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Genetic Enhancement, Technological Objectification, and Heidegger's *Gelassenheit*

Abstract

*This article combines the works of Nussbaum, Habermas, and Heidegger in a critique of non-therapeutic genome editing for human enhancement. The objections presented by Habermas in his The Future of Human Nature are extended and strengthened. We outline how 'enhancement' editing is a form of objectification. We agree with Habermas that therapeutic uses of genome editing are permissible but disagree with those who advocate for genetic enhancement technology. This is supplemented with Heidegger's view on technology where we demonstrate that genetic enhancement can be a form of technological enframing which objectifies and interferes with the self-understanding, freedom, autonomy, and possibilities of the edited person. Instead, we argue that genetic enhancement objectification should be 'released' from the unborn child through an appreciation of Heidegger's *Gelassenheit*, allowing each human the freedom and opportunity to fully realise and grow into their unconcealed place and home in the world rather than it being made for them.*

Keywords

gene editing, enhancement, Martin Heidegger, Jürgen Habermas, Martha Nussbaum, objectification, place

Introduction

With developments in CRISPR/CAS9 gene-editing technology, numerous ethical concerns are raised about genetic interventions. Collier highlights “the US National Academy of Sciences and the National Academy of Medicine constituted a multidisciplinary, international committee to review the current status and make recommendations” (Collier 2019, p. 289). A report was issued in 2017 which “recommends the application of current ethical and regulatory standards for gene therapy to somatic (nonheritable) human genome editing” (Collier 2019, p. 289). Furthermore, the committee permits “germline

genome editing to proceed if (a) it is restricted to preventing transmission of a serious disease or condition, (b) the edit is a modification to a common DNA sequence known not to be associated with disease, and (c) the research is conducted under a stringent set of ethical and regulatory requirements” (Coller 2019, p. 289). What is conspicuously missing from this proposal is that there is no recommendation for genetic enhancement and is limited to “treat or prevent disease and disability” (Coller 2019, p. 289).

In this article we focus on defending the use of genomic editing for therapeutic reasons but reject liberal eugenics and ‘twist-free’ from those authors who support non-therapeutic genetic enhancement. Our definition for distinguishing therapeutic. compared to enhancement gene editing follows Walter Glannon (2018, pp. 94–101). Our article is consistent with the status quo where there is support for “the use of nonheritable (somatic) genetic modifications to treat patients with serious illness, there is nearly universal discomfort about using genetic modifications for human enhancement” (Coller, 2019, p. 298). The uniqueness for our article comes from combining Heidegger, Habermas, and Nussbaum to highlight risks associated with human genomic editing. Essentially, we emphasise the objectifying nature of genetic enhancement where “children will not be embraced as precious gifts regardless of their genetic makeup, but rather will become extensions of their parents’ clever ability to design them and a commodity that is to be ordered at will” (Coller, 2019, p. 298). Coller recognises “this commodification may have profound implications, including parental guilt if the design does not turn out well, especially when the children reach an age when they can question their parents’ choices” (Coller, 2019, p. 298).

Heidegger and the Early-Modern, Late-Modern, and Postmodern

Heideggerian philosopher Iain Thomson has important ideas that are necessary to preface this article. Our argument about ‘twisting-free’ from genetic enhancement can be articulated in greater depth by unpacking “Heidegger’s mature thinking of a genuinely postmodern ‘other beginning’ beyond modernity” (Thomson, 2021, p. 184). This requires appreciating what ‘modern’ means to Heidegger “so that we can understand what twisting-free of that really entails” (Thomson, 2021, p. 184). Thomson explains that “for Heidegger the modern age as a whole is actually made up of two different epochs, which he calls early-modern subjectivism and late-modern enframing, respectively” (Thomson, 2021, p. 184). Thomson says that early modernity is distinctive with “its ontological divide between subjects and objects, a metaphysical dichotomy Descartes institutes by convincing us that cognition’s immediate access to itself makes its existence indubitably certain in a way not shared by any of the objects external to such subjectivity” (Thomson, 2021, p. 185). However, Heidegger criticises this dichotomy “to fundamentally mischaracterize the way we experience the everyday world” and it fails to recognise the “integral entwining of self and world that is basic to our experiential navigation of our lived environments” (Thomson, 2021, p. 185). Furthermore, modern subjectivism is “the worldview in which an intrinsically-meaningless objective realm (nature) is separated epistemically from isolated, value-bestowing, self-certain subjects, and so needs to be mastered through the relentless epistemological, normative, and practical activities of these subjects” (Thomson, 2021, p. 185). Importantly for the focus of our article here

on gene editing, Thomson notes that this modern period generates “scientific advances we cherish, but also unwanted downstream consequences such as our escalating environmental crisis and less predictable side-effects like the aestheticization of art” (Thomson, 2021, p. 186).

In other words, it can be said that the therapeutic benefits but also the enhancement threat to humanity contained in gene editing arise from this modern form of thinking. This can be seen by recognising that “Cartesian early-modernity subjectivism” is the framework for “humanity’s ongoing, broad-spectrum attempt to establish mastery over the totality of what-is” (Thomson, 2021, p. 186). We argue gene editing is a continuation of this framework to bring “objects back within our sphere of subjective mastery and control” (Thomson, 2021, p. 186). Genetic enhancement can thus be understood as “humanity’s increasingly global quest to achieve complete control over every aspect of our objective reality” as humans seek to develop “unlimited power for calculating, planning, and breeding [Züchtung] all things” (Thomson, 2021, p. 186). This link to unlimited power for breeding comes into clear sight here as genetic enhancement now enters the reach of this Cartesian early-modern subjectivism. Genetic enhancement treats “even the subject, that privileged foundation of early modernity, as just another object to be mastered and controlled” (Thomson, 2021, p. 186). This “self-objectification of the subject” is when “early-modern subjectivism turns into late-modern enframing as the modern subject, seeking to master and control all aspects of its objective reality, turns that objectifying impulse (and the myriad techniques developed and deployed in its service) back onto itself” (Thomson, 2021, p. 186).

With this we can say the concept ‘Enframing’, which is so fundamental to our Heideggerian interpretation of genetic enhancement “is subjectivism squared (or subjectivism applied back to the subject). For, the subjectivist impulse to master reality redoubles itself in enframing” (Thomson, 2021, p. 187). Modern subjectivism transitions to a late-modern age of enframing and infiltrates genetic enhancement “because the impulse to control everything intensifies and accelerates even as it breaks free of its modern moorings and circles back on the subject itself [...]. In this way, the modern subject increasingly becomes just another late-modern entity to be efficiently optimized along with everything else” (Thomson, 2021, p. 187). Humanity moves “from modern subjectivism to the late-modern enframing of reality insofar as we understand and relate to all things, ourselves included, as nothing but intrinsically meaningless ‘resources’ (Bestand) standing by for endless optimization” (Thomson, 2021, p. 187). It is this modern subjectivism and late-modern enframing that we in this article, consistent with Heidegger’s postmodern ‘other beginning’, seek to ‘twist-free of’. This means to “recognize, undermine, transcend, and so at least partly recover from” (Thomson, 2021, p. 187) those features of modernity that enframe the human. We do this here by highlighting the myriad of issues that arise from genetic enhancement and explain how Heidegger’s *Gelassenheit* or ‘releasement’ helps us to twist-free of this enframing to create a postmodern ‘other beginning’.

Thomson thinks along these same lines although he does not extensively apply his claims to the context of genetic enhancement and he does not explicitly conceptualise *Gelassenheit* when he says we need “to become comportmentally attuned to [being as such or] the dynamic phenomenological presencing that both precedes and exceeds all conceptualization, then we

too can come to understand and experience entities [in a postmodern way]” (Thomson, 2021, p. 190). This is to no longer treat humans as “resources awaiting optimization” and “to transcend the nihilism of late-modern enframing and set our world on a different, more meaningful path” (Thomson, 2021, p. 190). Throughout this article “we adopt this postmodern understanding of being – progressively understanding and relating to what-is no longer as early-modern objects to be mastered and controlled nor as meaningless late-modern resources standing by to be efficiently optimized but, instead, as being richer in meaning than we are capable of doing justice to conceptually” (Thomson, 2021, p. 190). Thus, our article here focuses on gene editing “to develop what Heidegger called a free relation to technology” (Thomson, 2021, p. 191).

In a more recent publication, Thomson briefly touches on applying these ideas from Heidegger to genetic engineering. This is clear when he says genetic engineering is concerning as it could make technological enframing permanent “by not just obscuring but rewriting human nature, should our endless quest for self-optimization ever erase our defining capacity for creative and responsive world-disclosure (whether deliberately or as an accidental consequence of our genetic reengineering of our own heritable DNA)” (Thomson, 2025, p. 54). In summary, Thomson’s work is vital to lay the groundwork for what we aim to achieve here and thank the journal reviewers for sharing these ideas to crystallise our objectives.

Heidegger and Genetic Enhancement

One of the main contributions Heidegger adds to this paper involves highlighting that technology is objectifying in its essence. He says technology “refers to a kind of representing, that is, a kind of cognition” and the “essence and the dominance of technology consist in the fact that, through it, nature has become an object” (Merwin *et al.*, 2018, p. 1). Furthermore “nature is set up by the human, halted by him, so that it may be accountable to him and to his plans for it. Technology is the objectification of nature” (Merwin *et al.*, 2018, p. 1). These words provide an important foundation for this article where we argue that the use of genome editing for genetic enhancement dominates and objectifies the freedom of the human being. Merwin *et al.* (2018, p. 1) argue Heidegger’s “philosophy of technology is based on the relation between two key concepts: Gestell and Gelassenheit”. They state Gestell “is often translated as enframing or positionality, and it indicates the way we frame, position, and ultimately reduce the world to resources for production and consumption” (Merwin *et al.*, 2018, p. 1). As this article progresses, we will demonstrate how this framing applies to the production of a human being through genetic enhancement. Gestell frames, reduces nature and the human being to a resource which “is dangerous because it undermines our creative engagement with reality, alienates us from ourselves and each other, and leads to the destruction of our habitat” (Merwin *et al.*, 2018, p. 1). Framing a human being through genetic enhancement reduces the person to what can be calculated and selected, while foreclosing other, unimagined possibilities for that individual. As a response to this, we argue it is important to embrace Gelassenheit which “is translated as releasement or equanimity, and it refers to a disposition that blocks us from imposing our will on things and thus opens us up to alternative ways of relating to reality” (Merwin *et al.*, 2018,

p. 2). This highlights how “the releasement characteristic of *Gelassenheit* counters the dangers of our technological framing of the world via *Gestell*” (Merwin *et al.*, 2018, p. 2) and genetic enhancement.

Merwin *et al.* (2018, p. 6) state that the *Gestell* of technology does not allow “entities to appear to us on their own terms, *Gestell* pre-positions them by deciding in advance what they are and what position they should occupy within a specific technological framework”. In other words, “the entities we encounter are reduced to objects for our manipulation and use” (Merwin *et al.*, 2018, p. 6). Alternatively, *Gelassenheit* respects the embryo “in their uniqueness and singularity” whereas “objects (*Gegenstände*) are placed (*gestellt*), represented (*vor-gestellt*), or produced (*her-gestellt*)” (Merwin *et al.*, 2018, p. 6). Technological thinking can be considered a type of ideology where humans are “under the sway of modern technology, as a resource standing within a network which seeks, ultimately, to place, represent, and think of every entity as an object within an all-encompassing system” (Merwin *et al.*, 2018, p. 7). Technological thinking conditions cognition to frame humans as an object that can be calculated and controlled. However, it is important to step outside of this way of thinking, to free the human through *Gelassenheit* which “Heidegger sees as a form of resistance to the danger and domination of modern technology” (Merwin *et al.*, 2018, p. 7).

