

“Gattaca” and the Problem of Genetic Enhancement

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Abstract

Andrew Niccols's movie Gattaca (1997) inspired the formulation of the “Gattaca Argument” concerning the negative outcome of biotechnology, which has since been critiqued especially in the context of transhumanism and posthumanism. According this argument the development of genetic enhancement will produce a genetic discrimination and lead us to serious form of inequality. However, in particular transhumanists deny that here are reasons to worry and advocating instead the transformation of human condition in terms of genetic enhancement. Moreover, they question that genetic enhancement will necessarily lead to social inequality. In what follows, we will reexamine the Gattaca Argument and its critiques based on the movie in order to reassess the role the movie plays in the subsequent scholarly discussion. We will argue that existing critiques fall short of capturing the problem posed in the movie – the problem of the inhumane. Based on a hermeneutic approach to the movie we will both reconstruct the arguments and evaluate the transhuman counterarguments in terms of modern history of philosophical ideas.

Keywords: *Biotechnology, Genetic Enhancement, Transhumanism, Philosophy, Film*

1. Introduction

Starting with a preliminary remark: Numerous discussions with students, fellow students and colleagues in the context of seminars and conferences make a classical philosophical claim virtually empirically tangible: the question of technology is one of the core questions of mankind. However, despite the diversity of opinions, it is obvious that there is a vital and interdisciplinary interest. The question of the impact of technical progress on our lives leaves nobody cold. And, fortunately, there is also the prospect of growing awareness that the question of the role of technical progress for humankind cannot simply be answered technically. Technical knowledge here reaches a limit that is not technical but so to speak epistemological. Of course, this is not to be described as a lack or disadvantage, but soberly as an indication of the enduring importance of humanities in the universe of knowledge. – Based on a former philosophical film interpretation of Andrew Niccols's movie "Gattaca" (1997) and its narrative form the following paper would

like to contribute to the general interdisciplinary discussion with a more focused systematic analysis of the so-called “Gattaca argument”, which deals with the evaluation of the genetic enhancement[1]. By referring to the movie "Gattaca" (1997), which inspired the formulation of the so-called Gattaca argument, we would like to promote, in the sense of the film - and more generally: in the sense of art – to consider the challenges of the technique for the human being more concretely, i.e. in their multidimensionality.

The “Gattaca Argument”, that genetic enhancement will produce a genetic discrimination and social inequality has been critiqued especially in the context of transhumanism and posthumanism. In what follows, we will reexamine the Gattaca Argument and its critiques based on the movie in order to reassess the role the movie plays in the subsequent scholarly discussion. We will argue that existing critiques fall short of capturing the problem posed in the movie – the problem of the inhumane. After a short summary of the movie (2) we will present counterarguments against the “Gattaca Argument” (3) and we will outline another viewpoint represented and endorsed by the movie – the very modern *problem of the inhuman* – which leads us (4) to a critical reevaluation of the counterarguments and (5) to an extending of the theoretical framework in terms of a modern philosophical discourse.

2. Where the “Gattaca Argument” comes from?

What is “Gattaca” about? It's a science fiction movie set in the near future, using mostly monochrome and gloomy images to tell the story of Vincent, a young man trying to hide his genetic 'deficiencies'. He assumes the false identity of the genetically 'perfect' 'Jerome' in order to pursue his dream job of being an astronaut on a manned mission to one of the moons of Jupiter. The movie portrays a world of class distinctions between genetically 'optimized' human beings and those who inherited their characteristics solely 'naturally'. Despite laws to the contrary “invalids”, i.e. people lacking a genetically optimized make-up, are discriminated against, and only those possessing genetic enhancement are given the chance to compete for advancement and top-tier jobs. This segregation is called 'genoism' in the movie, and Vincent tries his best to nullify it. He works out hard and illegally obtains the identity of 'Jerome', who is confined to a wheelchair after an accident and lives in seclusion. Jerome sells Vincent his identity, including the genetic material needed to pass the tests to become an astronaut. Vincent then does indeed pass all the requirements and is hired by the cosmonautics company “Gattaca”. Effort, sheer luck as well as the discreet support of the few people knowing about his true identity allow him to escape a murder investigation threatening to expose his false identity. Chief investigating officer happens to be Vincent's genetically 'perfect' brother Anton, who at first does not recognize Vincent as he believes him to be long dead. In the end Vincent takes off to his moon of Jupiter, while the real Jerome immolates himself.

