# The Ethics of Genetic Intervention in Human Embryos: Assessing Jürgen Habermas's Approach



Enno Fischer.

#### Abstract

In the near future we may be able to manipulate human embryos through genetic intervention. Jürgen Habermas has argued against the development of technologies which could make such intervention possible. His argument has received widespread criticism among bioethicists. These critics argue that Habermas's argument relies on implausible assumptions about human nature. Moreover, they challenge Habermas's claim that genetic intervention adds something new to intergenerational relationships pointing out that parents have already strong control over their children through education. In this paper a new approach to Habermas's theory is suggested which makes clear that he has a strong point against genetic intervention. A more charitable reading of Habermas with respect to his assumptions concerning human nature is presented. Moreover, Habermas's assumption concerning the power of genetic controlling is evaluated. By means of a close comparison of genetic and educational control it is shown that Habermas's argument relies on much weaker assumptions than generally understood.

 $\begin{tabular}{ll} \textbf{Keywords:} & liberal & eugenics, & J\"{u}rgen & Habermas, & intergenerational \\ equity, & education \\ \end{tabular}$ 

#### Introduction

In the light of recent advancements in stem cell research, genetic intervention in human embryos seems to be possible in the not so far future. Such a technology could develop from methods such as CRISPR/Cas9-mediated gene editing which is already applied to human embryos [14]. We can imagine that such intervention could be performed with the aim

of influencing the features of the prospective human. This could include decisions about the genetic basis of a child's appearance and character.

In recent years the debate on how to deal with such a technology has raged. One prominent position is a view called 'liberal eugenics' (see [1]). According to its proponents, the decision about an intervention should be made exclusively by the children's parents. Liberal eugenics has attracted prominent criticism from Jürgen Habermas [9]<sup>2</sup> who asks whether we should develop technologies for genetic intervention at all. His main point is that this technology would give parents an unprecedented control over their children's life. This brings about a strong asymmetry in intergenerational relationships and has the consequence that genetically manipulated children cannot consider themselves the sole authors of their own life history.

Habermas's position has come under widespread criticism from proponents of liberal eugenics and others. These critics argue that Habermas's argument relies on implausible assumptions about human nature. Moreover, they argue that genetic intervention does not add anything new to intergenerational relationships: the relationship between parents and children is already asymmetric and parents are co- authors of their children's life history through educational influence.

In this paper I will suggest a new approach to Habermas's theory which makes clear that he has a strong point against genetic intervention in human embryos. I will argue that the standard objections to his approach result partly from a misunderstanding of his FHN and partly are a reaction to unnecessarily strong assumptions contained in his approach. In particular, I aim at a more charitable reading of Habermas with respect to his assumptions concerning human nature. Moreover, I suggest a revision of his strong assumptions concerning the control that can be exerted through genetic intervention and the contrast between genetic intervention and educational influence.

In the following, I will first make explicit and discuss the methodological framework in which Habermas addresses the problem of genetic intervention (1). Secondly, I will aim to make the background of Habermas's argument as clear as possible in order to correct common misunderstandings of Habermas's argument. In this light the human-nature-objection will immediately be refuted (2). Thirdly, I will come to a more specific formulation of Habermas's argument against genetic intervention (3). Finally, I will present three central objections to Habermas's argument and, where necessary, suggest a revision of his argument on the basis of which these objections can be overcome (4).

## 1 The problem of genetic intervention

Habermas's approach comes with a set of presuppositions which are worth being made explicit. First, Habermas's essay is primarily directed against preimplantation genetic diagnosis (PGD) and stem cell research that makes use of human embryos. His argument takes a detour: he claims that PGD and stem cell research bring us on a 'slippery-slope' towards genetic intervention and then argues that this is what we surely do not want to happen [9, p. 16]. Thus, the argument can be countered by refuting the 'slippery-slope' claim or the claim that genetic intervention is not acceptable. Debating genetic intervention is the more interesting reaction since they are a burning issue in themselves. Therefore, this essay will focus on genetic intervention in human embryos.

Secondly, it should be noted that Habermas discusses genetic intervention on a highly idealised level. He does not consider problems related to an unequal distribution of access to intervention among the rich and the poor. In addition, he does not deal with issues of possible demographic change (e.g. sex unbalance) and issues of an efficient legal implementation of restrictions. Moreover, Habermas does not account for medical risks that could result from technical imperfections of genetic intervention.

