospects of such worlds in reality, the mere possibility could give pause to those who are looking for objections against – even pure – cloning.

8 Pure Cloning as Any Reproduction

Pure cloning may avoid many of the criticisms leveled at cloning combined with enhancements. The grounds for practicing it are not, however, all that firm. Reproductive autonomy and satisfying the preferences of potential parents are its only direct justifications, and they seem to be no match for objections against this kind of technology. But what kind of technology, exactly? We know what cloning is in scientific terms but not what it means in the popular imagery behind its disapproval. If our narrative in the preceding section is anything to go by, the shared notion may be a mix of Romanticism, selective technophobia, and cinematic impressions kept together by ideas about the power of electricity and the beauty of natural reproduction.

8.1 Body Parts and Electricity

Mary Shelley's *Frankenstein*, and its movie iterations during the nineteenth century, may have a surprisingly influential role in the rejection of cloning. This is a bold claim, but we think that it is, nonetheless, feasible.

What does Victor Frankenstein do? The most straightforward interpretation is that he collects the best possible body parts, puts them together in the light of the most perfect human knowledge, and animates his creation with an electric shock.

What do biologists engaged in cloning do? They collect the best possible body parts, put them together in the light of the most perfect human knowledge, and animate their creation with an electric shock. The analogy is strong.

What happens? In Frankenstein's case, failure. The select bits, the best knowledge, and electricity do not result in perfection. They produce an artifact that does not live up to his expectations. That the only expectation not met is esthetic makes Frankenstein a callous lookist, but other complaints are available. Maybe all attempts to produce life or organic perfection are doomed to fail.

Fast-forward to cloning, and the same could apply. Why would the bits, knowledge, and prompts used by contemporary biologists fare any better? They can do their best, but something is missing. Perhaps it is the spontaneous female electricity envisioned by Margaret Fuller, or perhaps it is the soul that can, according to The Vatican's early reaction to Dolly, only be issued by God.

The lesson, then, is loud and clear. Do not clone! Do not even try! Something will go wrong. Our knowledge and powers are not sufficient for the task. God and nature have what it takes, we do not, let us leave it to them.

Except that such a reversal of technological development does not bode well with the technophilic portion of humankind. The imagery of body parts and electric sparks may work in the movie industry and attract romantics, but the caution is arguably overstated. Human evolution, including scientific advances, is natural, and there are no a priori limits to our progress. If clear disadvantages cannot be shown, pure cloning should be treated like any other form of reproduction, something we have already learned to do with artificial insemination and IVF.

In the remaining subsections, we shall first list the disadvantages of cloning that have been shown and then conclude by considering what they could mean for human reproduction in general.

8.2 Accumulated Evidence against from Theoretical Moralities

Both the theoretical moralities and the ideological rationalities presented in Sections 2–7 have produced, or at least pointed to, possible objections to creating new human lives by the use of the nuclear transfer method.

Consequentialist moral theories, notably bioutilitarianism and other forms of positive utilitarianism, offer the most lenient views on cloning, but we have suggested that in doing so, they do not necessarily play by their own rules. Long-term consequences, as well as more immediate outcomes, are an essential part of any proper utility calculation, yet they are not presented in the discussion. The literature does not seem to contain analyses of the good and bad effects that replicating existing people would have; instead, the short-term preference-satisfaction of the would-be cloners is complemented by an overarching optimism concerning all technological advances. A different background attitude could turn the conclusion upside down.

Deontological moral theories, particularly Kantian ethics, challenge cloning by observing that the new individuals would not be brought into existence as ends in themselves. Their lives would be means to their parents' ends, as well as known to others in improper ways. The latter point cannot be countered by assuring that the particular individuals born would not suffer from being known – we can assume that in our imaginary case anyway – since they are entitled to remain mysteries, regardless of the consequences. The former point, in its turn, can have wider ramifications when applied to all reproduction, which we shall do momentarily.

Teleological moral theories, especially Neo-Thomism, hold the unequivocally firmest views against human cloning, although this is slightly paradoxical. Aristotelian and Christian ethics are, at their foundation, pro-life, so it would be logical to see them defending all forms of creating new humans. The rejection only follows when the proposed technological way of making babies is submitted to the court of the wise experts. What happens in that court is not altogether clear. We know that Neo-Thomists have lists of the most important goods in life, but we also know that those have not been used in the condemnation of cloning. A deeper understanding of life's value has been mentioned, and that seems to require that reciprocal respect and mutual equality must prevail between any new individuals and their makers. When, if ever, this requirement is met is a matter of further investigation.

8.3 Accumulated Evidence against from Ideological Rationalities

Of the three ideological rationalities that we have presented, the Georgetown principles are the most amenable to human cloning, with or without selection and enhancements. Despite the protestations of the model's creators, individual autonomy, including reproductive freedom, has a focal role, and if the potential parents of our imaginary example want to have a healthy clone by methods that, by then, are safe for all involved, it is difficult to see what could stand in their way. No one seems to be harmed by the permission, no one seems to be benefited by the denial of their wish, and although the money could be better spent on healthcare services among less privileged populations, such considerations of justice seldom enter the analyses.

Having said this, outside our example, things might be different. The third rule of the common morality specifies: "Prevent evil or harm from occurring."[219] The second rule of beneficence states: "Prevent harm from occurring to others."[220] The second rule of nonmaleficence says: "Do not cause pain or suffering."[221] And the principle of autonomy demands the informed consent of those affected by the decisions. Consequently, if any evil or harm or pain or suffering is forthcoming and if those facing it have not consented to it, the Georgetown approach should not condone the practice.

The Barcelona Declaration and its adjacent Continental European philosophy do not condone human cloning in any form, pure or impure. When preferences are not allowed a pivotal role in morality and when the choice of potential parents is seen as a matter of preference rather than of general-will-moderated autonomy, there is no case for cloning to begin with. The principle of dignity reiterates, however, the deontological and teleological objections to treating human beings as objects or commodities, and while the treatment of

vulnerability leaves open the details of preventing it, integrity, "the totality of life saying that it should not be destroyed,"[222] would probably go against scientific developments leading to the perfection of cloning as lives would be lost along the way.

We cited Jean Baudrillard and Munawar Ahmad Anees, airing their concerns about the banality-inducing and cumulative effects of advances in reproductive technologies. They lament that people are not trying to create new, unknown lives any more, but copies of themselves – consumers and producers whose only task is to create new consumers and producers. Whether or not this amounts to a criticism against pure cloning specifically is a matter of dispute. Critics of Baudrillard have argued that capitalism has already ensured that only copies in his sense have been made for decades, maybe centuries.[223] If this is true, it would be mere nostalgic meandering to continue talking about the change now as if it would not have happened.