The very name 'Gattaca' conceals the first hint at the technology, or more specifically the technological knowledge, that inspired this dystopian vision: the letters are part of a DNA sequence. The letters of the word 'Gattaca' stand for the four nucleic acids found in the human genome: G = guanine, A = adenine, T = thymine, C = cytosine [2]. The movie's title and plot refer directly to the debates of the late 1990s witnessing the decoding of the human genome [3]. The movie expresses the rising concern at that time about the consequences of the new knowledge; indeed, through its particular aesthetic-narrative means it renders the topic in a paradigmatic form and, as mentioned above, coins the term, 'genoism' [4]. The fictional world of Gattaca is suffused with the widely shared worry that the decoding of the human genome might entail a grave intrusion upon, our self-directed lives. Genetic enhancement, i.e. optimizing the genetic make-up of a child as selected by the parents and implemented by medical scientists, can be openly advantageous to a genetically 'optimized' child (e.g. Vincent's brother Anton), but indirectly harmful to a genetically 'natural' child (e.g. Vincent) – an idea Gattaca portrays and problematizes using fundamental human relationships and

actions. The talk of genetic 'optimizing' is of course highly problematic and raises the question what the criterion for the 'optimal genome' could be and whether such a criterion is even possible. We use the expression 'genetic optimization' solely to illustrate the predominant perspective employed in the narrated world of *Gattaca*: Vincent's parents want to have another child, to be born without a congenital heart condition and defective vision. They are therefore willing to resort to genetic engineering to 'make the most' of their genetic possibilities. One of the strengths of the movie is to anchor the problem of genetic engineering in parental concerns with which anyone can readily empathize, rather than exploring exotic possibilities [4]. The different aspects developed in the movie converge in the thesis that genetic enhancement leads to genetic differentiation which ultimately results in social discrimination and deep divisions along class lines. *Gattaca* openly endorses a critical perspective on the genetic engineering of humans, a perspective which posits a constitutive relationship between genetic modifications and social discrimination. This viewpoint is known as the "Gattaca Argument".

3. Transhuman Counterarguments against the "Gattaca Argument" and another viewpoint of "Gattaca"

The movie endorses the argument that genetic enhancement of humans does not lead to a more humane world but rather to the opposite, i.e. inequality and contempt of 'inferior' human beings. Of course this critique was met with a response from those interpreting the technical possibilities much more optimistically. Transhumanists, for instance, defend a decidedly more optimistic position: dismissing the essentialist presuppositions of the humanist conception of human beings as too narrow, they attempt to overcome this view and instead advocate unconstrained evolutionary process supported by modern technological means. Transhumanist optimism includes a positive evaluation of genetic enhancement and is thus diametrically opposed to the viewpoint expressed in *Gattaca*.

The transhumanist can avail herself of two seemingly easy responses to the Gattaca Argument. In a simplified form, the Gattaca Argument claims that genetic enhancement is evil because it leads to social inequality. In order to carry her point of justifying genetic enhancement, the transhumanist can either argue that the causal connection is by no means compelling, or that social inequality is not an evil. The latter claim may seem cynical but is in fact a classical argument. I will return to this later.

The first counterargument is developed by transhumanist James Hughes [5]. Hughes emphasizes that the relationship between genetic enhancement and social inequality is not a necessary one. Indeed, he advocates further development as well as the ubiquitous use of genetic enhancement by limning its positive effects – effects of the kind that moved Vincent's parents to have their healthier child Anton designed for them. It is not easy to condemn these effects unless one subscribes to a heroic fatalism of submitting to suffering, as practiced in many religious or economic-competitive worldviews. In the final analysis Hughes's argumentation rests on the premise that social inequality can be remedied by policies prescribing a universal and just distribution of goods, including equal access to genetic engineering. In short, if access to technological resources is equally granted to all and everyone's data are sufficiently protected, there never need be any inequality. However, even if it is true that the problems of social class-divisions can be avoided by implementing appropriate mechanism of allocation, in terms of the narrative world of *Gattaca* the transhumanist argument is rather unconvincing.