In a broader context, these dimensions of the issue may lead to well justified objections to genetic intervention. In contrast, we can think of Habermas's approach as a thought experiment that presupposes a hypothetical setting where these dimensions are not at issue. The aim is to show that even in that setting genetic intervention is morally problematic.

Since it excludes the above described dimensions, Habermas's argument against genetic intervention is an ambitious project. And as we will see, the high degree of idealisation in Habermas's argument has also disadvantages, in particular, when it comes to the technical dimension. Most importantly, Habermas is unclear about what degree of control he assumes to be achievable through genetic intervention. But before we go into these details let us have a closer look at the background of Habermas's argument.

## 2 Habermas's assumptions concerning the human nature

#### 2.1 The postmetaphysical separation of morality and ethics

Objections to Habermas's argument can partly be preempted through a thorough understanding of his motivation for taking up the issue. In this section I will, therefore, make the background of Habermas's argument as clear as possible.

One important element of this background is a postmetaphysical approach to ethics and politics. This approach makes the observation that in view of today's pluralism of worldviews and individualization of lifestyles we are not able to give holistic metaphysical answers to what makes a good life. In order to be open to such a pluralism, the postmetaphysical approach comes with a separation of what Habermas calls the 'moral question' from the 'ethical question'. The moral question inquires as to the conditions of justice in a pluralistic society. Habermas's own best candidate for an answer to the moral question is based on his discourse ethics. This includes a formal procedure for finding consensus about collectively binding norms that do not depend upon particular substantive metaphysical assumptions. In order to guarantee the success of this procedure, a set of conditions has to be fulfilled which will be addressed in more detail in section 2.2. In contrast, the postmetaphysical ethical question for the good life is asked and answered in private contexts by particular individuals, families or subcultures. The ethical question for the good life is closely connected to a self- understanding: the way an individual or a group understands itself determines what it counts as a good life.

From the postmetaphysical point of view Habermas's reference to 'human nature' comes as a surprise because it suggests that he makes a metaphysical argument. Why do we need such an argument? According to Habermas, it is part of human nature that "the genetic endowment of the newborn infant, and thus the initial organic conditions for its future life history, [lie] beyond any programming and deliberate manipulation on the part of other persons" [9, p. 13]. As soon as we have the genetic endowment at our disposal, this condition of human nature is no longer fulfilled. The question as to whether it should be at our disposal is connected to our self-understanding as human beings and, is thus an ethical question. Moreover, it concerns all humans (not only particular individuals) qua being human. This means that we are confronted with an ethical question which reaches into the moral realm [9, p. 11].

#### 2.2 Habermas on self-understanding and human nature

Currently, it is contingently true that the human genetic endowment is not at our disposal. But why does Habermas think of this as an essential feature of human nature?

One possible approach is to say that human nature is defined through a specific genetic setup. Then intervention in the genetic setup of children would either mean that these children would not count as human beings or that our notion of human nature would have to be adjusted correspondingly. This is how Nicolae Morar [16] understands Habermas. As Morar points out, such a notion of human nature is not plausible. With reference to Lewontin [13] and Okasha [17] he argues that "[t]here is no universally shared micro-structural [genetic] essence that explains the observable properties of human beings" [16, p. 104, second brackets in the original].

But why would Habermas choose such a naïve naturalistic view? In order to make a point against genetic intervention on the basis of a naturalistic understanding of human nature, Habermas would have to ascribe an intrinsic value to the supposed current human genome. That would be an ad hoc assumption and, in fact, is not the path which Habermas follows, as a closer look at his overall argument will reveal.<sup>3</sup>

In contrast, the general idea of Habermas's argument is to show that the corresponding change of human nature undermines the postmetaphysical attempt to give a purely formal account of justice. As indicated in the previous section, Habermas's best candidate for such an approach is found in his discourse ethics. In FHN he does not explicitly refer to this theory. But from his criticism it is clear that this is the background to his argument. In a more recent explanation of his discourse ethics [10, p. 89] Habermas gives four preconditions for an ideal process of negotiation. In the context of genetic intervention only two of them are relevant. The first relevant precondition (Habermas's second) refers to the willingness of every member of a discourse to acknowledge every other member as having in principle equal rights in negotiations. The second precondition (Habermas's third) implies that "all participants are internally free to speak their honest opinion without deception or self-deception" and depends upon the members' autonomy [4].