Merwin *et al.* argue “releasement (*Gelassenheit*) is one of the essential modes of existing for humans. When cultivating the fundamental comportment (*Grundstimmung*) of releasement, we attune ourselves to the essential features of other entities and the meaning of being itself” (Merwin *et al.*, 2018, p. 7). *Gelassenheit* is described “as a form of willing non-willing” (Merwin *et al.*, 2018, p. 7). This movement of both willing and non-willing through *Gelassenheit* “releases us from our will to dominance and our will to represent (*vorstellen*) and releases us to the possibility of encountering entities on their own terms” (Merwin *et al.*, 2018, p. 7). Fundamentally, *Gelassenheit* can be understood through its relation to “a series of words with the root verb *lassen*, to let or allow” (Merwin *et al.*, 2018, p. 8). As *Gelassenheit* is a combination of active willing and passive non-willing it can be understood as a ‘golden mean’. Applied to genome interventions it may be possible to say editing for therapeutic reasons hits this golden mean whereas too much willing through genetic enhancement does not and neither does completely abandoning genome editing through a passive non-willing. This highlights that genome editing should avoid the “willful subjugation of entities for their use within a technological system” (Merwin *et al.*, 2018, p. 8) and instead engage with a more balanced *Gelassenheit*. To explain this further, Merwin *et al.* (2018) state *Gelassenheit* is “an active disposition of self-restraint or withholding in order to allow other entities to present themselves on their own terms. It is this second aspect of allowing entities to present themselves to us instead of for us (as they do in modern technology) which comprises the mode of *Gelassenheit* as releasement to others (*Überlassen*)”.

This releasement “from our will to will coupled with our releasement towards other entities transforms our understanding whereby we no longer think of the entities we encounter as objects (*Gegenstände*) to be used, but instead encounter them in their own self-belonging” (Merwin *et al.*, 2018, p. 8). Importantly, Merwin *et al.* (2018, p. 8) state Heidegger “does not think we can or should entirely abandon technology. *Gelassenheit* is not meant to overcome technology, but to place in check the tendency of technology to render

everything into an object for use and production”. In summary, “Gelassenheit releases us from the danger of technology and opens us to alternative ways of relating to reality. In short, Heidegger believes that by reigning in technology’s dominance and by controlling our own human tendency to represent things as objects in a pre-given system, we can open ourselves up to other ways of existing and gain an intimate relation with the various things we encounter in our everyday life” (Merwin *et al.*, 2018, p. 8).

Another way Heidegger describes technology is that it is a way of revealing. It is important to mention this, as genetic enhancement may reveal some characteristics of the human being while concurrently concealing others. Modern technology reveals the world as one of control, domination, and manipulation, where for example “the earth reveals itself as a coal mining district” (Brayford, 2020, p. 610). Not only do humans apply this to nature but Heidegger also says technology will reach a point “where [man] himself will have to be taken as standing-reserve” (Brayford, 2020, p. 610). The ontological and existential issue with technology is that humans will only reveal what cognition or imagination can produce which means “every other possibility of revealing” (Brayford, 2020, p. 610) becomes obscured by technological understanding. This highlights that “the human in the technological society becomes alienated, insofar as they are estranged from their fundamental essence as world-disclosers: a way of being unable to be realised in a world where technology does the world-disclosing for us” (Brayford, 2020, p. 611), intensified through ‘genetic enhancement’.

Dahlstrom (1988, p. 150) provides several translations of Gestell including “contraption, system, structure, implacement, and even, most literally, shelf”. The danger of technological Gestell is that it functions like ideology where humans forget the existential threats posed by technology and it is natural “to consider ourselves lords of the earth, to consider things as objects” (Dahlstrom, 1988, p. 150). In contrast, Dahlstrom argues Gelassenheit is needed as a response “a kind of thinking that does not pre-emptively subordinate things to special interests or to a particular scheme of organization” (Dahlstrom, 1988, p. 153). It is clear that liberal eugenics and genetic enhancement align with Gestell rather than Gelassenheit where editing is used to subordinate an embryo to the special interests or preferences of the parents.

Modern technology functions as ideology and frames a worldview “based on calculation, application, speed, and science—that is, the essence of technology—and has become the dominant ontology of the modern age” (Sikka, 2011, p. 95). This technological worldview spreads into every facet of life including genomic editing. The technological worldview can reveal modes of genetic enhancement but at the same time exploits the autonomy and freedom of the unborn human being. Scientific reason extrapolated to genetic enhancement is dangerous due to the objectifying tendency to frame and try to determine the possibilities available to the edited person. This is problematic as it assumes those in power know what is best for the child however this needs to be contrasted with Heidegger who “argues that modern technology has increasingly led to a mode of revealing that conceals the true essence of man” (Sikka, 2011, p. 95). He adds “enframing conceals that revealing which lets what presences come forth into appearance” (Sikka, 2011, p. 95). Said differently, the calculative mode of thinking that aims for a specific enhancement at the same time denies other possibilities from coming to presence.

The framing of Gestell constricts the freedom of the human being as it fails to let things “show up as what they truly are” (Plunkett, 2024, p. 3670). As Plunkett notes “Gestell threatens to turn everything into part of the standing-reserve, including not just everything that is non-human, but human beings as well. It thus prevents humans from being what we truly are, and thus from engaging in a range of the kinds of activities that (purportedly) are tied to our essence” (Plunkett, 2024, p. 3671). This highlights how the enframing, objectifying nature of genetic enhancement conceals and restricts the freedom of the edited human. This should be combined with an understanding that Gestell is totalising because “where this ordering holds sway, it drives out every other possibility of revealing” (Plunkett, 2024, p. 3671). It can be appreciated that when genetic enhancing occurs through an ordering of genes to produce a certain and specific outcome, other possibilities are driven out of the frame that has been set up. Thus, genetic editing for enhancement is continuous with Heidegger’s description of the problems with modern technology because it “crowds out other forms of world-disclosure” (Plunkett, 2024, p. 3700).

Chillón (2017, p. 122) further highlights that modern technology creates a nihilistic world when humans position themselves as “lord of the earth” and through the “will to will that lording of things, which homogenises every being as well as dominates everything”. This is an important quote as it not only highlights that technology aims for domination but also homogeneity of beings. This claim can be applied to genetic enhancement because when humans control the genetic makeup of their descendants, they do so within the limitations of their own worldview. When the human being is objectified and instrumentalised through genetic enhancement technology, the realm of possibilities is narrowed to the intentions of those in power rather than being released to the mystery of chromosomes combining in an unpredictable way. When the power of technological ideology grasps the cognition of humans and directs their intentions through Gestell, there is a concurrent decrease in “man’s chances of considering other ways of being-in-the-world that are not domination and subjugation. The techno-scientific mentality has taken hold of our time and has finally besieged man himself” (Chillón, 2017, p. 122). This is the dialectic of enlightenment where human ambition to control nature now reverses into a self-defeating enframing of the human being in reductive technological thought.

Rae (2012) explains when “modern technology sets upon and tries to impose itself on nature” it simultaneously is “concealing the alternatives and making it appear as if this worldview is the only one possible” (Rae, 2012, p. 311). Genetic enhancement is problematic in this regard as it does not release the human being to have the freedom to discover itself, instead genetic enhancement as modern technology enframes humanity and:

“... enframing (Gestell) entails some kind of apparatus that reveals being in an enclosed and partial manner. Much like a picture-frame encloses what is within it, so the enframing of technology closes being within its parameters. This is not simply a shutting-out of alternatives; enframing reveals being in a particular, partial manner that conceals co-possibilities. Note that enframing does not create being; it delineates the way in which being is and will be revealed. As such, enframing delineates what will be revealed while also revealing it in the appropriate manner. More specifically, enframing sets upon being and imposes an order that brings it forth in a way that reveals it as an object.” (Rae, 2012, p. 313)

This quote aligns to our argument that genetic enhancement is objectifying and instrumentalises the human being through enframing which “re-enforces the scientific outlook that values and reveals objects in a quantifiable, objective, measurable manner. This allows the standing reserve of each to be more easily determined and manipulated” (Rae, 20212, p. 314). Genetic enhancement forecloses the freedom and autonomy of the edited person, and this reflects the logical consequence of this theory which “values objectivity, exactitude, and calculability; exactly the things that validate and re-enforce the enframing constitutive of modern technology” (Rae, 20212, p. 314). However genetic enhancement:

“... is thoroughly restrictive in that it imposes itself on being and reveals being in a partial manner. The result is a uniformity in thinking that takes things to be objects confronting a subject and reduces them to calculable, instruments things. While this enframing reveals aspects of being, it is a partial, enclosed, and reductive approach that has disastrous consequences for being in general in that its instrumental approach leads to environmental degradation, weapons capable of obliterating the world, and the stunting of human being.” (Rae, 20212, p. 315)

Essentially the real threat from modern technology is “the constraining impact it has on the spirit of human being. It achieves this because the closure of enframing impacts on the essence of human being” (Rae, 20212, p. 315). Genetic enhancement reduces the human to the preferences and desires of the designers rather than releasing the person to explore their own autonomy and freedom. In other words, genetic enhancement restricts “the essence of human being as eksistence” (Rae, 20212, p. 315). Scientific thought and modern technology have the potential to conceal “this special relationship and imposes an alternative, less exalted, closed essence on human being. Far from being revealed as the open-ended being it truly is, modern technology reduces human being to an entity amongst other entities” (Rae, 20212, p. 315). It is important to disrupt the ideology of scientific and technological thinking so that it does not become dominant and the only way to understand beings. If this ideology is not recognised the human being becomes enframed by “modern technology; it itself becomes enframed so that humans become both a being in control of its environment and one at the mercy of the calculable, instrumental projects of others” (Rae, 20212, p. 315).

Thus, genetic editing needs to be understood in context where “in our age of technology, we see nature as something to be subdued and brought under human control” (Lambeth, 2019, p. 31). This is problematic because “we see natural entities as mere resources that should stand by, ready for efficient and flexible incorporation into human projects” (Lambeth, 2019, p. 31) instead of letting beings be free to grow into a place they have freely chosen. Furthermore, the age of technology is “a historically new phenomenon. Technology represents only the most recent way that we make sense of the world” (Lambeth, 2019, p. 32). Lambeth explains “Heidegger contends that our technological age was preceded by a Christian age and a modern age. In the Christian age, what is most important about entities is that they are created; natural beings were created by God. As a whole, entities are ordered in relation to their proximity to God” (2019, p. 32). Following this “the Christian age evolved into the modern one, where all entities are revealed in relation to the human being, who determines an entity by use of the sciences and seeks to explicate all entities in terms of calculable cause-effect relationships” (Lambeth, 2019, p. 32). Then the “modern conception of Being eventually

evolved into the technological one. While modern science's way of representing pursues and entraps nature as a calculable coherence of forces, modern technology puts those forces to use" (Lambeth, 2019, p. 32). Technological thinking is represented by enframing and Gestell which is a "certain kind of understanding, but also an activity, of transforming the world around us into resources. In the age of technology, we try to resourcify the world around us" (Lambeth, 2019, p. 35).

We argue that what is required as a response to a drive for liberal eugenics, genetic enhancement, and the world of Gestell, is "Gelassenheit, translated into English as releasement" (Keiling, 2018, p. 96). Gelassenheit is an "action that enables something to manifest itself in its genuine way; enabling is the genuine sense of letting" (Keiling, 2018, p. 97). Heidegger argues Gelassenheit as authentic or "genuine form of human thinking is an enabling thinking, in contrast to the imposing form of thinking characteristic of technology" (Keiling, 2018, p. 97). Gelassenheit is synonymous with several verbs "such as begegnen lassen, to let show up; bewenden lassen, to let have-a-role; entlassen, to release; and even freigegeben, to set-free" (Keiling, 2018, p. 98). This can be complemented when Davis explains Heidegger's critique of technology needs to be understood in relation to a critique of the will where the revealing/concealing of technology is inherently willful. It is important to put technology in this context "to facilitate a turn (Kehre) to a more proper relation to beings" (Davis, 2018, p. 134). This proper relation "is often translated as releasement or somewhat more freely as letting be" (Davis, 2018, p. 134). Gelassenheit is important to include in discussion of genome editing as it "names the fundamental attunement (Grundstimmung) with which Heidegger says human beings are to authentically relate to other beings and to being itself. It contrasts with the fundamental attunement or rather dis-attunement of the will" (Davis, 2018, p. 134). The change from Gestell and will to releasement and Gelassenheit is a "twisting free of this entire domain of the will and a leap into a region of non-willing letting-be that is otherwise than both willful activity and will-less passivity" (Davis, 2018, p. 134). It is a golden mean between these two and using genome editing for therapeutic reasons achieves this in contrast to eliminating it completely (passivity) or going too far with wilful genetic enhancement. The enframing of technology "is a way of revealing things, or rather, a way of not letting them properly be revealed as things (Dinge)with their own integrity" (Davis, 2018, p. 140). Similar to Nussbaum and Habermas "Heidegger thought that objectification is the essence of technology" (Davis, 2018, p. 140). Not only does this apply to non-human entities but "even human beings are threatened with reduction to human resources" (Davis, 2018, p. 140). Technological thinking pushes humans to "assert themselves over all that is, first by representationally objectifying the world and ultimately by reducing things to standing-reserve for their projects of mastery" (Davis, 2018, p. 140).