How do these doubts arise? If we look more closely at the narrative structure of the movie, it becomes clear that it involves two types of story. On the one hand, the movie is essentially about showing a desired state or life goal that seems to have no place in the given world but is nevertheless realized. In this regard the narrative world of *Gattaca* includes a utopian element. On the other hand, however, *Gattaca* is without doubt

a dystopian movie. For its fictional world does not just close with the fulfillment of an individual's dream of a lifetime. Rather, it displays one human being's story through the prism of his social relationships and thus reveals the fragile aspects of an ostensibly self-sufficient individual. Indeed, in its totality the world of Gattaca also discloses the inhumane side of its narrative world and confronts us with a dystopian element.

In this way the humanist's optimistic interpretation of genetic engineering (a utopian element) is contaminated with a pessimistic interpretation (a dystopian element). Genetic engineering thus no longer functions only as the condition by which the humanist project can prove its worth and be continued, but it also becomes the driving force of the inhumane, threatening to ruin the humanist project. In the narrated world of Gattaca genetic engineering appears humane on the surface – the narrative of the movie makes this plausible in the form of the parents' wishes which are supported by a friendly genetic scientist. Indirectly, however, it proves to be inhumane and damaging—'indirectly' means: through its impact on various dimensions of the social world. The movie traces the development of a system of social relationships which we can only enumerate here without discussing them further: (1) parent-child relationships, (2) sibling relationships, (3) Employer-employee relationships, (4) friendship, and (5) romantic relationships.

Looking more closely at the story developed around this typology of social relationships does not yet yield an argument against the transhumanist critique, but it does yield another question. For the tension unfolding in the narrative points towards a different problem than the one on which the Gattaca Argument picks up (to which transhumanism responds). For the question is not, or not only, whether genetic engineering results in social inequality, but rather whether it results in an inhumane world. Put bluntly, the movie encourages the suspicion that the techno-scientific achievement of genetic enhancement fosters neither humanism nor transhumanism, but rather becomes a function of the inhumane. In the movie's dystopian streak this perspective is reinforced by the idea that the impact of genetic enhancement on society extends to every type of social relationship and significantly damages the social prerequisites for personhood. This might be considered an exaggeration; still, it doesn't change the fact that from this perspective the transhumanist response is not really convincing. As argued elegantly by Hughes, the transhumanist argument for genetic enhancement presupposes a world of free individuals (persons) who utilize democratic processes to come to an agreement about the way in which potential negative effects can be limited by redistribution and data protection. It is precisely this premise which is questioned in Gattaca: here it is certain neither whether such political mechanisms are sufficiently powerful (in the narrated world they are not) nor whether there are ultimately any people left who can initiate such political processes. If one chooses to employ the premise of a world of free individuals then it can and should be convincing in some way—yet it isn't in the world of Gattaca. Rather, *sub specie inhumanitatis* Gattaca requires a line of argument that accounts for the fact that said premise cannot at all be presupposed as certain. This requirement must be taken seriously and cannot be brushed aside by the mere invocation of the narrative form in which it is presented. To point out that it is “just a story” and not a scientific argument will not weaken the essential question raised by it.

4. An Evaluation of the Counterarguments inspired by “Gattaca”

There's a certain irony in the fact that the transhumanist counterargument overlooks both the dystopian and the utopian element of Gattaca. Not only is the provocation of a viewpoint *sub specie inhumanitatis* not registered, but the ignorance in this respect shows up as naiveté in another respect. Let us look once more at the two ways of countering the Gattaca Argument.

(1) One might consider the Gattaca Argument as a slippery slope argument, according to which the movie warns, as it were, to be cautious of one's beginnings, i.e. it argues that genetic enhancement would introduce a number of automatic processes through which we will gradually lose our freedom. On this interpretation,

countering the argument seems easy. A slippery slope argument is not compelling but merely indicates a possibility. If in addition it is pointed out that we are dealing with 'science fiction' and that 'in reality' no loss of freedom has occurred, the argument seems to be defeated. However, Gattaca is actually more intelligent in its theoretical content than the mentioned critique here. Not only does this critique employ the above-mentioned premise—which is precisely being questioned here—and therefore misses the point, but it also does this rather more naively. For at closer inspection, Gattaca does not want to leave us in the dystopia it depicts, but rather, as already mentioned, contrasts it with a utopian element in which the human subject and his free will ultimately remain intact [117]. The opponents of the Gattaca Argument operate under the same assumption. Yet this critique involves a theoretical position of naïve realism about freedom not found in Gattaca itself, even though the movie is dismissed as 'science fiction'. Gattaca simply uses a classical narrative character, which moreover is standard in Hollywood productions. To posit this narrative character as a reality without any theoretical reflection must be called a naïve thing to do – a naïveté which, ironically, converges with the fictional world of Gattaca.