The precondition of autonomy needs to be further explained for the context of FHN where Habermas refers to Kierkegaard. In order to be autonomous, a person has to reach a state which is described by Kierkegaard as 'being-able-to-be-oneself'. This state can be achieved through a transformation in which the person has to

"gather [herself] and detach [herself] from dependencies of an overwhelming environment, jolting [herself] to the awareness of [her] individuality and freedom. Once [she is] emancipated from a self-induced objectification, [she] also gain[s] distance from [herself] as an individual." (originally formulated in the first person, [9, p. 6]).

This emancipation enables the person to take up responsibility for her own actions and to make commitments in relationships with others. Moreover, it includes finding an understanding of one's own past and making plans for the future. This implies that the person regrets the reproachable aspects of her past and decides to continue those which she can identify with. The idea is that "[e] verything that is posited in [her] freedom belongs to [her] essentially, however accidental it may seem to be" (Kierkegaard, Either/Or cited in [9, p. 7]). In fact, it will turn out later (section 4.2) that certain preconditions have to be accidental (i.e. not intended by another person) in order to allow for a revision that results in autonomy. According to Habermas, Kierkegaard's description of this transformation is sufficiently formal as to count as postmetaphysical because it does not imply a commitment to any specific substantial worldview or lifestyle. The idea is that Kierkegaard's very abstract description fits to all kinds of specific transformations, for example, important life decisions such as choosing and committing oneself to a partner or to a certain profession.<sup>5</sup>

# 3 Habermas's argument against genetic intervention

Now that we are familiar with the background of Habermas's argument we can give a more precise formulation of his criticism against genetic intervention. According to Habermas, proponents of liberal eugenics put a strong emphasis on shielding individual parents' freedom of choice against state oppression. However, they do not take into account that oppression can also be introduced between individuals, in particular, between parents and their children. Such oppression can result from the control that is possible through genetic intervention. In light of the above introduced preconditions of an ideal negotiation intervention is problematic in two ways (see [9, p. 49]).

(A) Genetic intervention brings a strong asymmetry to intergenerational relationships. Through a genetic intervention the parents influence their children in a way that does not allow for a change of roles which would enable children to have a similar influence on their parents' genetic setup. This is a threat to the precondition of equality of an ideal negotiation as introduced above.

(B) The manipulated persons cannot understand themselves as the sole authors of their life history when they know that their genetic setup expresses their parents' intentions and expectations. These intentions are an obstacle in a revision that aims at a coherent self-understanding (in Kierkegaard's sense). Thus, the precondition of autonomy is threatened.

## 4 Objections to Habermas

#### 4.1 Genetic determinism

When Habermas writes of parents who are "programming" their children (e.g. [9, p. 91]), this metaphor indicates that he overestimates the degree of control that can be exerted by means of genetic intervention. Therefore, his concern that parents could have too much control over their children might not be justified [3]. This objection is attracted by Habermas's lack of clarity regarding the degree of control that can be exerted through genetic intervention. As I indicated in section 1, this results from his sidelining the technical dimension. Metaphors like parents "programming" their children indeed give the impression that Habermas believes in an implausible genetic determinism.

However, is the assumption of such a determinism necessary as to maintain Habermas's argument? I think that Habermas's approach can be complemented by a description that evaluates the effectiveness of the hypothetical intervention more clearly and realistically. The desideratum of such a description is, on the one hand, that it does not make genetic intervention appear implausibly efficient. On the other hand, it should describe them as sufficiently efficient as to carry the argumentative burden of Habermas's approach. Thus, I suggest that genetic intervention can be used to choose the *genetic basis* for appearance and character of a child. For the sake of the argument let us assume that the microconfiguration of the genome can be controlled with certainty. Moreover, let us assume that we will at some point know more about the supervenience relations of specific human characteristics and there genetic basis.

In the light of the complexity of the human genome these assumptions are, admittedly, speculative. This however is not a reason to dismiss them. I suggest adopting with respect to technical advancements an approach that may be called 'optimistic meta-induction': previous

generations of humans, say a few hundred years ago, could not foresee the upper bound of today's technical possibilities. Therefore, we also should at least be cautious in relying on such upper bounds. Even if we do not adopt this attitude, the moral question whether we should aim at these technologies with further research remains. Suppose we come to the conclusion that the speculative technologies have unwanted moral consequences. Then research which aims but fails to perfect the effectiveness would have to be condemned in the same way that we condemn for example not only murder but also attempted murder.