Feminism has historically been divided when it comes to advances in reproductive technology. Enlightenment philosophers, from Mary Wollstonecraft to Shulamith Firestone, have relied on their liberating power, while champions of Romanticism have seen them as a potential threat. In our reading of Mary Shelley's mad male scientist and Margaret Fuller's good female electricity, the romantic elements are combined to make the case that by the new reductive methods men perpetuate the patriarchy by suppressing women's natural power to create new life. Modern variations of this view are prevalent in the current wave of feminist thought.

None of the three ideological rationalities we have considered gives its unequivocal support to human cloning. The Georgetown model comes closer than the others and, if the nuclear transfer method's safety can be guaranteed in the future, it could allow it. The underlying argument would then be that since like cases ought to be treated alike and since there is no relevant difference between customary conception and nuclear transfer, pure cloning ought to be condoned. We shall now conclude our investigation by concentrating on the premise that is missing from this argument.

8.4 Marie Huot on the Un/Desirability of Reproduction

If pure cloning is like any other form of human reproduction, then the acceptance of human reproduction implies the acceptance of pure cloning. But should the creation of new individuals in general be permitted? Not everyone has thought so.

The French poet, writer, feminist, animal rights, and vegetarianism activist Marie Huot, in her 1892 public address *The Pain of Living,* argued that life is

misery and new individuals should not, therefore, be conceived and born at all. In her words:

> Happiness does not exist for anyone, because it is not in the immanence of nature. Misfortune is the common law – it is the eternal *fatum* that weighs on all beings, and before which we must either submit or resign;
> *but the stupid love of life is so strong*
> that the vast majority submit and resign themselves to suffering.
> Still, if man only accepted this burden for himself, he could be forgiven; but, passive to the core, he cowardly obeys his enemy, instinct, and perpetuates the cursed heritage by giving life to beings who do not ask to be born.
> More often than not, he commits this homicide unconsciously, and is usually punished enough by the disastrous consequences of this moment of absentmindedness.
> But when he premeditates the crime, no punishment is severe enough to make him atone for it:
>
> Whatever the instinct that those who procreate obey, if they act knowingly, knowing that they create an organism for pain, a soul for disappointment, and a harmful being – both victim and executioner – they are criminals and the child has the right to consider his father and mother as mere murderers.[224]

This, of course, is in stark contrast with the life-embracing attitudes of the Georgetown and Barcelona principles and contradicts the idea of women as valuable and mysterious life-givers. It is, however, the considered view of a revolutionary feminist, and, as such, worthy of serious consideration.

During the last few decades, the conviction that humans should not reproduce has gained momentum. Some maintain that our quality of life is so low that we would have been better off never having been in the first place.[225,226] Others point out that potential parents cannot ask their possible children whether they would like to come into existence or not.[227,228] Yet others observe that while most lives can be worth living and the requirement of permission might be exaggerated, even the possibility of a miserable life should give pause to aspiring reproducers.[229–231] Beyond such essentially suffering-based considerations, the creation of new beings as objects of manipulation and hegemonic power relations has been questioned.[232–236] All this in the spirit of Marie Huot's manifesto but in less colorful turns of phrase.

8.5 Support for Marie Huot in Moralities and Ideologies

The ethos – or negative ethics or oibethics – behind resistance to all reproduction is ever-present in the criticisms of pure cloning.[237,238] Within all the theoretical moralities and ideological rationalities that we have presented, the

interpretation that is the most likely to condemn cloning is also the most likely to doubt the rationality and morality of human reproduction in general.

Within consequentialist moral theories, sentiocentric negative utilitarianism makes the strongest case against pure cloning. We should, according to the theory, minimize, and if possible remove and prevent, suffering. In the real world outside our imaginary example, and in its current stage of development, human cloning is more likely to increase than to decrease pain and anguish. Banning it is, therefore, reasonable, at least for the time being.

The paragon deontological view against cloning is based on the humanity interpretation of the categorical imperative. We should never treat humanity, in ourselves or in others, merely as a means, but always also as an end in itself. Individuals produced by cloning are, according to the restrictive interpretation, used as mere means to their parents' ends in this sense. The practice must, therefore, be absolutely and permanently prohibited.

Of the teleological approaches, the council-of-the-wise approach seems to secure the firmest results against cloning. Aristotelian virtue ethics remains a little vague about technological advances like this, and the overall pro-life slant of Neo-Thomism forces the rejection to take an indirect form. Wise experts, leaning on the principle that new individuals and their makers must have reciprocal respect and mutual equality, denounce cloning.

All these condemnations can be converted into criticisms of any human reproduction. As far as the criteria used go, there is no decisive difference between the two. Cloning is conducive to future suffering, cloned individuals are treated as a mere means, and parents of clones abandon the requirement of reciprocal respect and equality. Likewise, any procreation is conducive to future suffering,[239–242] treats the new individuals as a mere means,[243,244] and ignores respect and equality.[245]

The pattern is repeated in ideological rationalities. The arguments that can be used against pure cloning could also be used against other forms of human reproduction. If harm prevention is emphasized at the expense of benefits, cloning cannot be recommended, but neither can any other way of producing new individuals. If vulnerability should not be deliberately created, cloning is wrong, but so are other methods of making defenseless babies. Feminists, if against cloning, should agree.

8.6 The Logical Conclusion

Our investigation into the acceptability of pure cloning – human reproductive cloning by the nuclear transfer method or similar without enhancements – has led us to a slightly surprising but logical conclusion. What started with scientists

at the Roslin Institute creating Dolly the sheep escalated into an ethical debate which, with some scratching of the surface, appears to present a challenge to all human reproduction.

We set out to see how the ethics of cloning with enhancements fares with cloning without enhancements – pure cloning. We found that some arguments lose their strength, while others retain theirs in this stripped case – which, for most intents and purposes, we further reduced to our imaginary example involving the desperate parents who want to replace their lost child.

Since, however, there is not much to differentiate between pure cloning and any other form of reproduction, the arguments that retain their power challenge not only cloning but also procreation more generally. This observation could be used as a *reductio ad absurdum* to show that pure cloning should be allowed, after all. Surely all reproduction cannot be challenged?