Applying this to genome editing, Gelassenheit is "an authentic kind of waiting. Rather than willfully positing a transcendental schema that anthropocentrically determines how beings can show themselves" (Davis, 2018, p. 143). Thus, genome editing should display a "resolute openness of this waiting upon" in contrast to "an expecting that represents (i.e., willfully projects) in advance what it then passively awaits" (Davis, 2018, p. 143). Furthermore, rather than "a passive resignation that would abandon the search for knowledge, authentic thinking as Gelassenheit and waiting involves a courageous

and mindful surmising” (Davis, 2018, p. 143). This means genome editing should not be abandoned completely but be utilised in a therapeutic way that Habermas and Glannon (2018) suggest. In contrast to forceful genetic enhancement “such thinking as attentive waiting that surmises would neither predetermine nor demand the full disclosure” (Davis, 2018, p. 143) of the human being. This means genome editing is not “passively leaving them alone or abandoning them” (Davis, 2018, p. 143). Instead, a golden mean should be achieved “to get involved or to engage oneself in something” which is a “non-willful engagement that attentively lets beings be themselves” (Davis, 2018, p. 145). In Heidegger’s words we should understand this application to genome editing as follows: “ordinarily we speak of letting be in the negative sense of leaving something alone, of renouncing it, of indifference and even neglect. However, the phrase required now – to let beings be – does not refer to neglect and indifference but rather the opposite. To let be is to engage oneself with beings” (Davis, 2018, p. 145). This engaged “letting-be is not, to be sure, a willful or calculative manipulation of beings” (Davis, 2018, p. 145) and so does not enter the domain of liberal eugenics or genetic enhancement. Instead, *Gelassenheit* applied to genomic editing would “open a world wherein things can show themselves in meaningful ways without being wholly reduced to objects of subjective representation, much less to standing-reserve for technological manipulation. As beings of releasement, we are called on in this manner to assist in letting other beings be” (Davis, 2018, p. 145).

Habermas

Now that Heidegger’s views have been discussed it is important to turn to Jurgen Habermas’s arguments (2014) on the ethics of genome editing to see how they link and map effectively with Heidegger. Habermas aims to critique genetic enhancement and liberal eugenics where he says, “eugenic decisions would be transferred, via markets governed by profit orientation and preferential demands, to the individual choice of parents and, on the whole, to the anarchic whims of consumers and clients” (Árnason, 2014, p. 356). Habermas is acutely aware of the arguments proposed by liberal eugenicists where they try to defend their position by contrasting it with older versions of authoritarian eugenics which “imposed eugenic policies upon the population, violating the procreative liberties of individuals in the name of public health” (Árnason, 2014, p. 356). Modern supporters of liberal eugenics claim their views are superior because it “gives individuals maximum leeway for their reproductive choices” (Árnason, 2014, p. 356). Another claim espoused by liberal eugenics is that there is no difference between therapeutic and enhancing. However, one way to show that there is a difference “is the argument from species typical functioning” (Árnason, 2014, p. 356). Like Glannon (2018), Aranson argues “it is both the goal of medicine and a matter of just health care to maintain and restore such normal functioning but not to enhance human abilities beyond that” (2014, p. 357). Along with negating this difference, those in favour of extending genetic enhancement beyond therapeutic reasons argue there is no difference between the effects of socialisation upon an individual compared to genetically editing an embryo to produce certain characteristics.

Now that some of the basic assumptions of liberal eugenics have been outlined, we will discuss Habermas’s critical response to this. We begin by

noting that, Árnason explains “hypothetical individual consent is the core of Habermas’s response to the last two characteristics of liberal eugenics, i.e., the refusal to accept a significant difference in this context between therapeutic and enhancing interventions on the one hand, and between eugenics and socialization on the other hand” (Árnason, 2014, p. 357). More specifically “with respect to the therapy-enhancement distinction is that while one could justifiably assume consensus for therapeutic gene manipulations, since they are intended to obtain the goal of avoiding evils which are unquestionably extreme and likely to be rejected by all, the same could not be said about genetic enhancement” (Árnason, 2014, p. 358). Genetic enhancement may be “quite compatible with the ethical freedom to lead a life of one’s own, provided that the individual appropriates the expectations associated with the genetic modification as aspirations of his own”. However, Habermas notes that “we cannot rule out the possibility of dissonant cases” (Árnason, 2014, p. 358). Outlined further, dissonance occurs when “the intentions of those who decided the desirable characteristic” conflict with “the aspirations of the individual endowed with it” (Árnason, 2014, p. 358). When responding to the claim there is no difference between socialisation and genetic editing, Habermas argues for a difference because the former “proceeds only by communicative action brought in by the medium of reasons that the individual can respond to and retrospectively break away from” (Árnason, 2014, p. 358). Alternatively, genome editing “is a mute and, in a sense, unanswerable fact from which the individual cannot liberalize herself through self-reflexive insights” (Árnason, 2014, p. 358). Specifically, the genetic program has “the parental intentions engrained, as it were, in the person’s body” (Árnason, 2014, p. 358). Habermas criticises genetic enhancement interventions because they “reduce ethical freedom” through “irreversible intentions of third parties, barring him from the spontaneous self-perception of being the undivided author of his own life” (Árnason, 2014, p. 358).

Habermas argues “it is an indefensible risk to allow enhancing genetic programming, which formulates life purposes for a future person from a third person perspective, i.e., the parents’ own preferences which the person-to-be might reject. This would be a specific type of paternalism” (Árnason, 2014, p. 358). Even if one was to genetically edit a person to be “more docile and compliant and less likely to reject the life-projects” (Árnason, 2014, p. 358) that were selected by parents, this intensifies the objectifying nature of genetic enhancement where the technological perspective enframes the freedom of the edited person. Although Habermas rejects genetic enhancement he does endorse “the prevention of extreme and highly generalized evils where, as Habermas puts it, we may have good reasons to assume that the person concerned would consent to the eugenic goal” (Árnason, 2014, p. 359). To be sure, we too, with Habermas and Glannon, agree that genome editing is permissible for therapeutic cases but crosses a line when non-therapeutic genetic enhancement occurs, especially with suggestions to make “future persons more submissive to their parent’s preferences regarding their life projects” (Árnason, 2014, p. 359).

Another argument Habermas presents is that genetic enhancement “changes the initial conditions for the identity formation of another person in an asymmetrical and irrevocable manner” (Árnason, 2014, p. 359). In other words, “the designer makes himself the co-author of the life of another, he intrudes – from the interior, one could say – into the other’s consciousness of her own

autonomy” (Árnason, 2014, p. 359). Habermas argues the future person may “experience the intentions of the genetic intervention as an alien determination and will be robbed of the responsibility to shape her life in her own way” (Árnason, 2014, p. 359). Aranson highlights how some may use Sartre’s philosophy to refute this argument. For example, “the genetic makeup of an individual is part of what constitutes the facticity to which each person is bound to respond and thus endow with meaning and significance” (Árnason, 2014, p. 360). Sartre would say each person has the freedom to respond, “she is the sole author of the significance of her own life” (Árnason, 2014, p. 360) and to not do so is to act in bad faith. However, as Aranson notes, this “has no significant bearing on its moral dimension. Although I am responsible for how I react to being robbed on the street, it does not change the fact that I have been wronged. A designed individual will surely respond to and give meaning to his genetic programming, but he is nevertheless faced with this sort of framing of a person by others that may be unjustifiable” (Árnason, 2014, p. 360). Similarities between Heidegger and Habermas can also be observed when Habermas outlines the revealing and concealing nature of genetic programming where “each person can regard her own genome as the consequence of a criticizable action or omission” (Árnason, 2014, p. 360). The responsibility of enhancing a human being is too great as it requires full knowledge of all the possible consequences of the editing that occurs. It is the concealing nature of omissions that parents or genetic designers would have to take responsibility for.

Habermas is well known for his discourse ethics where he aims to “clarify the conditions for communication between equals to take place free from domination” (Árnason, 2014, p. 361). In *The Future of Human Nature*, Habermas “delves even deeper into the conditions for the possibility of communicative interaction between moral equals” (Árnason, 2014, p. 361). He wants to prevent conditions where a “person should not be at another’s disposal, subjected to an instrumentalizing attitude by another who manipulates his genetic makeup in accordance with the former’s own wishes or desires” (Árnason, 2014, p. 361). Genome editing has the power to change the “initial conditions for the identity formation of the created person” (Árnason, 2014, p. 361). Thus, Habermas argues “the only way to avoid this instrumentalization of the person is a hands-off policy in this context and to let nature take its course, except where the individual’s basic life opportunities might be violated by genetic illness that could be avoided by negative eugenics” (Árnason, 2014, p. 361). This “implies that a future person will be faced differently with the clinical attitude behind therapy than with the optimizing attitude engrained in enhancement” (Árnason, 2014, p. 361).

Preventing instrumentalisation requires preservation of freedom and “it must be won from natural conditions that are not of our own or anyone’s choice” (Árnason, 2014, p. 362). Psychologically it is important to prevent genetic enhancement because to experience agency and freedom “the person, irrespective of her finiteness, knows herself to be the irreducible origin of her own actions and aspirations” (Árnason, 2014, p. 362). Preventing genetic enhancement allows the individual to be “the sole author of his life” without ‘alien interference’ and this “constitutes the facticity from which we gradually carve out our own life projects” (Árnason, 2014, p. 362) as equal human beings. To do otherwise is to get caught up in the technological Gestell and this “framing a person in terms of another’s preferences is instrumentalizing

insofar as it makes an individual the means to another's desired end, thereby conditioning the worth of that person by that end" (Árnason, 2014, p. 362). With this, a clearer argument is presented "to attain more transparency for a rather mixed set of intuitions" and to give good reasons for why "genetic enhancement policies should not be permitted" (Árnason, 2014, p. 362).

Aranson discusses the Kantian foundations of Habermas's view by referencing the universal categorical imperative, where "it might be argued that genetic enhancement programming could not be acceptable to all because of the risk it places on the ethical freedom of individuals" (Árnason, 2014, p. 363). In contrast he argues "there is no comparable risk of infringement of freedom in the case of negative eugenics or therapeutics" (Árnason, 2014, p. 363). He summarises the difference by stating "preventing future persons from undergoing evils that severely restricts their life opportunities is a matter of fairness. Genetic enhancement, on the other hand, is more likely to have the effect of increasing inequality" (Árnason, 2014, p. 363). This highlights the deontological foundations of Habermas's position where his "discourse ethics emphasizes reasoning among the participants themselves in practical discourse who need to come to a conclusion regarding which norms have universalizable interests" (Árnason, 2014, p. 364). This highlights why genetic enhancement is problematic because future persons cannot participate in this discourse ethics and that we should focus on "the deontologically protected core of a future person, which is at risk of being undermined by genetic manipulation" (Árnason, 2014, p. 364). If genetic enhancement were permitted there would be a "dedifferentiation of the fundamental distinction between the grown and the made, and we would thus subject future generations to weaker conditions of human agency than we have enjoyed" (Arnason, 2014, p. 364). Not only would human agency be affected but "genetic programming fueled by preferences in the private sphere" would likely turn having children into a commodification process "subordinated to the imperatives of the market" (Árnason, 2014, p. 364). In summary, genetic editing needs to be informed by the "methods of communicative reason, which facilitates mutual recognition and respect for the child as a unique natural creature. The concerns voiced by Habermas in his essay on the future of human nature relate to basic questions about what kind of society we want to build and what kind of human relations we should cultivate" (Árnason, 2014, p. 365).