It should be emphasised that it is the genetic basis which is assumed to be fully controllable but not the actual characteristics of the children. Genetic intervention cannot, for example, ensure that a beautiful person does not become disfigured through a car accident. Consider also monozygote twins who can develop different characters. On this account of genetic intervention, parents cannot determine their children's appearance or character. However, they will be able to determine the genetic dispositions from which such specific features are more or less likely to develop. When a person knows of these dispositions and knows that they are brought about by her parents, this is sufficient as to make intervention problematic as we will see in the next section.

# 4.2 The analogy to education

An often raised objection to Habermas's argument concerning both A and B is that a child's life history is always strongly influenced by her parents which implies that it is in any case extensively co-authored by the parents. Moreover, the parent-child relationship is asymmetric in the sense that the child will never have an educational influence on her parents which is as extensive as the parents' influence on the child. Therefore, it is concluded, genetic intervention would add nothing new to intergenerational relationships.

This objection has the form of a 'we've always done it (and everything's been okay)' argument as introduced by Erik Parens [18, p. 173]. This argument has the following structure: "if practice X has been morally acceptable in the past [P1], and if practice Y is just like practice X [P2], then practice Y should be morally acceptable now and in the future" (ibid.). Here practice X is influencing children through education and practice Y is the new practice of genetic intervention.

Habermas has often been understood as trying to undermine such an argument by pointing at a false analogy between genetic intervention and educational influence (counter P2). Many critics (e.g. [19, p. 38], [6, p. 39]; [15, p. 89]; [16, p. 106]) infer from Habermas's essay that he argues that in contrast to educational influence genetic influence is *irreversible* (see e.g. [9, p. 14, p. 63]). I think that Habermas's FHN attracts such a criticism since he makes use of an ambiguous notion of irreversibility. In order to counter the criticism I suggest the following disambiguation.

- (1) In a trivial sense educational decisions are as irreversible as genetic intervention. We cannot travel through time to change certain educational decisions, for example, the decision to make a child practice an instrument from an early age on.
- (2) It is a different question whether the *effects* of educational decisions and genetic intervention are irreversible. The effects of practising an instrument from an early age on or not can only be reversed to a certain degree. A person who has not practised in her childhood will always have serious difficulties in keeping up with early practitioners. When we do not want to interpret Habermas's argument as relying on a genetic determinism, we have to admit that the effects of genetic intervention can also be reversed to a certain degree. Thus, according to this sense of irreversibility there is still no difference between educational influence and influence through genetic intervention.
- (3) Habermas's use of the term 'irreversible' suggests a third dimension: the sense which concerns our attitude towards past events in our life history. The underlying notion of 'revision' is derived from what was presented as Kierkegaard's approach to 'being-able-to-be-oneself' (section 2). Such a revision does not make anything undone but refers to our attitude towards past events and their present effects when we reflect about our self-understanding.

Why is genetic intervention problematic in the context of the third notion of irreversibility? Consider a young person who decides to aim at a career as professional philosopher. Assume also that her parents oppose that decision because they think that being a philosopher is a good way to starve for a living. Every stage of the career that the young person thinks is a success may be seen as a development in the wrong direction by the parents. These diverging judgements depend upon different general interpretation schemes which themselves depend upon what counts for them as a good life. Suppose that the parents have influence on their child's genome such that they manipulate it according to their idea of a good life. The young person will then always be confronted with a specific interpretation scheme that is expressed through her genetic

setup. Whenever there is a dissonance between the parents' expectations and the child's wishes, the genetic setup presents an alien element that resists being aligned with the child's desired life history. To avoid this confrontation the parents' choices either have to be made in consent with the child's later plans or the genetic setup has to be accidental as to be free of parents' expectations. That such expectations or intentions can be manifest in manipulated genes is an assumption concerning the effectiveness of genetic intervention (see section 4.1). It should be noted that for intentions to be manifest it is not necessary to assume a genetic determinism. It is sufficient that there is a genetic disposition which gives the child a tendency to develop according to a specific idea of a good life and that the child knows about the manipulation.

En passant we can preempt another objection to Habermas's argument. Part B of the argument is often thought to imply that naturally born children cannot be completely autonomous either since they cannot choose their genes ([20, p. 79 ff.], [15, p. 88]). This objection results from a misunderstanding of Habermas's concept of autonomy which is not to be understood as the mere possibility to choose one's genes. The necessary condition for autonomy is that a person can understand herself as the sole author of her life history. This is possible when the genome is accidental but not possible as soon as it adumbrates any parental intentions that indicate a particular preferred life history.