Alternatively, the similarity could be used as a *modus ponens* precisely to challenge all reproduction. The form of the argument is: P implies Q. P is true. Therefore, Q must also be true. In ethics, inferences are seldom as stringent as that, but the main point is clear: The rejection of pure cloning implies the rejection of all reproduction. The rejection of pure cloning is reasonable. Therefore, the rejection of all reproduction is reasonable. As said, surprising but logical.

Notes

1. Häyry 2018.
2. McKinnell & Di Berardino 1999.
3. Steensma 2017.
4. Haldane 1963.
5. Huxley 1932.
6. Haldane 1924.
7. Noli et al. 2017.
8. Redman 2016.
9. Rahbaran et al. 2021.
10. Charitos et al. 2021.
11. Takala & Häyry 2007.
12. Wilmut et al. 1997.
13. U.S. Food & Drug Administration 2021.
14. Harris 2007.
15. Häyry 2010.
16. U.S. Food & Drug Administration 2021.
17. U.S. Food & Drug Administration 2021.
18. Liu et al. 2018.
19. Häyry 2018.
20. Lederberg 1966.
21. Ramsey 1970.
22. Fletcher 1974.
23. Chadwick 1982.
24. Häyry 1994a.
25. Takala 2005.
26. Häyry 2010.
27. Takala 2012.
28. Clones Have No Souls 1997.
29. United Nations Educational, Scientific and Cultural Organization 1997.
30. United Nations Educational, Scientific and Cultural Organization 2004.
31. Häyry 2001.
32. Häyry 2003a.
33. Campbell 1997.
34. Häyry 2001.
35. Häyry 2003a.
36. Häyry 2021a.
37. Rydenfelt 2013.
38. Rydenfelt 2023.
39. Rydenfelt 2024.
40. Häyry 2010.
41. Häyry 2022.

42. Glover 1977.
43. Singer 1979.
44. Singer & Wells 1984.
45. Harris 1985.
46. Takala 2003.
47. Häyry 2002.
48. McMahan 2005.
49. Häyry 2007.
50. Häyry forthcoming.
51. Singer 2002.
52. Häyry 1994b, 96, 121, 124.
53. Häyry 2005a.
54. Häyry 2003b.
55. Häyry & Takala 2007.
56. Holm & Takala 2007.
57. Häyry 2021b.
58. Rawls 1971.
59. Birsch & Fielder 1994.
60. Strother 2018.
61. Treatment of the values.
62. Hart & Wijs 2022.
63. Horowitz 2024.
64. Herper 2001.
65. Kant 1998 [1785], 31.
66. Allison 1990.
67. Schneewind 1998.
68. Häyry 2005b.
69. Green 2007.
70. Kant 1998 [1785], 38.
71. Glover 2006.
72. Häyry 2024a, 54.
73. Sandel 2007.
74. Sandel 2007.
75. Sandel 2007.
76. Habermas 2003.
77. Habermas 2003.
78. Habermas 2003.
79. Habermas 2003.
80. Habermas 2003.
81. Häyry 2012a.
82. Shiffrin 1999.
83. Singh 2012.
84. Green 2007.
85. Green 2007.
86. Green 2007.
87. Green 2007.

88. Gurnham 2005.
89. Kant 1889 [1797].
90. Häyry & Sukenick 2024a.
91. Häyry & Sukenick 2024b.
92. Kraut 2022.
93. Kraut 2022.
94. Kraut 2022.
95. Irbe 2000.
96. Kraut 2022.
97. Kraut 2022.
98. Tornau 2020.
99. Pasnau 2023.
100. Aquinas.
101. Häyry 2001.
102. Häyry 2003a.
103. Shaftesbury 1991 [1711].
104. Häyry 1994b.
105. Allison 1990.
106. Schneewind 1998.
107. Williams 2023.
108. Finnis 2011 [1980].
109. Crowe 2014.
110. Finnis 2011 [1980].
111. Finnis 1998.
112. Finnis 1998, 377–8.
113. Finnis 1998, 379.
114. Finnis 1998, 360 – citing Grisez 1993, 267.
115. Finnis 1998, 360 – citing Grisez 1993, 267.
116. Berkeley 1948 [1712].
117. Häyry & Häyry 1994.
118. Häyry 2012b.
119. Finnis 1998, 381, citing Grisez 1993, 267–8.
120. Beauchamp & Childress 1983.
121. Beauchamp & Childress 2001.
122. Beauchamp & Childress 2019.
123. Gillon 1985.
124. Beauchamp & Childress 2019, 3.
125. Beauchamp & Childress 2019, 3.
126. Beauchamp & Childress 2019, 3.
127. Beauchamp & Childress 2019, 3–4.
128. Beauchamp & Childress 2019, 4.
129. Beauchamp & Childress 2019, 157.
130. Beauchamp & Childress 2019, 219.
131. Beauchamp & Childress 2019, 219 – numbering removed.
132. Häyry & Takala 2001, 290.
133. Beauchamp & Childress 2019, 157.

134. Beauchamp & Childress 2019, 159.
135. Beauchamp & Childress 2019, 159.
136. Häyry Devlin 2001.
137. Häyry Devlin 2003a.
138. Feinberg 1984.
139. Feinberg 1985.
140. Ironscales no date.
141. Holm 1995.
142. Beauchamp & Childress 2019, 90.
143. Beauchamp & Childress 2019, 102.
144. Beauchamp & Childress 2019, 102.
145. Beauchamp & Childress 2019, 122.
146. Beauchamp & Childress 2019, 108.
147. Shiffrin 1999.
148. Singh 2012.
149. Beauchamp & Childress 2019, 271.
150. Takala & Häyry 2004.
151. Beauchamp & Childress 2019, 314.
152. Takala 2001.
153. Häyry 2004a.
154. Florida 1996.
155. Herissone-Kelly 2022.
156. Häyry 2003b.
157. Häyry & Takala 2007.
158. Rendtorff & Kemp 2000a.
159. Rendtorff & Kemp 2000b.
160. Rendtorff & Kemp 2000a, 359.
161. Häyry & Takala 2016.
162. Rendtorff & Kemp 2000a, 360.
163. Häyry 2003c.
164. Takala 2005.
165. Takala 2012.
166. Häyry 2022, 26.
167. Häyry 2012a.
168. Rendtorff & Kemp 2000a, 360.
169. Rendtorff & Kemp 2000a, 360.
170. Takala & Häyry 2007.
171. Rendtorff & Kemp 2000a, 360.
172. Häyry 2004b.
173. Lipovetsky 2014, 278–9.
174. Chadwick 1982.
175. Häyry 1994a.
176. Shokouhi & Jamili 2019.
177. Kolata 1993.
178. Anees 1995, 36.
179. Anees 1995, 36–7.