Incoronato points out that Habermas makes constant reference to Hans Jonas because he "sees Jonas as the philosopher who shows how biotechnologies can be understood in a context of self-destructive dialectics of enlightenment, according to which the species itself reverts from domination of nature to servitude of nature" (2023, p. 62). Incoronato highlights a few categorical imperatives proposed by Jonas summarised as "acting morally means treating humanity and human nature as an end and never as a means" (2023, p. 62). More specifically "the categorical imperative, in fact, requires every single person to give up the perspective of a first person in order to join an intersubjectively shared we-perspective which enables all of them together to attain value orientations which can be generalized" (Incoronato 2023, p. 62). This ethics aims to "limit the effects of modern technology and biotechnologies and drawing on Kant's ethics, it aims to safeguard the body" which allows "human beings to be respected as moral persons who have the right to be at home in their own body" (Incoronato 2023, p. 69).

Karnein (2012) provides an in-depth discussion of the implications of Habermas in her book *A Theory of Unborn Life*. She reinforces that Habermas “recoils from the prospect of liberal eugenics. He insists that, once we have understood the moral, social, and political implications of the new technologies, our only reasonable reaction can be to abstain from them” (Karnein, 2012, p. 118). However, Karnein does recognise “he approves of only two ways of using reprogenetic technologies. First, he considers all cases of self-regarding use to be legitimate. This is because individuals who are the authors of their own genetic manipulation assume full responsibility for the procedure and its consequences for their character and development as persons. Habermas likens such use of genetic manipulation to cosmetic surgery” (Karnein, 2012, p. 118). The second way he approves is only when “future persons’ (hypothetical) consent can be reasonably presumed. Habermas contends that future persons’ consent can be presumed in this way only for actions that follow a very narrowly understood logic of healing. He therefore thinks that only the prevention of grave harm can be considered to be in their interest. For instance, performing genetic manipulation to save a child’s life or to avert a lethal or otherwise serious genetic defect follows the logic of healing and is, according to Habermas, therefore justified” (Karnein, 2012, p. 119).

Karnein also identifies the great importance Habermas places on “having a natural origin. Until now, he maintains, it has been the accidental character of the natural lottery that provides persons with an independent point of reference, one that lies beyond traditions and the educational contexts of interactions. No one can claim authorship over who persons are when they are born” (Karnein, 2012, p. 120). This natural origin “has always been a primary source of freedom. If designed persons no longer have the freedom to be their body but are forced only to have a body, a fundamental precondition of being themselves may be endangered. The differentiation between the objective and the subjective, between the naturally grown and the artificially made, could become muddled” (Karnein, 2012, p. 120). This is summarised when Habermas argues “knowledge of one’s own genome being programmed might prove to be disruptive, I suspect, for our assumption that we exist as a body or, so to speak, are our body, and thus may give rise to a novel, curiously asymmetrical type of relationship between persons” (Habermas, 2014, p. 42). Karnein notes some may recommend that the problem lies not in the genetic programming but by telling the person they been edited where “any potential predicament connected to knowing about one’s genetic manipulation can be circumvented by simply not telling manipulated children about their having been manipulated” (Karnein, 2012, p. 120). However, it is clear anyone who recommends this is caught up even deeper in the technological *Gestell*, denying the person respect and instrumentally treating them as an object without autonomy. Habermas aligns to this criticism where he sees this as adding “insult to injury by not only genetically manipulating children but then also deceiving them about the origin of their genetic constitution. He thereby implies that children always have a right to know about whether or not they have been genetically manipulated” (Karnein, 2012, p. 120). This would compound the main issue of allowing genetic enhancement.

Genetic enhancement would also change ontological and interpersonal relationships where an edited person knows “that it is impossible in principle for them to change their social places” (Karnein, 2012, p. 121). Karnein suggests

this “knowledge may make symmetrical relationships impossible by leading manipulated individuals to self-devalue their moral standing vis-à-vis others” (Karnein, 2012, p. 121). Like Aranson, Karnein notes “Habermas is concerned that genetic design takes place prior to, and outside of, the sphere of communicative interaction. This makes it far more difficult for genetically manipulated individuals to critically respond to their genetic programming should they object to the genetic choices made by their parents” (Karnein, 2012, p. 121). Habermas supports this saying “from the adolescent’s perspective, an instrumental determination does not permit the adolescent looking back on the prenatal intervention to engage in a revisionary learning process. Being at odds with the genetically fixed intention of a third person is hopeless” (Karnein, 2012, p. 121).

Habermas argues genetic enhancement is not synonymous with the process of socialisation which “is reversible because it can be reawakened, forced to speak and subjected to answers. This kind of freedom through retroactive communication is what makes socialization morally acceptable. As this possibility is foreclosed with genetic manipulation, he considers this technology to be objectionable” (Karnein, 2012, p. 123). Habermas makes this point clear when he says “the genetic program is a mute and, in a sense, unanswerable fact; for unlike persons born naturally, someone who is at odds with genetically fixed intentions is barred from developing, in the course of a reflectively appropriated and deliberately continued life history, an attitude toward her talents (and handicaps) which implies a revised self-understanding and allows for a productive response to the initial situation” (Karnein, 2012, p. 123). A genetically enhanced person is objectified and ‘mute’ as the traits they are given are “never internalized through some form of communicative discourse but always already irreversibly internal” (Karnein, 2012, p. 123).

Karnein identifies another few issues associated with the responsibility that comes with genome editing. For example, there is a problem “when it comes to parents making choices about what would be in the best interest of their children” (Karnein, 2012, p. 123). Habermas “is skeptical about their possession of the prognostic knowledge to make decisions about the good of their child. Thus, even those interventions that appear – at first sight – to be uncontroversial, such as increasing intelligence or ensuring good health, are not necessarily in the child’s best interest. Both can be beneficial but can also become burdens – depending on the particular life context within which they occur” (Karnein, 2012, p. 124). This highlights many of the problematic assumptions provided by liberal eugenicists. For example, “parents can’t even know whether a mild physical handicap might not prove in the end to be an advantage for their child” (Karnein, 2012, p. 124). These multitude of reasons present a strong argument against genetic enhancement and Karnein herself admits “it is indeed highly questionable whether parents can ever make decisions about what is best for their children” (Karnein, 2012, p. 124).

Genetic enhancement could lead to an experience of not feeling-at-home-in-the-world (Gildersleeve, Crowden, 2022) and Karnein agrees that “genetically manipulated persons might not feel at home in their bodies and may therefore be unable to claim authorship over their lives” (Karnein, 2012, p. 125). She explains “it is anything but clear that children could make their parents’ choices their own in the same way they could do this with a natural endowment (in the sense of not chosen by other people)” (Karnein, 2012, p. 125). Karnein provides an example of a genetically enhanced ballet dancer,

suggesting “the genetically manipulated children may feel that whatever success they have as ballet dancers is due more to their parents’ doing than their own” (Karnein, 2012, p. 126). Furthermore, another objection to enhancement is evident when the child wants to participate in something that is mutually exclusive to the traits that have been selected, making it difficult to accept how their parents made them. For example, “they might think that had it not been for their parents’ choices, they could have ended up tall and strong so that they could have performed better at basketball (which they might prefer over ballet)” (Karnein, 2012, p. 126). This also highlights how genetic enhancement objectifies and “commodifies future persons (i.e., does not treat them with the appropriate amount of respect)” (Karnein, 2012, p. 126).

Karnein summarises “people who use reprogenetic technologies on future persons for purposes other than to avert a fatal or otherwise terrible disease fail to display the appropriate amount of respect toward them” (Karnein, 2012, p. 133). Karnein outlines the importance of respecting “the independence of future persons” and “independence is defended as the central notion for a morality of creating future persons” (Karnein, 2012, p. 152). She goes on to say the “only legitimate reason for members of the present generation to genetically intervene with future persons’ genetic make-up is to make sure that the latter are mentally and physically equipped for leading independent lives in order to protect them from domination by their contemporaries” (Karnein, 2012, p. 152). Karnein elaborates “we owe it to persons not to take advantage of our asymmetric power position over the embryos from which they emerge. Rather, we must respect their independence from us”. She argues “genetic interferences will translate into illegitimate forms of a new kind of social domination” and this “means that before parents start thinking about genetically interfering with their children’s development, they should respect their children exactly the way they enter this world. Thus, genetic interventions that promise to secure a minimal level of independence vis-à-vis a person’s contemporaries should be part of what we owe to future persons” (Karnein, 2012, p. 136).

Moving on, an important article by Edgar (2009) focuses on the debate between Habermas and transhumanists. Edgar defines transhumanism similar to liberal eugenics who “typically see the potential in genetic and other technologies for positively expanding and transcending human nature” (Edgar, 2009, p. 157). In contrast to liberal eugenicists, we support Habermas who “is a representative of those who are fearful of this technology, suggesting that it will compound the deleterious effects of the colonisation of the lifeworld, further constraining human autonomy and undermining the meaningfulness of the lifeworld by expanding the technological control and manipulation of humanity” (Edgar, 2009, p. 157). In contrast to the optimism exuded by transhumanists, Habermas continues the work “articulated by Horkheimer and Adorno in *Dialectic of Enlightenment*, primarily by challenging what may be understood as a Baconian faith in science as a project for the domination of nature (where nature is an infinitely malleable material, to be dominated and shaped, without adverse consequences, purely for the purposes of human survival). While the transhumanists broadly embrace this faith, Habermas returns to something akin to Horkheimer and Adorno’s pessimistic scepticism” (Edgar, 2009, p. 157). Edgar’s paper is significant as he highlights how transhumanists have “insufficiently engaged with the possibility that transhumanist technologies pose a threat to the meaningfulness of human social

existence” (Edgar, 2009, p. 158). Liberal eugenicists adhere to this Baconian philosophy which “envisions a technocratic utopia, where the suffering of humanity has been removed through the development, and indeed perfection, of scientific knowledge and its technological application” (Edgar, 2009, p. 158). In other words, Bacon’s overly confident belief in the power of technology aims at “humanity’s domination of nature” (Edgar, 2009, p. 158).

Edgar cites “Julien Offray de La Mettrie, writing in 1750” who says, “the human being is but an animal, or a collection of springs which wind each other up” (Edgar, 2009, p. 159). This mechanistic mindset assumes “that nature, be it the nature of the physical world or human nature, is a passive material that, once understood, can be manipulated at will” (Edgar, 2009, p. 159). Edgar also cites Michio Kaku who claims science is in a “transition from an age of discovery to an age of mastery” (Edgar, 2009, p. 159). Importantly, Edgar recognises this scientific-technological worldview “of nature as an unresisting material, infinitely open to manipulation in the light of human goals, only effectively begins to be challenged in the twentieth century, with the growing awareness of the unforeseeable and potentially uncontrollable consequences of human intervention in nature” (Edgar, 2009, p. 159). Although it could be argued that Heidegger was one of the first to challenge this frame on nature, Edgar focuses his critique on Horkheimer and Adorno’s *Dialectic of Enlightenment*. His aim is to outline “the possibility that new technologies may pose a threat, not to humanity as a physical organism, but to humanity as a cultural being” (Edgar, 2009, p. 159).