But is educational influence different from genetic intervention with respect to the third understanding of irreversibility? One could object that parents are also guided by their own ideas and expectations of a good life when they educate their children. When these ideas do not align with the child's later intentions, the influence in early childhood may also pose an obstacle to revision. But is this the case for all kinds of educational influence? This is not the case since educational influence that poses an obstacle to later revision seems to be simply that kind of influence that the child may blame her parents for at a later stage.

Suppose for the sake of the argument that for some educational practices there is no difference between educational influence and genetic intervention with respect to the third sense of irreversibility. Then the 'we've always done it (and everything's been okay)' argument is still on shaky ground. After all, premise P1 that practice X (i.e. certain kinds of educational influence) is acceptable can be doubted. Thus, we can acknowledge the similarity of genetic intervention and educational influence but show that genetic intervention intensifies exactly the reproachable aspects of educational influence. When examples for irreversible

(in the third sense) educational influence are given, they often concern special influence such as intense training of certain specific skills. This influence can surely be as irreversible (even in the third sense) as genetic intervention, however, it is morally questionable for the same reason as genetic intervention is. Consider, for example, parents who drill their children because they want them to be tennis stars. The children might at a later stage not want to be tennis stars. This can make them struggle with the consequences of their early drill, for example, with the fact that they were not allowed to develop broader interests.

Before we develop this argument further let us briefly take stock. There are three different ways of understanding irreversibility. When irreversibility is understood in the first or the second sense, it is difficult to establish a difference between influence through genetic intervention and educational influence. Even for the third understanding of irreversibility we can find examples from education that suggest that there is no difference. However, in order to deny the difference in the context of the third understanding we have to refer to examples of education which are reproachable for the same concerns that are voiced against genetic intervention.

Habermas has to give a reason why genetic intervention would catalyse exactly those features of education that we usually do not take to be acceptable. An answer can be given in terms of showing another difference between educational influence and genetic intervention. Educational influence is necessarily wielded through a communicative space. In principle, this leaves the child the opportunity to refuse or at least show its displeasure with respect to certain educational measures. One might reply that newborn children are not capable of forming an opposing opinion and communicating it. However, the parents will at least suppose that the newborn has desires and they will address them correspondingly. Genetic intervention, on the contrary, is not wielded through a communicative space. It is applied to what is seen as a mere heap of cells. Habermas's point is that this leads to an attitude of designing a child according to the parents' preferences in disregard of the child's potential desires [9, p. 52].

A deeper reason for why Habermas thinks that the communicative space plays such a crucial role can be found in the context of his theory of the 'colonisation of the lifeworld'. According to this theory, decisions in the private sphere become more and more subordinated to the imperatives of the market. For example, these imperatives motivate parents to think in terms of competitiveness when it comes to the education of

their children (see also [2, p. 364]). In his *Theory of Communicative Action* [7, 8] Habermas describes everyday communicative practices (e.g. those involved in education) as an important antagonist to imperatives of rationality that become overly powerful in the lifeworld. In this light genetic intervention is particularly problematic since it is a means of circumventing the communicative space of education. Thereby, it has the tendency to preempt the balancing power of everyday communicative practices.

## 4.3 Consensus and non-therapeutic intervention

The relevance of the communicative space partly explains why Habermas allows for purely therapeutic genetic intervention. He argues that this is acceptable since it can be performed on the basis of a supposed consensus. Finding such a consensus is a very basic instance of a communicative process. Here the parents ask themselves: what would our future child want us to do in this situation?

This gives rise to a further question: why is such a supposed consensus not possible in the context of non-therapeutic intervention? The best possible answer that can be inferred from FHN is that the parents cannot anticipate the child's more specific future preferences. Therefore, the parents cannot exclude dissonances between their intentions as expressed through the genetic setup and the child's later preferences (see [9, p. 61]). When a guaranteed absence of dissonances is the limiting factor to intervention, then Habermas has no reason to oppose an enhancement which under no circumstances would result in dissonances either (e.g. increase of attention span). This is not a surprising insight as it is difficult to oppose enhancement as such. In fact, we are confronted with a spectrum of different kinds of intervention that differ in their risk of causing dissonances. At one end of the spectrum we find kinds of intervention that express specific goals such as being a good tennis player. These may easily result in dissonances. At the other end we find enhancements in the most general sense. These are difficult to oppose. How would Habermas assess the intermediate cases?