180. Qiu 2004.
181. Luna 2006.
182. Rentmeester 2012.
183. Tangwa 2019.
184. Sherwin 1992.
185. Nussbaum 1995.
186. Jaggar 2002.
187. Tong 2002.
188. Scully 2023.
189. Magner 1978.
190. Magner 1978, 61–4.
191. Wollstonecraft 1974 [1792], 67.
192. Wollstonecraft 1972 [1787], 93.
193. Magner 1978, 64.
194. Wollstonecraft 1974 [1792], 309–11.
195. Shelley 1995 [1818].
196. Shelley 1995 [1818], 41.
197. Shelley 1995 [1818], 46.
198. Fuller 1971 [1855].
199. Magner 1978, 66.
200. Magner 1978, 67.
201. Shelley 1995 [1818], 41.
202. Magner 1978, 67.
203. Gilman 1966.
204. Magner 1978, 72.
205. Magner 1978, 73–4.
206. Firestone 1970, 198–9.
207. Firestone 1970, 10–11.
208. Firestone 1970, 11.
209. Firestone 1970, 11.
210. Firestone 1970, 197.
211. Maglaque 2020.
212. Gilligan 1982.
213. Kittay 1999.
214. Kittay & Feder 2002.
215. Harris 1985.
216. Harris 1998, 22.
217. Harris 1998, 22.
218. Häyry 2017.
219. Beauchamp & Childress 2019, 3.
220. Beauchamp & Childress 2019, 219.
221. Beauchamp & Childress 2019, 3.
222. Rendtorff & Kemp 2000a, 360.
223. Kellner 2020.
224. Huot 1909 [1898].
225. Benatar 1997.

226. Benatar 2006.
227. Shiffrin 1999.
228. Singh 2012.
229. Häyry 2004c.
230. Häyry 2004d.
231. Häyry 2024a.
232. Cabrera 2011 [1989].
233. Cabrera 2019.
234. Häyry & Sukenick 2024a.
235. Häyry & Sukenick 2024b.
236. Häyry in peer review.
237. Häyry forthcoming.
238. Sukenick in peer review.
239. Akerma 2000.
240. Akerma 2021.
241. Häyry 2024b.
242. Akerma 2024.
243. Cabrera 2011 [1989].
244. Cabrera 2019.
245. Häyry & Sukenick 2024a.

References

[All online sources last accessed August 26, 2024.]

Akerma, Karim. *Verebben der Menschheit? Neganthropie und Anthropodizee*. Freiburg im Breisgau: Verlag Karl Alber, 2000.

Akerma, Karim. *Antinatalism: A Handbook*. Berlin: Epubli, 2021.

Akerma, Karim. On Matti Häyry's "Exit Duty Generator." *Cambridge Quarterly of Healthcare Ethics* 33 (2024): 232–7.

Allison, Henry E. *Kant's Theory of Freedom*. Cambridge: Cambridge University Press, 1990.

Anees, Munawar Ahmad. Human Cloning: An Atlantean Odyssey? *Eubios Journal of Asian and International Bioethics* 5 (1995): 36–7.

Aquinas, Thomas. *Summa Theologiae*. www.newadvent.org/summa/3153.htm#article2.

Beauchamp, Tom L., and Childress, James F. *Principles of Biomedical Ethics*. Second edition. Oxford: Oxford University Press, 1983.

Beauchamp, Tom L., and Childress, James F. *Principles of Biomedical Ethics*. Fifth edition. Oxford: Oxford University Press, 2001.

Beauchamp, Tom L., and Childress, James F. *Principles of Biomedical Ethics*. Eighth edition. Oxford: Oxford University Press, 2019.

Benatar, David. Why It Is Better Never to Come into Existence. *American Philosophical Quarterly* 34 (1997): 345–55.

Benatar, David. *Better Never to Have Been*. Oxford: Clarendon, 2006.

Berkeley, George. *Passive Obedience; or, the Christian Doctrine of Not Resisting the Supreme Power, Proved and Vindicated, upon the Principles of the Law of Nature, in a Discourse Delivered at the College-Chapel* [1712]. In A. A. Luce, and T. E. Jessop, eds. *The Works of George Berkeley, Bishop of Cloyne, Vol. 6*. Edinburgh: Thomas Nelson and Sons, 1948.

Birsch, Douglas, and Fielder, John H. *The Ford Pinto Case: A Study in Applied Ethics, Business, and Technology*. New York: State University of New York Press, 1994.

Cabrera, Julio. *A Ética e Suas Negações: Não Nascer, Suicídio e Pequenos Assassinatos* [1989]. Second edition. Rio de Janeiro: Rocco, 2011.

Cabrera, Julio. *Discomfort and Moral Impediment: The Human Situation, Radical Bioethics and Procreation*. Newcastle upon Tyne: Cambridge Scholars, 2019.

Campbell, Courtney S. *Cloning Human Beings: Religious Perspectives on Human Cloning*. Washington, DC: National Bioethics Advisory Commission, 1997. https://bioethicsarchive.georgetown.edu/nbac/pubs/cloning2/cc4.pdf.

Chadwick, Ruth. Cloning. *Philosophy* 57 (1982): 201–9.

Chadwick, Ruth F. Playing God. *Cogito* 3 (1989): 186–93.

Charitos, Joannis Alexandros, Ballini, Andrea, Cantore, Stefania, et al. Stem Cells: A Historical Review about Biological, Religious, and Ethical Issues. *Stem Cells International* (2021): 9978837. https://doi.org/10.1155/2021/9978837.

Clones Have No Souls. Associated Press, June 1997. www.chrononhotonthologos.com/misc/clonsoul.htm.

Crowe, Jonathan. Reason, Morality, and Law: The Philosophy of John Finnis. *Notre Dame Philosophical Reviews*, March 14, 2014. https://ndpr.nd.edu/reviews/reason-morality-and-law-the-philosophy-of-john-finnis/ I'.

Feinberg, Joel. *Harm to Others*. Oxford: Oxford University Press, 1984.

Feinberg, Joel. *Offense to Others*. Oxford: Oxford University Press, 1985.

Finnis, John. Public Reason, Abortion, and Cloning. *Valparaiso University Law Review* 32 (1998): 361–82.

Finnis, John. *Natural Law and Natural Rights* [1980]. Second edition. Oxford: Oxford University Press, 2011.