When discussing the *Dialectic of Enlightenment* Edgar says, “if nature is to be manipulated to human goals, then it is reduced to a mere means that has no intrinsic value or meaning” (Edgar, 2009, p. 159). This is where the “social world, as much as the natural world, is reduced to something wholly quantifiable” (Edgar, 2009, p. 159). With this, Edgar states “the contemporary world is therefore one of radical disenchantment (*Entzauberung*), to use Max Weber’s term. The mathematical quantification of the world is the draining of meaning from that world” (Edgar, 2009, p. 160). In other words, a society where subjectivity and freedom are forgotten, and everything is objectified and controlled. Edgar continues his critique of transhumanism by combining Horkheimer and Adorno with Habermas to apply it to the ethics of genetic editing. More specifically, “Habermas sees genetic technology, and thus by implication all transhumanist technology, as overburdening the interpretative and moral resources of an already fragile lifeworld” (Edgar, 2009, p. 160). This can be further applied to genetic enhancement where Heidegger’s *Gelassenheit* is forgotten and technological thinking “becomes dominant, so that alternative forms of action and interaction become, possibly quite literally, unthinkable. At best, systems are assessed in terms of their instrumental efficiency, not their moral worth” (Edgar, 2009, p. 160). This is how to understand the inappropriate use of genome editing as a colonisation of the lifeworld. In other words, this involves “instrumental reason intruding, inappropriately, into the lifeworld” (Edgar, 2009, p. 161) and freedom of the edited person.

This can be elucidated when Edgar discusses Habermas’s reference to “the technical attitude of the actor who is engaged in production, and the practical attitude in a narrow sense of the agent acting through prudence or morality” (Edgar, 2009, p. 161). The technical attitude is most clearly relevant to *Gestell* enframing which is “the inheritor of Baconian instrumental reason. In this

attitude an agent works upon an object that is presupposed to be passive. Habermas suggests, following his earlier defence of instrumental reason, that this is a legitimate and indeed fruitful attitude when manipulating brute matter. It is appropriate, for example, to engineering and building” (Edgar, 2009, p. 161). However, it is not appropriate for interacting with humans especially when the nature and traits of a human being are being manipulated. Alternatively, Habermas suggests “the practical attitude in the narrow sense works with the object, in processes of cultivation, therapy and selection” (Edgar, 2009, p. 162). Thus, this can be clearly related to *Gelassenheit* where there is a midpoint between too much interference and not enough. In other words, the practical attitude would adhere to therapeutic uses of genetic editing instead of a technical attitude which would objectify the embryo as brute material. A further distinction is that when errors occur with the practical attitude “they are taken as a reminder to turn, more attentively, to the inherent nature of the object. Practice re-adjusts itself to its object” (Edgar, 2009, p. 162). In contrast “Habermas suggests that the technical attitude lacks at least something of this ability to readjust itself. By having been reduced to passive matter, that object can make no demands upon the agent. The object cannot limit the agent’s hubris. The implication is that crises arising from the technical attitude go unchecked, and thus culminate in the radical failure of the project” (Edgar, 2009, p. 162). In other words, interfering with the lifeworld, autonomy, and identity of the edited person as an embryo allows no communicative action for both parties to be heard and incorporated into decision making.

Edgar argues “genetic engineering violates an ontological distinction that is expressed in the categories of the made and the grown. The technical attitude of engineering is legitimate in the context of that which is made. The grown, in contrast, demands the respect that is inherent to cultivation. Crucially, the genome is grown. To engineer the genome is to treat it, inappropriately, as mere matter” (Edgar, 2009, p. 162). When technology is used to frame the human being as an object it is locked into the technical attitude that is insufficiently flexible which is required to achieve an authentic *Gelassenheit* relationship. This means the field of genetic editing “must respect the categorical distinction between the made and the grown” because the “inappropriate intrusion of the technical attitude into the biological realm has undesirable existential consequences” (Edgar, 2009, p. 162). Edgar notes Habermas references Hannah Arendt’s ‘natality’ in *The Future of Human Nature*. Edgar explains “the moment of birth is the moment of new possibilities and new beginnings, and this sunders the present generation from any determining enthrallment to past generations” (Edgar, 2009, p. 163). This is fundamental to the autonomy and freedom of the human being to separate from “the intentions of the previous generation or person” (Edgar, 2009, p. 163). This separation from the previous generation allows independent “radical self-criticism and thus freedom than would seeing oneself as the inevitable instrument to the fulfilment of some other person’s goal” (Edgar, 2009, p. 164). Thus, genetic enhancement violates autonomy and respect for consent with arbitrary selection of traits, values, and preferences which “impose purposes on the body as brute matter. The body is treated purely instrumentally, as something made” (Edgar, 2009, p. 164). Edgar’s criticism of transhumanism and genetic manipulation is that “for the transhumanist, the body is not part of the fate into which they are thrown, but rather a brute matter, that can be manipulated without any impact upon their self-understanding” (Edgar, 2009, p. 164).

Coming back to Heidegger's revealing/concealing description of technology the issue with genetic engineering is that when "enhancing the subject's capacity to achieve one goal, would necessary restrict her ability to achieve others" (Edgar, 2009, p. 164). For example, if the designers choose "to increase a person's height, say in order to enhance her ability to participate in basketball, would be illegitimate, precisely because it would undermine her ability to participate in activities in which height was disadvantageous. It may thus equally be suggested that to increase a person's strength, to enable him to sprint, is also illegitimate, for the strength of the sprinter is incompatible with that of the endurance athlete" (Edgar, 2009, p. 164). Edgar argues that if our advantages and limitations that make up the characteristics of a person are imposed "by the will of another person, and crucially, with another with whom, by the very nature of a pre-natal intervention, the adolescent had no opportunity to communicate or to challenge, then the resources of the lifeworld are stretched potentially to breaking point" (Edgar, 2009, p. 165). Put forcefully, the edited person "is radically alienated from her body. It becomes merely something she has, and not something she is. She ceases to have an embodied perspective, from which to engage with her environment, in which she can be at home, for that perspective has always already been shaped by the intentions of another person" (Edgar, 2009, p. 165). Here "the categorical separation of the first person and the third person perspective is broken, and thus the notion of autonomy current in the lifeworld is rendered meaningless. The genetically modified person may only be able to understand herself from the third person perspective, and thus as permanently objectified" (Edgar, 2009, p. 165).

Junker-Kenny (2005, p. 4), argues that genetic enhancement is "a forced submission to another person's idea of happiness". She recognises "Habermas's demand for a ban on instrumentalization arises from his acute awareness of the possible conflict between parental power and children's entitlement to be themselves" (Junker-Kenny, 2005, p. 4). This ban on genetic enhancement is necessary "to defend the principle of symmetry against the new cultural norms of control and perfection that liberal eugenics exemplifies" (Junker-Kenny, 2005, p. 4). Like our earlier work which denies the possibility of enhancing autonomy (Crowden, Gildersleeve, 2024), Junker-Kenny notes Habermas "categorically rules out the thought that autonomy may even be augmented, for example, if possible genetic factors for ego strength could be enhanced" (Junker-Kenny, 2005, p. 4). Instead, genetic enhancement involves the designer making "himself the co-author of the life of another, he intrudes – from the interior, one could say – into the other's consciousness of her own autonomy. The programmed person, being no longer certain about the contingency of the natural roots of her life history, may feel the lack of a mental precondition for coping with the moral expectation to take, even if only in retrospect, the sole responsibility for her own life" (Junker-Kenny, 2005, p. 6). The fundamental issue "is that what should be begun as a reciprocal relationship has been changed into a one-way expression of power" (Junker-Kenny, 2005, p. 6). Furthermore, "while a child growing up can negotiate, dispute and distance herself from contents of her upbringing, the inclusion of parental intentions into her genes does not allow her to come to terms with it discursively. Educational determinations can be counteracted and revised by the child; yet the fact that her original genetic inheritance and that of her descendants have been regarded by her parents as a matter at

their disposition, and altered accordingly, cannot be undone” (Junker-Kenny, 2005, p. 7).

Schmidt (2017) recognises that Habermas accepts “the case of negative eugenics, such interventions serve to avert damages, risks, and disadvantages” because “one may reasonably presume belated agreement on the part of those affected” (Schmidt, 2017, p. 465). However, the issue with positive eugenics or genetic enhancement is that editing characteristics come “from the subjective preferences of parents, who wish to have children with particular features and/or talents” (Schmidt, 2017, p. 465). Put simply “the parents decide only looking to their own preferences, as if disposing over an object” (Schmidt, 2017, p. 465). Although “advocates of liberal eugenics claim that there is no great difference between eugenics and education” Habermas explains that education is “in fact, elective (*advokatorisch*) and reversible” (Schmidt, 2017, p. 465). Genetic enhancement changes the person’s ability to “be at home, so to speak, in her own body” (Schmidt, 2017, p. 465) and breaks their ‘natality’ where the previous generation saturates the present so much that freedom is compromised. If this is broken so is the “differentiation between what we are and what happens to us” (Schmidt, 2017, p. 465). Schmidt explains “when birth occurs naturally, the parents establish only the starting point for the natural and cultural history of the child; it is left to him or her to decide what he or she will integrate into life subsequently – what he or she interprets as an expression of his or her own self-conscious identity” (Schmidt, 2017, p. 466).

Another key difference between genetic enhancement and the interactive process of socialisation is that it “does not treat the child as a second person; instead, he or she remains an object in the third person” (Schmidt, 2017, p. 466). In other words, “genetic intervention opens no communicative scope for the projected child to be addressed as a second person and to be involved in a communication process” (Schmidt, 2017, p. 466). This highlights the limitations with utilitarian logic of genetic enhancement which represents “an egregious restriction of personal autonomy; the subject is deprived of authorship over his or her own life, and at the same time – because of the enduring asymmetry between subject and object in the process of programming – the pre-conditions for the equal respect which every person in his quality as a person is entitled to have been abandoned” (Schmidt, 2017, p. 466). In summary, Habermas rejects genetic enhancement because “a genetic designer, acting according to his own preferences, assumes an irrevocable role in determining the contours of the life history and identity of another person, while remaining unable to assume even her counterfactual assent” (Schmidt, 2017, p. 469).

What this means is that it is important to maintain “aspects of human life that are existent without a person actively choosing or promoting it, second, it relates to the aspects of chance and contingency characteristic of biological procreation and third, it relates to the circumstance that the genetic setup of humans is out of their reach” (Wienmeister, 2022, p. 546). While Habermas rejects genetic enhancement, he does not abandon all editing because “he does not reject interventions for purposes of therapy. In case of therapy, Habermas grants that a broad consensus with future individuals can be assumed” (Wienmeister, 2022, p. 547). Thus, Habermas has a “conservative attitude towards human genetic engineering in general, he does approve of a restricted use of this technology for purposes of therapy as opposed to purposes of enhancement” (Wienmeister, 2022, p. 551). This is unambiguously

articulated when he says “The problem, of course, is not genetic engineering, but the mode and scope of its use. It is, moreover, the attitude in which interventions in the genetic makeup of potential members of our moral community are carried out that provides the standards for an assessment of their moral admissibility” (Wienmeister, 2022, p. 551).

Wienmeister (2022) argues genomic editing is morally permissible when “it is an attitude that is dedicated to the logic of healing. The logic of healing, including preventing severe diseases, allows for morally admissible uses of technology because establishing health is considered to be a common good by Habermas”. This adheres to the Kantian categorical imperative because it is “a common good, it is mediated by communicative processes within a moral community. The challenging task of a moral community is therefore to develop convincing criteria to distinguish healthy from sick forms of bodily existence in order to identify legitimate uses of genetic engineering in humans” (Wienmeister, 2022, p. 551). This shows how Kantian ethics is consistent with gaining consensus from “a future person in case of therapeutic interventions; however, for purposes of enhancement, virtual consent of the child cannot be assumed, because it is impossible to foresee the child’s preferences” (Wienmeister, 2022, p. 551). Genetic enhancement which cannot obtain a universal preference for what should be edited would thus be a “form of an instrumentalization of human nature” (Wienmeister, 2022, p. 551). In summary, “while Habermas rejects interventions for enhancement purposes due to concerns of merely individually cultivated preferences of parents, he accepts therapy interventions because they relate preferences of parents to preferences that are justified within a broader moral community” (Wienmeister, 2022, p. 553).