Habermas's essay suggests the straightforward answer that we have to exclude all cases with the faintest risk of dissonance. However, we cannot exclude that dissonances come up in the case of therapeutic intervention either. We cannot exclude that a child might reproach her parents for having prevented an impairment, for example, when she is confronted with a situation where such an impairment would have been advantageous. Habermas either (i) has to deny such cases and to presuppose that it is uncontroversial to avoid diseases and impairments (and that it is clear what counts as disease and impairment<sup>7</sup>); or (ii) he has to bite the bullet and admit that even therapeutic intervention is, after all, not acceptable. The problem here is that Habermas's approach is too abstract as to allow for an assessment of the intermediate cases. It tells us only that intervention is reproachable as soon as it brings about dissonances. It does not give a detailed account of the cases in which such dissonances occur. In order to give such an account we would have to loosen the abstract assumptions which were made explicit in section 1. We would have to give a detailed account and say more, for example, for the technical and legal issues of genetic intervention. This indicates limitations to Habermas's approach. However, this issue does not affect Habermas's general concern about genetic intervention. This is the point that genetic intervention bears the risk of causing dissonances and that these dissonances cause asymmetry in intergenerational relationships and undermine children's autonomy.

#### 5 Conclusion

A closer look at the background of Habermas's argument against genetic intervention has revealed that he does not make a presumptuous argument from human nature as suggested by his critics. He has reservations about genetic intervention because it threatens what he takes as uncontroversial preconditions of an ideal negotiation in the context of discourse ethics.

We have also seen that Habermas's essay approaches the problem of genetic intervention on an abstract level. This has the advantage that Habermas aims at explaining intuitions against genetic intervention that are independent of problems in the economic, demographic, legal, and technical dimension. But this abstract approach also attracts widespread criticism among bioethicists since it tends to express a scientifically naïve and overly dramatised view on the effects of genetic intervention. In particular, it is questionable whether humans can be controlled through genetic intervention to the degree that Habermas suggests. Moreover, it has been objected that genetic intervention adds nothing new to what is present in intergenerational relationships through educational influence. Indeed, it has been argued that educational influence is as irreversible as genetic intervention. Finally, the suggested contrast between therapeutic and non-therapeutic intervention is questionable.

This essay has shown that Habermas's position, nevertheless, provides a framework for more clearly expressing reservations against genetic intervention. These reservations rely on much weaker assumptions as often understood. When we support research that aims at technologies which will in its more advanced stages provide efficient means for controlling the genetic basis of humans' characteristics, we have to be clear about our attitude with respect to this still speculative technology. As soon as the manipulated genes express the parents' idea of a good life the child's autonomy is at risk. If it is not the irreversibility which makes genetic intervention problematic (as contrasted with educational influence) then it is the fact that they intensify negative aspects of educational influence because they circumvent the communicative space of educational practices. Finally, the issue of distinguishing therapeutic and non-therapeutic intervention is difficult to respond to from the abstract framework that Habermas chooses for his approach. But this does not affect the general insight that dissonances which are brought about by genetic intervention cause asymmetry in intergenerational relationships and undermine children's autonomy.

#### Notes

- 1 British researchers recently got permission to genetically modify human embryos [21].
- 2 Henceforth Habermas's essay on "The Future of Human Nature" is referred to by 'FHN'.
- 3 Morar picks up on misleadingly formulated passages from Habermas's essay. A more charitable reading as presented above indicates that Morar's criticism against Habermas's supposed kind essentialism misses the point.
- 4 Habermas's discourse ethics is not uncontroversial. An assessment of this very general theory would go beyond the scope of this paper. Suffice it to say that Habermas's argument relies at least to certain extend on this theory.
- 5 Though postmetaphysical in its structure, Kierkegaard's description of the transformation is deeply theological. Habermas picks up on Kierkegaard's atheist existentialist successors and suggests a deflationary understanding of this theological element in linguistic terms [9, p. 10].
- 6 Habermas gives such a reply in the postscript of FHN [9, p. 84].
- 7 Consider, for example, the case of parents who decide to have a deaf child so that it can be part of the deaf society [5, p. 122].
- 8 I am grateful to Tim Lewens, Tobias Schönwitz and Sören Hilbrich for many helpful comments that improved this article.