Firestone, Shulamith. *The Dialectic of Sex: The Case for a Feminist Revolution*. New York: William Morrow, 1970. https://teoriaevolutiva.wordpress.com/wp-content/uploads/2013/10/firestone-shulamith-dialectic-sex-case-feminist-revolution.pdf.

Fletcher, Joseph. *The Ethics of Genetic Control: Ending Reproductive Roulette*. Garden City, NY: Anchor Press, 1974.

Florida, Robert E. Buddhism and the Four Principles. In Raanan Gillon, ed. *Principles of Healthcare Ethics*. Chichester: John Wiley and Sons, 1996: 105–16.

Fuller, Margaret. *Woman in the Nineteenth Century* [1855]. New York: W. W. Norton, 1971.

Gilligan, Carol. *In a Different Voice: Psychological Theory and Women's Development*. Cambridge, MA: Harvard University Press, 1982.

Gillon, Raanan. *Philosophical Medical Ethics*. Chichester: John Wiley & Sons, 1985.

Gilman, Charlotte Perkins. *Women and Economics*. New York: Harper & Row, 1966.

Glover, Jonathan. *Causing Death and Saving Lives*. Harmondsworth: Penguin Books, 1977.

Glover, Jonathan. *Choosing Children: Genes, Disability and Design*. Oxford: Oxford University Press, 2006.

Green, Ronald. *Babies by Design: The Ethics of Genetic Choice*. New Haven, CT: Yale University Press, 2007.

Grisez, Germain. *The Way of the Lord Jesus, Vol. 2: Living a Christian Life*. Quincy, IL: Franciscan Press, 1993.

Gurnham, David. The Mysteries of Human Dignity and the Brave New World of Human Cloning. *Social & Legal Studies* 14 (2005): 197–214. https://doi.org/10.1177/0964663905051219.

Habermas, Jürgen. *The Future of Human Nature*. William Rehg, Max Pensky, and Hella Beister, transl. Cambridge: Polity Press, 2003.

Haldane, John Burdon Sanderson. *Daedalus; or, Science and the Future*. New York: E. P. Dutton, 1924.

Haldane, John Burdon Sanderson. Biological Possibilities in the Next Ten Thousand Years. In Gordon Wolstenholme, ed. *Man and His Future*. Boston, MA: Little, Brown, 1963: 337–61.

Harris, John. *The Value of Life: An Introduction to Medical Ethics*. London: Routledge & Kegan Paul, 1985.

Harris, John. *Clones, Genes, and Immortality*. Oxford: Oxford University Press, 1998.

Harris, John. *Enhancing Evolution: The Ethical Case for Making Better People*. Princeton, NJ: Princeton University Press, 2007.

Hart, R. J., and Wijs, L. A. The Longer-Term Effects of IVF on Offspring from Childhood to Adolescence. *Frontiers in Reproductive Health* 4 (2022): 1045762. https://doi.org/10.3389/frph.2022.1045762.

Häyry, Heta. *The Limits of Medical Paternalism*. London: Routledge, 1991.

Häyry, Matti. Categorical Objections to Genetic Engineering – A Critique. In Anthony Dyson, and John Harris, eds. *Ethics and Biotechnology*. London: Routledge, 1994a: 202–15.

Häyry, Matti. *Liberal Utilitarianism and Applied Ethics*. London: Routledge, 1994b. www.utilitarianism.com/liberal-utilitarianism.pdf.

Häyry, Matti. But What if We Feel that Cloning Is Wrong? *Cambridge Quarterly of Healthcare Ethics* 10 (2001): 205–8.

Häyry, Matti. Utilitarian Approaches to Justice in Health Care. In Rosamond Rhodes, Margaret P. Battin, and Anita Silvers, eds. *Medicine and Social Justice: Essays on the Distribution of Health Care*. New York: Oxford University Press, 2002: 53–64.

Häyry, Matti. Deeply Felt Disgust – A Devlinian Objection to Cloning Humans. In Brenda Almond, and Michael Parker, eds. *Ethical Issues in the New Genetics: Are Genes Us?* Aldershot: Ashgate, 2003a: 55–67.

Häyry, Matti. European Values in Bioethics: Why, What, and How to Be Used? *Theoretical Medicine and Bioethics* 24 (2003b): 199–214. www.researchgate.net/publication/10589587_European_Values_in_Bioethics_Why_What_and_How_to_be_Used.

Häyry, Matti. Philosophical Arguments for and against Human Reproductive Cloning. *Bioethics* 17 (2003c): 447–59.

Häyry, Matti. Another Look at Dignity. *Cambridge Quarterly of Healthcare Ethics* 13 (2004a): 7–14. www.researchgate.net/publication/8654760_Another_Look_at_Dignity.

Häyry, Matti. There Is a Difference between Selecting a Deaf Embryo and Deafening a Hearing Child. *Journal of Medical Ethics* 30 (2004b): 510–12. www.researchgate.net/publication/8248745_There_is_a_difference_between_selecting_a_deaf_embryo_and_deafening_a_hearing_child.

Häyry, Matti. A Rational Cure for Prereproductive Stress Syndrome. *Journal of Medical Ethics* 20 (2004c): 377–8. www.researchgate.net/publication/8420077_A_rational_cure_for_preproductive_stress_syndrome.

Häyry, Matti. If You Must Make Babies, Then At Least Make the Best Babies You Can? *Human Fertility* 7 (2004d): 105–12. www.researchgate.net/publication/8484207_If_you_must_make_babies_then_at_least_make_the_best_babies_you_can.

Häyry, Matti. Precaution and Solidarity. *Cambridge Quarterly of Healthcare Ethics* 14 (2005a): 199–206. www.researchgate.net/publication/7853088_Precaution_and_Solidarity.

Häyry, Matti. The Tension between Self-Governance and Absolute Inner Worth in Kant's Moral Philosophy. *Journal of Medical Ethics* 31 (2005b): 645–7. www.researchgate.net/publication/7497655_The_tension_between_self_governance_and_absolute_inner_worth_in_Kant's_moral_philosophy.

Häyry, Matti. Utilitarianism and Bioethics. In Richard Ashcroft, Angus Dawson, Heather Draper, and John McMillan, eds. *Principles of Health Care Ethics*. Second edition. Chichester: John Wiley & Sons, 2007: 57–64.

Häyry, Matti. *Rationality and the Genetic Challenge: Making People Better?* Cambridge: Cambridge University Press, 2010.

Häyry, Matti. Protecting Humanity: Habermas and His Critics on the Ethics of Emerging Technologies. *Cambridge Quarterly of Healthcare Ethics* 21 (2012a): 211–22. www.researchgate.net/publication/221872875_Protecting_Humanity.