Objectification

From this discussion of Heidegger and Habermas it’s clear that both see the technical thinking of genetic enhancement as a form of objectification. We agree. This can be defended and clarified with reference to Martha Nussbaum’s (1995) paper on objectification which “pursues both phenomenological and normative aims” (Jütten, 2016, p. 30). Jütten explains “she lists seven features that may be involved in treating-as-an-object: instrumentality, denial of autonomy, inertness, fungibility, violability, ownership, and denial of subjectivity”. Another important publication on objectification is presented by Landau (2007) who compares Nussbaum’s views on objectification to “Buber’s distinction between I-thou relations (which he models on the appropriate treatment of humans) and I-it relations (which he models on the treatment of objects)” (Landau 2007, p. 312). Landau summarises Nussbaum’s seven features of objectification as follows: “(1) Instrumentality – using others as a means; (2) Denial of autonomy; (3) Inertness – treating others as lacking agency or activity; (4) Fungibility – treating others as interchangeable; (5) Violability – treating others as lacking boundary integrity, or as such that it is allowed to break or harm;(6) Ownership – treating others as such that can belong to one; and (7) Denial of subjectivity” (Landau 2007, p. 312). Landau adds two more features to this list which are “denial of rationality: people are frequently distinguished from objects by the ability to think. The second is worth: people are usually taken to have certain a priori worth or importance simply by virtue of their being human. This is not so with objects,

which are viewed as less important than human beings” (Landau 2007, p. 312). Both features are present when genome editing becomes objectifying for enhancement.

This can be elaborated further by integrating Rae Langton’s interpretation of objectification. She notes that it is not a new phenomenon because objectification is a key feature of Kantian ethics: “For Kant, moral wrong-doing consists in a failure to treat humanity always as an end and never as a means only” (Langton, 2009, p. 223). Langton argues this “Kantian idea has gained new impetus in recent applications by feminist thinkers, who have observed its relevance to oppression, and to the varied ways that women might have been treated as a means only”. More specifically she argues that for feminists, “women’s oppression partly consists in women’s being treated as objects” (Langton, 2009, p. 223). Langton moves onto more recent discussions of objectification with a particular focus on Nussbaum who “draws together the Kantian and feminist ideas about what it might be to treat someone as an object” (Langton, 2009, p. 224). Langton says for Nussbaum “objectification is a cluster concept, on her way of thinking, in which the ideas of autonomy-denial and instrumentality are at the core” (Langton, 2009, p. 224). These features of objecthood can be integrated when evaluating genetic enhancement as many of these characteristics are applied when editing an embryo for nontherapeutic reasons. For example, “when you treat a person as autonomous, you are treating them as someone capable of choice: and that seems to imply not treating them merely as instrument. It seems to imply treating them as not simply inert, not owned, not something whose feelings need not be taken into account [...] the ideas of instrumentality, inertness, ownership, and denial of subjectivity each imply the denial of autonomy” (Langton, 2009, p. 226). This elucidates the objectifying nature of genetically enhancing an embryo who cannot consent for specific traits or preferences desired by the parents.

Langton’s work is unique because it adds three features that are absent from Nussbaum’s list. These additional features of objectification include: “Reduction to body: one treats it as identified with its body, or body parts”, also a “Reduction to appearance: one treats it primarily in terms of how it looks, or how it appears to the senses”. The other feature Langton lists is “Silencing: one treats it as silent, lacking the capacity to speak” (Langton, 2009, p. 229). These three additional features are all important to consider alongside Nussbaum’s list when contemplating the moral permissibility of genetic enhancement. Applied to genetic enhancement “objectification has two key features: Emphasis on the target’s instrumentality and denial of their humanness or personhood” (Loughnan, 2010, p. 709). This can be extended by noting research has found mental health issues associated with objectification which decreases subjective well-being, increases depressive symptoms, self-harm, and disordered eating. Objectification also “reduces intellectual performance by diverting attention to the body and reducing intrinsic motivation and feelings of self-efficacy” (Loughnan, 2010, p. 710).

The link between Kant, objectification and genetic enhancement can be unconcealed further by recognising that the values and preferences selected, place the edited person as an “instrument for someone else’s purposes” because it disrupts “the capacity for rationally setting and pursuing one’s own ends” (Papadaki, 2010, p. 17). In other words, genetic enhancement objectifies the human being by making the person “less than human, turned into

a thing or commodity. When objectification occurs, a person is depersonalized” (Papadaki, 2010, p. 20). Thus, our work continues a tradition including Kant and Nussbaum to apply objectification to genetic enhancement which highlights it as “a highly problematic phenomenon, something we should always try to avoid and fight against” (Papadaki, 2010, p. 21). This is because the objectified “is reduced to the status of a thing, something with no autonomy or subjectivity that exists solely to be used, and possibly also violated and abused, by others” (Papadaki, 2010, p. 21). This can be linked to Birgit Beck who argues “even granted that prospective parents sincerely care about the well-being of their future children and make use of genetic interventions with the aim of providing them with the best chance of the best life, there is a danger that parents create a new communicative situation. Instead of interacting with their (future) child in the role of a second person, they treat them as an object, or ‘malleable product’ designed to fit their own wishes” (Beck 2020, p. 91). It is this enframing and objectification of genetic editing that we have been focusing on in relation to Heidegger, Habermas, and Nussbaum.

***Gelassenheit* and Genome editing**

Back to Heidegger now and a chapter by Hadjioannou (2018) is interesting to note as it equates Heidegger’s description of technological *Gestell* with the phenomenological reduction as practiced by Husserl. Hadjioannou argues Heidegger references *Gelassenheit* as “in some respects, the answer to *Gestell*” (Hadjioannou, 2018, p. 57). Instead of a phenomenological reduction with *Gestell*, *Gelassenheit* “is a comportment that determines how the world is given to us, as well as the way in which we understand ourselves within that world. It is a comportment that lets the world be and lets the world reveal itself as it is without reducing it to a supply of resources for production and consumption” (Hadjioannou, 2018, p. 57). Genetic enhancement reduces the human being to a resource and functions through “regulating [*Steuerung*] and securing [*Sicherung*]” (Hadjioannou, 2018, p. 60). Genetic enhancement is a revealing which is also an ordering of the human being, constructed into arbitrary features selected by the designers as “an artificial imposition on nature” (Hadjioannou, 2018, p. 60). This is problematic as it is “a stance that challenges that which is to be given, not letting it be given on its own terms, but rather imposing on it a strict value-order” (Hadjioannou, 2018, p. 61).

In contrast, “*Gelassenheit* is a comportment that does not impose any specific order on the disclosed world and its entities, and it does not demand or challenge the world to come forth in a prearranged way” (Hadjioannou, 2018, p. 62). Instead, applying *Gelassenheit* to genome editing “enables a free relation to the world, that is, a disclosing relation free from any sort of attitudinal presupposition” and “*Gelassenheit* is a free, non-violent relation to beings” (Hadjioannou, 2018, p. 62). Instead of a phenomenological reduction, Heidegger’s “formal indication lets everything stand as is, without interfering, without imposing on things any pre-judged order. By indicating phenomena, it unassumingly releases them into the open, allowing them to show themselves from themselves” (Hadjioannou, 2018, p. 71). This is how Hadjioannou shows that “Heidegger attempts to replace Husserlian phenomenological analysis with a hermeneutic praxis that does not objectify, that does not posit any sort of order or classification” (Hadjioannou, 2018, p. 71). Thus, instead of the objectifying stance of genetic enhancement, therapeutic

use of genomic editing “is a practice that emanates from a non-positing, unobtrusive comportment” (Hadjoannou, 2018, p. 71) otherwise known as *Gelassenheit*.

Next it is important to link technological thinking to ontological alienation and homelessness. Our home-in-the-world “has become obscured by the reign of technological thinking. *Das Gestell* does not co-incidentally occur in the age of homelessness – it is the source from which this condition emerges” (Botha, 2003, p. 163). Botha adds “*Gestell* exiles human being from her essence, namely to be *Dasein*. There is no longer a relation to the openness of Being, for the possible becomes identical to the real. Homelessness therefore consists in the abandonment of Being by beings”. If *Gelassenheit* is not applied to genome editing the reductive, objectifying “enframed world of modernity” leads to “homelessness” (Young, 2018, p. 205). Claxton’s chapter on *Gelassenheit* can be combined with the previous quotes to show “how releasement, as a receptive way of thinking and being, is the means by which the unhomeliness that follows from our enframing of the world may be overcome” (Claxton, 2018, p. 226). This unhomeliness comes from the predetermined calculation of genetic enhancement that “necessarily results in the reduction of all beings, things, and nature to resources” (Claxton, 2018, p. 227). Fundamentally the issue with the calculative worldview of genetic enhancement is that it “imposes predetermined end goals and makes no place for alternatives. It deals only with those prospects that are known, understood, and apprehended. In this regard, the dominance of enframing and its calculative thinking fundamentally alters human beings’ relationship to truth, truth understood as *alêtheia*, that is, the happening of truth as the opening up or unconcealing of a world formerly concealed” (Claxton, 2018, p. 227). Genetic enhancement as a calculative outline of the traits of a human being prevents the concealed from showing itself. This means that only that which can be imagined and sketched in advance will show itself and deny characteristics that could otherwise come to appearance. It treats the human intellect as all-knowing and all-powerful and paradoxically instead of enhancing the unconcealment of truth, it reduces truth to what is already known. The enframing thought of genetic enhancement does not understand “truth as a process of unconcealment that is never complete. Only truth as *alêtheia* acknowledges truth’s inexhaustibility” (Claxton, 2018, p. 227). Although not applied to genetic enhancement, Heidegger highlights why objectifying the human being in this way is unethical because “Enframing blocks the shining-forth and holding-sway of truth” (Claxton, 2018, p. 227). Fundamentally, adhering to enframing and *Gestell* of calculative thinking “radically endangers the relation to the essence of truth” (Claxton, 2018, p. 227).

When genetic enhancement focuses “only on what is known and apprehended, calculative thinking is confined to the actual; it deals only with the unconcealed, giving no thought or place to the concealed or the possible as such” (Claxton, 2018, p. 227). This highlights that “because no thought is given to the possible that lies beyond the actual, no real progress is made. The average everydayness of calculative thinking focuses only on those things with which one is presently occupied, the things that are unconcealed to and manipulable by a calculative mindset” (Claxton, 2018, p. 228). In summary, along with other reasons including objectification and interfering with autonomy, genetic enhancement should be prevented as “Enframing and its calculative thinking focus only on what is known, understood, and usable. Enframing

limits revealing, preventing us from seeing that things could, in fact, be otherwise. Enframing prevents us from seeing that it is possible to engage with the world in a way that does not reduce everyone and everything to resources to be optimized and used. Enframing dangerously limits our perception of the world and what is possible” (Claxton, 2018, p. 228). If this type of calculative thinking is included into discussions of genetic editing it “may someday come to be accepted and practiced as the only way of thinking” (Claxton, 2018, p. 228). Heidegger suggests the appropriate response is “to pit meditative thinking decisively against merely calculative thinking” (Claxton, 2018, p. 229). Only if a releasement of calculative thinking is applied to genetic editing “will our self-alienation and the unhomeliness (*Unheimlichkeit*) that results from our enframing be overcome and our primordial at-home relation to being be recovered” (Claxton, 2018, p. 229).