Enno Fischer
University of Cambridge
Department of History and Philosophy of Science
Free School Lane
Cambridge CB2 3HR
<enno.fischer@cantab.net>

## References

- [1] Nicholas Agar. Liberal Eugenics: In Defence of Human Enhancement. New York: John Wiley & Sons, 2008.
- [2] Vilhjámur Árnason. "From species ethics to social concerns: Habermas's critique of "liberal eugenics" evaluated". In: Theor Med Bioeth 35 (2014), pp. 353-367.
- [3] Dieter Birnbacher. Habermas' ehrgeiziges Beweisziel ereicht oder verfehlt? DZPhil 50(1) (2002), pp. 121-126.
- [4] James Bohman and William Rehg. "Jürgen Habermas". In: The Stanford Encyclopedia of Philosophy, Edward N. Zalta (ed.), URL (http://plato.stanford.edu/archives/fall2014/entries/habermas/).
- [5] Allen Buchanan, Dan W. Brock, Norman Daniels, Daniel Wikler. From Chance to Choice. Genetics & Justice. Cambridge: Cambridge University Press, 2000.
- [6] Elizabeth Fenton. "Liberal Eugenics & Human Nature. Against Habermas". In: Hastings Center Report 36(6) (2006), pp. 35-42.
- [7] Jürgen Habermas. The Theory of Communicative Action. Vol. I: Reason and the Rationalization of Society. Translated by T. McCarthy. Boston: Beacon, 1984.
- [8] Jürgen Habermas. The Theory of Communicative Action. Vol. II: Lifeworld and System. Translated by: T. McCarthy. Boston: Beacon, 1987.

- [9] Jürgen Habermas. The Future of Human Nature. Translated by W. Rehg, M. Pensky and H. Beister. Cambridge: Polity Press, 2003. Translated form: Die Zukunft der menschlichen Natur. Auf dem Weg zu einer liberalen Eugenik? Frankfurt am Main: Suhrkamp Verlag, 2000.
- [10] Jürgen Habermas. Zur Architektonik der Diskursdifferenzierung. Kleine Replik auf eine große Auseinandersetzung. In: Jürgen Habermas: Zwischen Naturalismus und Religion. Frankfurt am Main: Suhrkamp Verlag 2005, p. 84- 105.
- [11] John Harris. Enhancing Evolution. The Ethical Case for Making Better People. Princeton: Princeton University Press, 2007.
- [12] Maureen Junker-Kenny. "Genetic Enhancement as Care or as Domination? The Ethics of Asymmetrical Relationships in the Upbringing of Children". In: Journal of Philosophy of Education, 39(1) (2005), pp. 1-17.
- [13] Richard Lewontin. Biology as ideology. New York: Harper Perrennial, 1992.
- [14] Puping Liang, Yanwen Xu, Xiya Zhang, Chenghui Ding, Rui Huang, Zhen Zhang, Jie Ly, Xiaowei Xie, Yuxi Chen, Yujing Li, Ying Sun, Yaofu Bai, Zhou Songyang, Wenbin Ma, Canquan Zhiu, Junjiu Huang. "CRISPR/Cas9- mediated gene editing in human tripronuclear zygotes". In: Protein Cell, 6(5) (2015), pp. 363-372.
- [15] Matteo Mameli. "Reproductive cloning, genetic engineering and the autonomy of the child: the moral agent and the open future". In: J Med Ethics, 33 (2007), pp. 87-93.
- [16] Nicolae Morar. "An empirically informed critique of Habermas' Argument from Human Nature". In: Sci Eng Ethics 21 (2015), pp. 95-113.
- [17] Samir Okasha. "Darwinian Metaphysic: Species and the question of essentialism". Synthese 131(2) (2002), pp. 191-213.
- [18] Erik Parens. "Should We Hold the (Germ) Line?". In: Journal of Law Medicine & Ethics 23 (1995), pp. 173-176.
- [19] Bernard Prusak. "Rethinking "Liberal Eugenics": Reflections and Questions on Habermas on Bioethics". Hastings Center Report 35(6) (2005), pp. 31-42.

- [20] Michael J. Sandel. The case against perfection: ethics in the age of genetic engineering. Cambridge, MA: The Belknap Press of Harvard University Press, 2007.
- [21] The Guardian (01/02/2016): British researchers get green light to genetically modify human embryos. URL:  $\langle \text{https:}//\text{www.theguardian.com/science/} 2016/\text{feb}/\rangle$ .