Häyry, Matti. Passive Obedience and Berkeley's Moral Philosophy. *Berkeley Studies* 23 (2012b): 3–14. www.researchgate.net/publication/340809397_Passive_obedience_and_Berkeley's_moral_philosophy_2012.

Häyry, Matti. Synthetic Biology and Ethics: Past, Present, and Future. *Cambridge Quarterly of Healthcare Ethics* 26 (2017): 186–205. www.researchgate.net/publication/315965451_Synthetic_Biology_and_Ethics_Past_Present_and_Future.

Häyry, Matti. Ethics and Cloning. *British Medical Bulletin* 128 (2018): 15–21. https://doi.org/10.1093/bmb/ldy031.

Häyry, Matti. The COVID-19 Pandemic: A Month of Bioethics in Finland. *Cambridge Quarterly of Healthcare Ethics* 30 (2021a): 114–22. https://doi.org/10.1017/S0963180120000432.

Häyry, Matti. Just Better Utilitarianism. *Cambridge Quarterly of Healthcare Ethics* 30 (2021b): 343–67. https://doi.org/10.1017/S0963180120000882.

Häyry, Matti. *Roles of Justice in Bioethics*. Cambridge: Cambridge University Press, 2022. https://doi.org/10.1017/9781009104364.

Häyry, Matti. If You Must Give Them a Gift, Then Give Them the Gift of Nonexistence. *Cambridge Quarterly of Healthcare Ethics* 33 (2024a): 48–59. https://doi.org/10.1017/S0963180122000317.

Häyry, Matti. Exit Duty Generator. *Cambridge Quarterly of Healthcare Ethics* 33 (2024b): 217–31. https://doi.org/10.1017/S096318012300004X62.

Häyry, Matti. Bioethics and the Value of Human Life. *Cambridge Quarterly of Healthcare Ethics*. Published online October 3, 2024. https://doi.org/10.1017/S0963180124000331.

Häyry, Matti. Should Anarchists Be Antinatalists? In peer review.

Häyry, Matti, and Häyry, Heta. Obedience to Rules and Berkeley's Theological Utilitarianism. *Utilitas* 6 (1994): 233–42.

Häyry, Matti, and Sukenick, Amanda. Imposing a Lifestyle: A New Argument for Antinatalism. *Cambridge Quarterly of Healthcare Ethics* 33 (2024a): 238–59. https://doi.org/10.1017/S0963180123000385.

Häyry, Matti, and Sukenick, Amanda. *Antinatalism, Extinction, and the End of Procreative Self-Corruption*. Cambridge: Cambridge University Press, 2024b. https://doi.org/10.1017/9781009455299.

Häyry, Matti, and Takala, Tuija. Cloning, Naturalness and Personhood. In David C. Thomasma, David N. Weisstub, and Christian Hervé, eds. *Personhood and Health Care*. Dordrecht: Kluwer Academic, 2001: 281–98.

Häyry, Matti, and Takala, Tuija. American Principles, European Values, and the Mezzanine Rules of Ethical Genetic Data Banking. In Matti Häyry, Ruth Chadwick, Vilhjálmur Árnason, and Gardar Árnason, eds. *The Ethics and Governance of Human Genetic Databases: European Perspectives*. Cambridge: Cambridge University Press, 2007: 14–36.

Häyry, Matti, and Takala, Tuija. Coercion. In Henk ten Have, ed. *Encyclopedia of Global Bioethics*. Cham: Springer, 2016: 595–605.

Herissone-Kelly, Peter. How to Deal with Counter-Examples to Common Morality Theory: A Surprising Result. *Cambridge Quarterly of Healthcare Ethics* 31 (2022): 185–91.

Herper, Matthew. We Cloned You: Now, Here's the Bill. *Forbes*, June 29, 2001. www.forbes.com/2001/06/29/0629clone.html.

Holm, Søren. Not Just Autonomy – The Principles of American Biomedical Ethics. *Journal of Medical Ethics* 21 (1995): 332–8.

Holm, Søren, and Takala, Tuija. High Hopes and Automatic Escalators: A Critique of Some New Arguments in Bioethics. *Journal of Medical Ethics* 33 (2007): 1–4.

Horowitz, Alexandra. Would You Clone Your Dog? *The New Yorker*, June 24, 2024. www.newyorker.com/magazine/2024/07/01/would-you-clone-your-dog#:~:text=He%20had%20seen%20a%20television,fee%20of%20fifty%20thousand%20dollars.

Huot, Marie. *The Pain of Living* [1892]. Paris: Édition de Génération Consciente, 1909. https://archive.org/details/marie-huot-the-pain-of-living-1909/page/n1/mode/2up?view=theater.

Huxley, Aldous. *Brave New World*. London: Chatto & Windus, 1932. www.fadedpage.com/showbook.php?pid=20160545.

Irbe, George. Aristotle's Nicomachean Ethics/Table of Virtues and Vices. *George's Views*, March 19, 2000. www.interlog.com/~girbe/virtuesvices.html.

Ironscales no date. What Is Identity Cloning? https://ironscales.com/glossary/identity-cloning#:~:text=Prevention%20and%20Response-,Identity%20Cloning%20Explained,or%20to%20evade%20legal%20consequences.

Jaggar, Alison M. Feminist Ethics. In Hugh LaFollette, ed. *The Blackwell Guide to Ethical Theory*. Oxford: Blackwell, 2002: 348–74.

Kant, Immanuel. On the Supposed Right to Lie from Benevolent Motives [1797]. In Immanuel Kant, ed. *Critique of Practical Reason and Other Works on the Theory of Ethics*, fourth edition. Thomas Kingsmill Abbott, transl. London: Longmans, Green, 1889. www.sophia-project.org/uploads/1/3/9/5/13955288/kant_lying.pdf.

Kant, Immanuel. *Groundwork of the Metaphysics of Morals* [1785]. Mary Gregor, transl. and ed. Cambridge: Cambridge University Press, 1998. https://cpb-us-w2.wpmucdn.com/blog.nus.edu.sg/dist/c/1868/files/2012/12/Kant-Groundwork-ng0pby.pdf.

Kellne, Douglas. Jean Baudrillard. In Edward N. Zalta, ed. *The Stanford Encyclopedia of Philosophy*, 2020. https://plato.stanford.edu/archives/win2020/entries/baudrillard/.

Kittay, Eva Feder. *Love's Labor: Essays on Women, Equality, and Dependency*. New York: Routledge, 1999.