Rejecting Liberal Eugenics and Genetic Enhancement

We have outlined various arguments against liberal eugenics and genetic enhancement which can also be understood with reference to Francis Fukuyama. For example, Fukuyama (2002, p. 4) argues, “regulations must be imposed on science in order to discriminate between developments that further human flourishing, and those that pose a threat to human dignity and well-being”. Here we argue genome editing for therapeutic reasons align to the former whereas enhancement to the latter. Fukuyama adds:

“what we need to do in this case is not ban the procedure, but regulate it, drawing lines to distinguish between legitimate and illegitimate uses. One obvious way of drawing lines is to distinguish between therapy and enhancement, directing research toward the former while putting restrictions on the latter. The original purpose of medicine is, after all, to heal the sick, not to turn healthy people into gods. We don’t want star athletes to be hobbled by bad knees or torn ligaments, but we also don’t want them to compete on the basis of who has taken the most steroids. This general principle would allow us to use biotechnologies to cure genetic diseases like Huntington’s chorea or cystic fibrosis but not to make our children more intelligent or taller.” (Fukuyama, 2002, p. 15)

Fenton (2006) argues that Annas, Habermas and Fukuyama “converge on the single idea that, in the case of genetic technology, humans must be protected from technology that could ultimately destroy them”. More specifically “these authors are concerned that genetic technologies, such as liberal eugenics and cloning, will destroy what it is to be human as we know it” (Fenton, 2006, p. 36). Likewise, “Annas calls the use of such technologies a new form of crimes against humanity, arguing that they threaten human nature, and thereby human dignity and human rights” (Fenton, 2006, p. 36). Genetic enhancement needs to be prevented as it is a technique “that could lead us to commit species suicide” (Fenton, 2006, p. 36).

Liberal eugenics should be rejected because it “undermines the freedom and autonomy that each individual ought to have to be the author of his or her own life. When parents interfere with the genome of their offspring-to-be, they brand that child with an identity or a developmental trajectory that the child can never escape or alter” (Fenton, 2006, p. 37). Genetic enhancement introduces ontological changes to the human being because “a child whose genome is to some extent the result of parental selection and preference will never fully be capable of achieving authorship of his or her own life” (Fenton, 2006, p. 37). Habermas’s Kantian position is evident when he argues liberal

eugenics “is inconsistent with the state of human dignity to consider other human beings (at any stage of development) as instruments to be used or manipulated by others” (Fenton, 2006, p. 38). The technological enframing of genetic enhancement is clearest when recognising the objectifying attitude and “when one subject confronts and alters another, it creates a dramatic imbalance of power. Humans are no longer just masters of technology, but masters of technology and of one another” (Fenton, 2006, p. 38). Furthermore, although “liberal eugenics claims to be an extension of the liberal ideal of individual freedom and autonomy, Habermas argues that in fact the use of the technology is contrary to it. The locus of freedom that concerns advocates of liberal eugenics is the parent, the reproducer, when the proper locus of freedom to consider is the child, the offspring of the process, for it is there that the more significant curtailment of freedom will occur” (Fenton, 2006, p. 38). The enframing and objectifying nature occurs because there is an ontological change where children are “unable, later in life, to take a revisionist stand toward the expectations, demands, or developmental goals of their parents. Those goals have been built right into that child as part of the manufacturing process; they have the peculiar status of a one-sided and unchallengeable expectation” (Fenton, 2006, p. 38). Put simply, an unedited child is “free eventually to reject the parents preferences” whereas “that freedom is missing if those preferences are hardwired into the child’s genome, if the child is manufactured rather than created by nature” (Fenton, 2006, p. 39).

Various authors who support liberal eugenics argue it does not threaten freedom or autonomy because “the enhanced individual would enjoy more choice and autonomy in her life, if the modifications were such as to expand her basic capability set since they would open more life-plans than they block” (Pugh, 2015, p. 147). However, the issue with this argument is that it has a narrow conception of what entails freedom. That is because liberal eugenicists argue “that enhancements could increase the enhanced individual’s freedom of choice. However, as Dworkin has argued, increasing the number of choices available to an agent may not increase their autonomy” (Pugh, 2015, p. 147). For example, the choices available may not be what that person is motivated to fulfill, and it does not change the ontological fact that their genes have been tampered with in ways that the unedited person has not. Additionally, “enhancements could threaten the child’s freedom in this sense because of the parental expectations that are implicit in the enhancements” (Pugh, 2015, p. 147). Although it is possible “the parent’s choice of enhancement might be in harmony with what the child wants. Habermas concedes this point; however, he points out that there remains a possibility of dissonant cases in which the parental expectation implicit in the enhanced trait is incongruous with the child’s desires” (Pugh, 2015, p. 147).

Another reason to reject enhancement but permit therapeutic uses of gene editing is because “we may presume consent on behalf of a modified individual to avoid a profound evil which is unquestionably extreme, and likely to be rejected by all but we cannot presume her consent to merely bring about some trait that the parent values” (Pugh, 2015, p. 148). This is the basis for Habermas’s deontological framework for genetic editing where it must adhere to a categorical imperative. Enhancement cannot be made into a universal categorical imperative because it “is merely a state that is desirable in terms of third party goals and not a valid basis for presuming the consent of the enhanced subject” (Pugh, 2015, p. 148). This also connects to

communicative action which is part of Habermas's ethical theory based on Kantian deontology and requires "that as well as receiving communicated reasons we are also able to respond. In the case of enhancing an existing child's environment, Habermas suggests that parents include their child in a reciprocally responsive relationship in which the child can respond to their parent's choices. In contrast, germline enhancements offer no opportunity for a communicative process between the child and parent" (Pugh, 2015, p. 148). This underlines the Kantian basis for Habermas where ethical decisions must respect other persons as an end in themselves and actions can be universally accepted by a community of autonomous persons. Overall, our position aligns with most people who support therapeutic uses of gene editing and reject enhancements. Anomaly and Johnson (2024, p. 147) note "surveys suggest that in all countries people tend to be more wary about enhancement than they are about treatment" and they also cite The American Medical Association's Code of Medical Ethics who state "genetic manipulation should be reserved for therapeutic purposes. Efforts to enhance desirable characteristics or to improve complex human traits are contrary to the ethical tradition of medicine" (Johnson, 2024, p. 147). However, there are a minority of authors who support liberal eugenics, and our article is aimed at refuting their position.

Sparrow (2011) lists several that support genetic enhancement including Gregory Stock, Lee Silver, Nick Bostrom, Julian Savulescu, John Harris, Ronald Green, Jonathan Glover, and Nicholas Agar who suggest "that there is little reason to fear the scientific application of genetic technologies to human beings, as long as the choice of whether – and how – to use them is left up to individuals". Sparrow states that what is common among this group is that liberal eugenics "would be pluralistic, based on good science, concerned with the welfare of individuals, and would respect the rights of individuals" (Sparrow, 2011, p. 32). All of this sounds good in theory, but their arguments and philosophy speak otherwise where there are many objections that could be raised against the welfare and rights of individuals that are not being respected. What is more problematic is that authors such as Savulescu have "argued that we are morally obligated to use genetic (and other) technologies to produce the best children possible" (Sparrow, 2011, p. 33). As Savulescu is a consequentialist philosopher it appears he has not considered other important positions in enough detail such as the deontological arguments of Kant and Habermas combined with Heidegger and Nussbaum. One of the main reasons Savulescu constantly provides to support his position is that he insists "that the decision about whether to pursue enhancement (and which enhancements to pursue) should be left up to individuals" (Sparrow, 2011, p. 33). Because liberal eugenicists see this as avoiding issues associated with state-imposed eugenics they feel they are now free and in the clear to pursue genetic enhancement. However, this simplistic solution does not address any of the issues we have raised in this article including how to justify imposing arbitrary preferences and traits from a third-person perspective. Furthermore, it completely ignores the technological *Gestell* objectifying relationship and reduces possibilities available to the edited person to the worldview of the parents. This assumes parents have the intellect and ability to select the correct traits for their child out of the infinite possible both consciously known and those beyond awareness.

In his paper ‘Genetic Interventions and The Ethics of Enhancement of Human Beings’ Savulescu (2009) argues “Choosing Not to Enhance Is Wrong” (p. 520). He provides a thought experiment about “the case of the Neglectful Parents” where a “child has a stunning intellect but requires a simple, readily available, cheap dietary supplement to sustain his intellect. But they neglect the diet of this child and this results in a child with a stunning intellect becoming normal. This is clearly wrong”. It is quite surprising that such an argument from analogy is made when there are many differences between this example and genetic enhancement even when he says, “if we substitute biological intervention for diet, we see that in order not to wrong our children, we should enhance them” (Savulescu, 2009, p. 521). The issue with Savulescu’s position on the topic is that he draws a very narrow utilitarian box around the arguments he forms and does not think outside of it. The main issue with this example he provides is that it is not analogous to genetic editing that must be done before birth, which raises questions of consent and autonomy. Furthermore, the example he provides highlights a situation that is flexible, where the child has the choice to not use the supplement or not. The same is not the case for genetic enhancement which is irreversible.

Savulescu, again, makes another invalid analogy when he states, “just as parents have wide scope to decide on the conditions of the upbringing of their children, including schooling and religious education, they should have similar freedom over their children’s genes” (Savulescu, 2009, p. 526). Although not directly in response to Savulescu, it is Habermas who meticulously highlights the problem with this analogy where “adults can submit their own life histories to critical evaluation and retrospective revision” (Habermas, 2003, p. 13) for socialisation influences but it is not the same for genetic interventions. Savulescu also makes many assumptions for the types of traits that should be enhanced such as “increased empathy with other people, better capacity to understand oneself and the world around, or improved memory. One quality is especially associated with socio-economic success and staying out of prison: impulse control. If it were possible to correct poor impulse control, we should correct it. Whether we should remove impulsiveness altogether is another question” (Savulescu, 2009, p. 528). These suggestions are littered with problems throughout. First Savulescu assumes complex traits can be reified into genetic manipulation failing prey to the myth of genetic enhancement (Rosoff, 2012). Furthermore, arbitrary and subjective traits such as increased empathy may not necessarily be universally accepted as a trait to be enhanced especially when the side-effects of this are not understood. For example, providing too much empathy could make people become victims to others who take advantage of them. This argument is similar to Susan Wolf’s rejection of the idea of ‘moral saints’.

Savulescu (2009) assumes we would be able to edit a person to increase the child’s open future which “is one in which a child has a reasonable range of possible lives to choose from and an opportunity to choose what kind of person to be” (Savulescu, 2009, p. 528). But again, this omnipotent fantasy of believing that we can know how to achieve this should surely be viewed as unrealistic. To claim with such unfounded confidence in genetic enhancement that “once technology affords us the power to enhance our own and our children’s lives, to fail to do so would be to be responsible for the consequences. To fail to treat our children’s diseases is to wrong them. To fail to prevent them from getting depression is to wrong them. To fail

to improve their physical, musical, psychological, and other capacities is to wrong them” (Savulescu, 2009, p. 529) is unusual. Although we agree that genetic intervention should be used for therapeutic reasons, we fail to agree that his statements after this about improving physical, musical, and psychological abilities are ethical as it imposes a third-person intention onto the child that objectifies their life into a plan made by the parents and shuts out other possibilities that could arise if genetic intervention was avoided. Simply put, liberal eugenicists argument is contradictory when they claim parents have the freedom to choose the traits for their child, but if this is the case there could be no universal agreement on what is right or wrong (violating the categorical imperative). This is the problem of relativism that supporters of liberal eugenics support where they implicitly condone that no one can judge parents for the choices they make, and they are permitted to edit as they please (also assuming they will make the right choice).

Summary

The arguments in this paper highlight that therapeutic and enhancement use of genetic editing are not equivalent because enhancement “goes beyond medicine as a healing enterprise, or as expressed by Edmund Pellegrino: it goes beyond the ends of medicine as they traditionally have been held” (Hofmann, 2017, p. 4). It is important to make a “distinction between restorative or preventive, non-enhancing interventions (*restitutio ad integrum*), therapeutic enhancements that allow a patient to perform better than before their disease or accident, and non-therapeutic enhancements which improve natural human abilities or to create new abilities” (Hofmann, 2017, p. 4). As Hofmann sates “technology used for treatment, rehabilitation, and restoration is acceptable, but not for going beyond this. Therapy is usually defined as the use of medical means to restore or establish normal functioning of an organism”. Our paper is “supported by arguments in professional ethics, where medicine is defined in recuperative terms. Medicine is about treatment, not enhancement, and is defined as a restorative practice aimed at the return to health. Using technology beyond this goal is to breach with its professional ethos” (Hofmann, 2017, p. 4). Furthermore, therapeutic use of genome editing “is more fundamental to expand people’s capacity to realize flourishing lives than enhancement. Disease makes people incapacitated and unable to pursue their happiness, and reduces autonomy in other ways” (ibid). Hofmann also notes therapeutic uses “can be more accurately specified than enhancement. To remove the preconditions of Tay-Sachs or cystic fibrosis is much easier specified than the preconditions for enhancing traits, such as intelligence” (Hofmann, 2017, p. 4).