Kittay, Eva Feder, and Feder, Ellen K., eds. *The Subject of Care: Feminist Perspectives on Dependency*. Lanham, MD: Rowman & Littlefield, 2002.

Kolata, Gina. Scientist Clones Human Embryos, and Creates an Ethical Challenge. *The New York Times*, October 24, 1993. www.nytimes.com/1993/10/24/us/scientist-clones-human-embryos-and-creates-an-ethical-challenge.html.

Kraut, Richard. Aristotle's Ethics. In Edward N. Zalta, and Uri Nodelman, eds. *The Stanford Encyclopedia of Philosophy*, 2022. https://plato.stanford.edu/archives/fall2022/entries/aristotle-ethics/.

Lederberg, Joshua. Experimental Genetics and Human Evolution. *The American Naturalist* 100 (1966): 519–31.

Lipovetsky, Gilles. Postmodernism, Hypermodernism, and Critique of the Spirit of Capitalism. In Jacob Rendtorff, ed. *French Philosophy and Social Theory: A Perspective for Ethics and Philosophy of Management*. Cham: Springer, 2014: 267–98.

Liu, Zhen, Cai, Yijun, Wang, Yan, et al. Cloning of Macaque Monkeys by Somatic Cell Nuclear Transfer. *Cell* 172 (2018): 881–7. https://doi.org/10.1016/j.cell.2018.01.020.

Luna, Florencia, ed. *Bioethics and Vulnerability: A Latin American View*. Amsterdam: Brill, 2006.

Maglaque, Erin. The Radical Legacy of Shulamith Firestone: Why Firestone's Groundbreaking Manifesto *The Dialectic of Sex*, First Published in 1970, Still Feels Radical Today. *The New Statesman*, October 21, 2020. www.newstatesman.com/culture/books/2020/10/shulamith-firestone-dialectic-sex-1970-50-years-review.

Magner, Lois N. Women and the Scientific Idiom: Textual Episodes from Wollstonecraft, Fuller, Gilman, and Firestone. *Signs* 4 (1978): 61–80. www.jstor.org/stable/3173325?seq=1.

McKinnell, Robert G., and Di Berardino, Marie A. The Biology of Cloning: History and Rationale. *BioScience* 49 (1999): 875–85. https://doi.org/10.2307/1313647.

McMahan, Jeff. Preventing the Existence of People with Disabilities. In David Wasserman, Jerome Bickenbach, and Robert Wachbroit, eds. *Quality of Life and Human Difference: Genetic Testing, Health Care, and Disability*. New York: Cambridge University Press, 2005: 142–71.

Noli, Laila, Ogilvie, Caroline, Khalaf, Yacoub, and Ilic, Dusko. Potential of Human Twin Embryos Generated by Embryo Splitting in Assisted Reproduction and Research. *Human Reproduction Update* 23 (2017): 156–65. https://doi.org/10.1093/humupd/dmw041.

Nussbaum, Martha. Human Capabilities, Female Human Beings. In Martha Nussbaum, and Jonathan Glover, eds. *Women, Culture, and Development*. Oxford: Clarendon Press, 1995: 61–104.

Pasnau, Robert. Thomas Aquinas. In Edward N. Zalta, and Uri Nodelman, eds. *The Stanford Encyclopedia of Philosophy*, 2023. https://plato.stanford.edu/archives/spr2023/entries/aquinas/.

Qiu, Ren-Zong, ed. *Bioethics: Asian Perspectives – A Quest for Moral Diversity*. Cham: Springer, 2004.

Rahbaran, Mohaddeseh, Razeghian, Ehsan, Maashi, Marwah Suliman, et al. Cloning and Embryo Splitting in Mammalians: Brief History, Methods, and Achievements. *Stem Cells International* (2021): 347506. https://doi.org/10.1155/2021/2347506.

Ramsey, Paul. *Fabricated Man: The Ethics of Genetic Control*. New Haven, CT: Yale University Press, 1970.

Rawls, John. *A Theory of Justice*. Cambridge, MA: The Belknap Press of Harvard University Press, 1971.

Redman, M., King, A., Watson, C., and King, D. What Is CRISPR/Cas9? *Archives of Disease in Childhood: Education and Practice* 101 (2016): 213–5. https://doi.org/10.1136/archdischild-2016-310459.

Rendtorff, Jacob Dahl, and Kemp, Peter. *Basic Ethical Principles in European Bioethics and Biolaw Vol. I Autonomy, Dignity, Integrity and Vulnerability*. Copenhagen and Barcelona: Centre for Ethics and Law and Institut Borja de Bioética, 2000a.

Rendtorff, Jacob Dahl, and Kemp, Peter. *Basic Ethical Principles in European Bioethics and Biolaw Vol. II Partners' Research*. Copenhagen and Barcelona: Centre for Ethics and Law and Institut Borja de Bioética, 2000b.

Rentmeester, Christy A. Postcolonial Bioethics: A Lens for Considering the Historical Roots of Racial and Ethnic Inequalities in Mental Health. *Cambridge Quarterly of Healthcare Ethics* 21 (2012): 366–74.

Rydenfelt, Henrik, Constructivist Problems, Realist Solutions. In J. Kegley, and K. Skowronski, eds. *Persuasion and Compulsion in Democracy*. Lanham, MD: Lexington Books, 2013: 153–69.

Rydenfelt, Henrik. Controversial Views and Moral Realism. *Theoretical Medicine and Bioethics* 44 (2023): 165–76. https://doi.org/10.1007/s11017-023-09616-4.

Rydenfelt, Henrik. Pragmatism and Experimental Bioethics. *Cambridge Quarterly of Healthcare Ethics* 33 (2024): 174–84. https://doi.org/10.1017/S0963180123000282.

Sandel, Michael. *The Case against Perfection: Ethics in the Age of Genetic Engineering*. Cambridge, MA: The Belknap Press of Harvard University Press, 2007.

Schneewind, Jerome Borges *The Invention of Autonomy: A History of Modern Moral Philosophy*. Cambridge: Cambridge University Press, 1998.

Scully, Jackie Leach. Feminist Bioethics. In Edward N. Zalta, and Uri Nodelman, eds. *The Stanford Encyclopedia of Philosophy*, 2023. https://plato.stanford.edu/archives/fall2023/entries/feminist-bioethics/.

Shaftesbury, the third Earl of [1711]. *Characteristics of Men, Manners*, *Opinions, Times, Vol. II*. Partly reprinted in David Daiches Raphael, ed. *British Moralists 1650–1800 I: Hobbes-Gay* [1969]. Indianapolis: Hackett, 1991.

Shelley, Mary. *Frankenstein or the Modern Prometheus* [1818]. Cologne: Könemann Verlagsgesellschaft, 1995.

Sherwin, Susan. *No Longer Patient: Feminist Ethics and Health Care*. Philadelphia, PA: Temple University Press, 1992.

Shiffrin, Seana Valentine. Wrongful Life, Procreative Responsibility, and the Significance of Harm. *Legal Theory* 5 (1999): 117–48.

Shokouhi, Hadis, and Jamili, Leila Baradaran. Postmodern Social Simulation and Alienation through "Cloning" in *A Number*. *International Journal of Linguistics, Literature and Translation 2* (September 30, 2019). https://ssrn.com/abstract=3461902.

Singer, Peter. *Practical Ethics*. Cambridge: Cambridge University Press, 1979.

Singer, Peter. *Unsanctifying Human Life: Essays on Ethics*. Helga Kuhse, ed. London: Wiley-Blackwell, 2002.

Singer, Peter, and Wells, Deane. *The Reproduction Revolution: New Ways of Making Babies*. Oxford: Oxford University Press, 1984.

Singh, Asheel. Furthering the Case for Anti-Natalism: Seana Shiffrin and the Limits of Permissible Harm. *South African Journal of Philosophy* 31 (2012): 104–16.

Steensma, David P. The Origin and Evolution of the Term "Clone." *Leukemia Research* 57 (2017): 97–101. https://doi.org/10.1016/j.leukres.2017.03.004.

Strother, Stuart. When Making Money Is More Important than Saving Lives: Revisiting the Ford Pinto Case. *Journal of International & Interdisciplinary Business Research* 5 (2018): Article 11. https://scholars.fhsu.edu/cgi/viewcontent.cgi?article=1104&context=jiibr.

Sukenick, Amanda. Benatarian Efilism – Debunking a Misconception? In peer review.

Takala, Tuija. What Is Wrong with Global Bioethics? On the Limitations of the Four Principles Approach. *Cambridge Quarterly of Healthcare Ethics* 10 (2001): 72–7.

Takala, Tuija. Utilitarianism Shot Down by Its Own Men? *Cambridge Quarterly of Healthcare Ethics* 12 (2003): 447–54.

Takala, Tuija. The Many Wrongs of Human Reproductive Cloning. In Matti Häyry, Tuija Takala, and Peter Herissone-Kelly, eds. *Bioethics and Social Reality*. Amsterdam: Brill, 2005: 53–66.

Takala, Tuija. Cloning. In Chadwick, Ruth (ed.), *Encyclopedia of Applied Ethics Vol. 1*. Second edition. San Diego, CA: Academic Press, 2012: 488–93.

Takala, Tuija, and Häyry, Matti. Is Communitarian Thinking Altruistic? *Trames* 8 (2004): 276–83. https://kirj.ee/wp-content/plugins/kirj/pub/Trames-3-2004-276-283_20221006182342.pdf.

Takala Tuija, and Häyry, Matti. Benefiting from Past Wrongdoing, Human Embryonic Stem Cell Lines, and the Fragility of the German Legal Position. *Bioethics* 21 (2007): 150–9.

Tangwa, Godfrey B., ed. *African Perspectives on Some Contemporary Bioethics Problems*. Cambridge: Cambridge Scholars, 2019.

Tong, Rosemary, and Williams, Nancy. Gender Justice in the Health-Care System: Past Experiences, Present Realities, and Future Hopes. In Rosamond Rhodes, Margaret P. Battin, and Anita Silvers, eds. *Medicine and Social Justice: Essays on the Distribution of Health Care*. New York: Oxford University Press, 2002: 224–34.

Tornau, Christian. Saint Augustine. In Edward N. Zalta, ed. *The Stanford Encyclopedia of Philosophy*, 2020. https://plato.stanford.edu/archives/sum2020/entries/augustine/.

Treatment of the Values of Life and Injury in Economic Analysis. No date. www.faa.gov/sites/faa.gov/files/regulations_policies/policy_guidance/benefit_cost/econ-value-section-2-tx-values.pdf.

U.S. Food, & Drug Administration. Myths about Cloning, May 20, 2021. https://public4.pagefreezer.com/browse/FDA/06-04-2023T20:24/https:/www.fda.gov/animal-veterinary/animal-cloning/myths-about-cloning.

United Nations Educational, Scientific and Cultural Organization. *Universal Declaration on the Human Genome and Human Rights*, adopted by the General Conference of UNESCO at its 29th session on November 11, 1997. www.unesco.org/new/en/social-and-human-sciences/themes/bioethics/human-genome-and-human-rights/.

United Nations Educational, Scientific and Cultural Organization. *National Legislation Concerning Human Reproductive and Therapeutic Cloning*. Paris: Division of Ethics of Science and Technology, 2004. http://unesdoc.unesco.org/images/0013/001342/134277e.pdf.

Williams, Garrath. Kant's Account of Reason. In Edward N. Zalta, and Uri Nodelman, eds. *The Stanford Encyclopedia of Philosophy*, 2023. https://plato.stanford.edu/entries/kant-reason/.

Wilmut, Ian, Schnieke, Angelica E., McWhir, Jim, Kind, Alex J., and Campbell, Keith. Viable Offspring Derived from Fetal and Adult Mammalian Cells. *Nature* 385 (1997): 810–3.

Wollstonecraft, Mary. *Thoughts on the Education of Daughters with Reflections on Female Conduct in the More Important Duties of Life* [1787]. Clifton, NJ: Augustus M. Kelley, 1972.

Wollstonecraft, Mary. *A Vindication of the Rights of Woman with Strictures on Political and Moral Subjects* [1792]. New York: Garland, 1974.

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Cambridge Elements

Bioethics and Neuroethics

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Thomasine Kushner, PhD, is the founding Editor of the *Cambridge Quarterly of Healthcare Ethics* and coordinates the International Bioethics Retreat, where bioethicists share their current research projects, the Cambridge Consortium for Bioethics Education, a growing network of global bioethics educators, and the Cambridge-ICM Neuroethics Network, which provides a setting for leading brain scientists and ethicists to learn from each other.

About the Series

Bioethics and neuroethics play pivotal roles in today's debates in philosophy, science, law, and health policy. With the rapid growth of scientific and technological advances, their importance will only increase. This series provides focused and comprehensive coverage in both disciplines consisting of foundational topics, current subjects under discussion and views toward future developments.

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