Genomic editing presents humanity with many benefits but also technological enframing objectifies when “adults treat the desirable genetic traits of their descendants as a product they can shape according to a design of their own liking” (Habermas, 2014, p. 13). We have referred to many philosophers to show that genetic enhancement should be rejected as it interferes with “another person’s spontaneous relation-to-self and ethical freedom” (Habermas, 2014, p. 13). Habermas notes “this kind of intervention should only be exercised over things, not persons” (Habermas, 2014, p. 13) and if genetic enhancement is permitted, we are essentially reducing a person to a manipulable thing. Not only does this affect the life of those who are edited

but they can also “demand an account from the programmers of their genome; they can hold these producers responsible for what they, the offspring, consider the unwanted consequences of the organic starting point of their life histories” (Habermas, 2014, p. 13). Thus, when genome editing crosses into enhancement, it obliterates “the boundary between persons and things” (Habermas, 2014, p. 13).

Here we have rejected liberal eugenics where genetic enhancement would be left to “the individual choice of parents and, on the whole, to the anarchic whims of consumers and clients” (Habermas, 2014, p. 48). This is problematic for many reasons especially when there is an assumption that parents are capable to make ethical decisions under this limitless freedom. The problem with liberal eugenics is it fails to recognise the objectifying nature of genetic enhancement where “the parents’ choice of a genetic program for their child is associated with intentions which later take on the form of expectations addressed to the child, without, however, providing the addressee with an opportunity to take a revisionist stand” (Habermas, 2014, p. 51). This enframing structure on the edited person presents an unchallengeable expectation that eludes “the conditions of reciprocity required for communication proper. In making their choice, the parents were only looking to their own preferences, as if disposing over an object” (ibid). Unlike aspects of education that can be reinterpreted, or beliefs challenged “genetically fixed demands cannot, strictly speaking, be responded to” (Habermas, 2014, p. 51).

We follow Habermas and don’t reject genome editing completely, but only reserve it for therapeutic uses instead of enhancement where “as long as medical intervention is guided by the clinical goal of healing a disease or of making provisions for a healthy life, the person carrying out the treatment may assume that he has the consent of the patient preventively treated” (Habermas, 2014, p. 52). As Habermas says “the presumption of informed consent transforms egocentric action into communicative action. As long as the geneticist intervening in a human being conceives of himself as a doctor, there is no need for him to approach the embryo in the objectivating attitude of the technician, that is, as an object which is manufactured or repaired or channeled into a desired direction” (Habermas, 2014, p. 52). Genetic enhancement is a one-sided intervention engaging “in the realm of objects” and “genetic interventions involving the manipulation of traits constitute positive eugenics if they cross the line defined by the logic of healing, that is, the prevention of evils which one may assume to be subject to general consent” (Habermas, 2014, p. 52).

Non-therapeutic genetic enhancement does not engage in communicative action with the edited person and therefore does not respect the integrity of individuals. This can be related to Kantian ethics and “the formula of ends of the categorical imperative expresses the claim that every person is to be regarded always at the same time as an end in himself and never to be treated simply as a means” (Habermas, 2014, p. 55). Because genetic enhancement allows no possibility for an interacting attitude of communicative action it can be perceived as violating this formula. Genetic enhancement allows no possibility for parents “to attune themselves, from the participant perspective of a first person, to the other as a second person, with the intention of reaching an understanding with him instead of reifying and instrumentalizing him, in the observer perspective of a third person, for their own ends” (Habermas, 2014, p. 55). Instead, we argue a Heideggerian attitude of *Gelassenheit* is needed

as a response to this to allow “the person be at home, so to speak, in her own body” (Habermas, 2014, p. 57). We argue genetic enhancement disrupts the human being who loses a sense of direction in relation to what is authentic to the self or not, at home in the world or not “denoting center and periphery, the own and the alien. It is the person’s incarnation in the body that not only enables us to distinguish between active and passive, causing to happen and happening, making and finding; it also compels us to differentiate between actions we ascribe to ourselves and actions we ascribe to others” (Habermas, 2014, p. 58). When this sense is disrupted through genetic enhancement, there is a state of ontological confusion and loss of freedom for the human being who is now under the control of technology. Essentially, genetic enhancement is impermissible “as soon as it commits the person concerned to a specific life-project or, in any case, puts specific restrictions on his freedom to choose a life of his own” (Habermas, 2014, p. 61).

Non-therapeutic genetic enhancement gives rise to a new type of paternalism, one that proceeds through an asymmetrical balance of power which does not allow the edited person a possibility to respond to the changes that have been made to their genome. This paternalism comes from the scientific, technological calculative mode of thinking where “the program designer carries out a one-sided act for which there can be no well-founded assumption of consent, disposing over the genetic factors of another in the paternalistic intention of setting the course, in relevant respects, of the life history of the dependent person” (Habermas, 2014, p. 64). The violence of genetic intervention occurs because the ‘enhanced’ person “may interpret, but not revise or undo this intention. The consequences are irreversible because the paternalistic intention is laid down in a disarming genetic program instead of being communicatively mediated by a socializing practice which can be subjected to reappraisal by the person raised” (Habermas, 2014, p. 64).

Paternalistic control enters a new level with liberal eugenics because “the designer makes himself the co-author of the life of another, he intrudes – from the interior, one could say – into the other’s consciousness of her own autonomy” (Habermas, 2014, p. 81). We argue the enhanced person cannot feel at home in the world and construct their own unique and meaningful place because their “freedom has been intentionally changed by a prenatal design” and the parental expectation create a “consciousness of sharing the authorship of her own life” (Habermas, 2014, p. 82). This ontological homelessness as a “alienating dilution or fracturing of one’s own identity is a sign that an important boundary has become permeable – the deontological shell which assures the inviolability of the person, the uniqueness of the individual, and the irreplaceability of one’s own subjectivity” (Habermas, 2014, p. 82). In other words, genetic enhancement crosses the boundary of natality which is “the space in the relationship between generations, which makes the young adult independent of her parents” (Habermas, 2014, p. 82).

The arbitrary preferences selected by parents introduces another issue where the edited person “can regard her own genome as the consequence of a criticizable action or omission. The young person can call his designer to account, and demand a justification for why, in deciding on this or that genetic inheritance, the designer failed to choose athletic ability or musical talent, which would have been vastly more useful for the career that she had actually chosen to pursue” (ibid, p. 83). Furthermore, anyone who suggests this information be withheld from the edited person further objectifies the human

being and disrespects them as an autonomous person. Rejecting genetic enhancement is required because the ‘enhanced’ will feel “bound by the chains of the previous generation’s genetic decisions” (Habermas, 2014, p. 92). Instead, we argue it is important to embrace *Gelassenheit* which “is translated as releasement or equanimity, and it refers to a disposition that blocks us from imposing our will on things and thus opens us up to alternative ways of relating to reality” (Merwin *et al.*, 2018, p. 2). *Gelassenheit* respects the human being in their uniqueness and singularity and does not engage with genetic enhancement which objectifies the human as a thing to be represented, calculated, and produced. Instead, *Gelassenheit* allows each human the freedom to realise their own place and home in the world, unbounded and unchained from genetic enhancement.

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Matthew Gildersleeve, Andrew Crowden

**Genetičko poboljšanje, tehnološka
objektifikacija i Heideggerov *Gelassenheit***

Sažetak

*Ovaj članak povezuje radove Nussbaum, Habermasa i Heideggera u kritici neterapeutskog preinačavanja genoma radi ljudskog poboljšanja. Primjedbe koje iznosi Habermas u svojem djelu Budućnost ljudske prirode proširuju se i dodatno argumentiraju. Pokazujemo kako je 'poboljšavajuće' preinačavanje oblik objektifikacije. Slažemo se s Habermasom da su terapijske primjene preinačavanja genoma dopuštene, ali ne slažemo se s onima koji zagovaraju tehnologiju genetičkog poboljšanja. Analizu nadopunjujemo Heideggerovim shvaćanjem tehnologije, pri čemu pokazujemo da genetičko poboljšanje može biti oblik tehnološkog uokvirivanja koje objektivira i narušava samorazumijevanje, slobodu, autonomiju i mogućnosti preinačene osobe. Umjesto toga, tvrdimo da objektifikaciju genetičkog poboljšanja treba 'osloboditi' od nerođenog djeteta kroz uvažavanje Heideggerove *Gelassenheit*, što svakom čovjeku omogućuje slobodu i priliku da u potpunosti ostvari i razvije svoje neskriveno mjesto i dom u svijetu, umjesto da mu ono bude nametnuto.*

Ključne riječi

genско preinačavanje, poboljšavanje, Martha Nussbaum, Jürgen Habermas, Martin Heidegger, objektifikacija, mjesto

Matthew Gildersleeve, Andrew Crowden

**Genetische Verbesserung, technologische
Objektivierung und Heideggers Gelassenheit**

Zusammenfassung

Dieser Artikel vereint die Werke von Nussbaum, Habermas und Heidegger in einer Kritik an der nicht-therapeutischen Genomeditierung zur menschlichen Verbesserung. Die von Habermas in seinem Werk Die Zukunft der menschlichen Natur vorgebrachten Einwände werden erweitert und verstärkt. Wir skizzieren, wie die „verbessernde“ Veränderung eine Form der Objektivierung darstellt. Wir stimmen mit Habermas darin überein, dass therapeutische Anwendungen der Genomeditierung zulässig sind, widersprechen jedoch den Befürwortern der genetischen Verbesserungstechnologie. Ergänzt wird dies durch Heideggers Technikauffassung, in deren Rahmen wir demonstrieren, dass genetische Verbesserung eine Form des technischen Gestells sein kann, die den bearbeiteten Menschen objektiviert und in sein Selbstverständnis, seine Freiheit, Autonomie und Möglichkeiten eingreift. Stattdessen vertreten wir die Auffassung, dass die Objektivierung durch genetische Verbesserung vom ungeborenen Kind „losgelassen“ werden sollte – durch eine Wertschätzung von Heideggers Gelassenheit –, sodass jedem Menschen die Freiheit und Möglichkeit zukommt, seinen unverborgenen Ort und seine Heimat in der Welt selbst vollkommen zu verwirklichen und darin hineinzuwachsen, anstatt dass diese für ihn geschaffen werden.

Schlüsselwörter

Genomeditierung, Verbesserung, Martin Heidegger, Jürgen Habermas, Martha Nussbaum, Objektivierung, Ort

Matthew Gildersleeve, Andrew Crowden

**Amélioration génétique, objectification
technologique et Gelassenheit chez Heidegger**

Résumé

Cet article articule les travaux de Nussbaum, Habermas et Heidegger pour critiquer l'édition génomique non thérapeutique visant l'amélioration humaine. Les objections de Habermas dans L'avenir de la nature humaine y sont approfondies et renforcées. Nous montrons que l'édition génétique à des fins « d'amélioration » constitue une forme d'objectification. Nous partageons l'avis d'Habermas selon lequel l'usage thérapeutique de l'édition génomique est légitime, mais nous contestons ceux qui défendent la technologie de l'amélioration génétique. La réflexion est enrichie par la perspective heideggérienne sur la technique, qui fait de l'amélioration génétique un « enfermement » technologique (Gestell) objectivant et perturbant la compréhension de soi, la liberté, l'autonomie et les potentialités de la personne modifiée. Nous soutenons au contraire que cette objectification devrait être « relâchée » (Gelassenheit) pour l'enfant à naître, selon Heidegger, afin de permettre à chaque individu de se réaliser pleinement et de trouver sa place et son « chez-soi » dans le monde, plutôt que de les lui imposer.

Mots-clés

édition génomique, amélioration, Martin Heidegger, Jürgen Habermas, Martha Nussbaum, objectification, place