(2) The assumption that there is a human subject whose free will is essentially inviolable need not be naïve, however. Still, in the context of the problem posed in Gattaca, even an elaborate metaphysics of freedom will not necessarily deliver more perspicacious arguments. For the difficulty lies in the fact that any metaphysical claim that assumes freedom of will to be a basic given, not inferable from anything else, must entail that all the problems thematized in Gattaca are essentially secondary and hence ultimately not too serious. For what could be serious if the subject's free will is unassailable? Any forms of social inequality caused by genetic enhancement would not be an exception here. Even assuming this presupposition, one might argue with Fichte that neither any initial biological nor social inequality poses an essential problem since the ultimate aim is merely to realize a general political freedom in society via these inequalities; a political freedom rooted in our essentially free will [7]. Given the assumption of inviolable free will, the fact that these inequalities might be caused by a specific technology plays at most a secondary role. Just like the liberal, who employs a negative conception of freedom, as well as the religious dogmatist, for whom divine providence precedes human freedom, those defending a metaphysics of freedom are essentially certain of their immunity to the technological determination of human beings.

All these optimistic assumptions are more or less present in the utopia of Gattaca. What is common to all of them is that their premises are not subject to radical questioning *sub specie inhumanitatis*. They constitute an ideological safety net, as it were, which Gattaca uses to allow us to take a deeper look into the inhumane without getting lost in it.

5. Gattaca and Modernity

What might be discovered if we do not try to shield ourselves from the challenge of the inhumane? This question touches on an historical context specific to modernity. The history of modernity, especially the history of post-metaphysical modernity beginning in the 19th century, questioned traditional views of human nature that had been comparatively stable and brought into view a possible abyss of inhumaneness. Hence human beings and their essential nature could no longer be assumed to be certain reference points. Different versions of this basic thesis of inhumane processes were developed in which previously accepted views of human nature were in danger of getting lost as merely derivative, secondary forms. The idea of deterministic, predominantly inhumane processes is explored for instance by theorists such as Schopenhauer and Nietzsche, who conceive of these processes without essential reference to technological innovation, as well as Marx and Heidegger, who specifically include technology as a characteristic of inhumane processes. What is of special interest in the context of the Gattaca Argument is the fact that this idea of the inhumane has been

reconsidered in the context of postmodernism. In particular, Jean-Francois Lyotard has critiqued the dominance of a techno-scientifically driven humanism and reminded us of the question of the inhumane [8]. He draws our attention to a crucial point: the inhumane, which ultimately jeopardizes the forms of indetermination from which freedom can grow, follows straightforwardly from the logic of precisely that modern knowledge that initially promised humanization. Lyotard's subsequent analyses of the totalizing logic of the inhumane involve the uncovering of a different way of thinking which it behooves us to recap here.

Right from the start modernity tied its view of human nature to knowledge. Knowledge ultimately unfolds in the form of action ('knowing is acting'), which triggers the fear of unpredictable consequences. It is therefore clear that knowledge occupies a key position in the modernist theory. More specifically, two forms of knowledge are of interest here: first, the kind of knowledge that enables and guides action, and second, the kind of knowledge that allows us to gauge the possible consequences of our actions and thus allows us to curtail our fear. In contrast to the epistemological simplifications of techno-scientific totalization, it is greatly to Lyotard's credit that he describes the conditions a theory would have to meet in order to do justice to the concealed heterogeneity and to conceive adequately of a state of affairs that goes beyond the naïve logic of technological optimization. The crux of the matter is that any adequate system of thought must be capable of accounting for different orders of knowledge. To put the crucial point concisely: only if different orders of knowledge can be conceived in a non-reductionistic relationship to each other does one stand a chance of escaping the totalizing effects of the inhumane and of giving room to the indetermination of freedom. In the language of Gattaca, in order to escape the inhumane, one must not count on techno-scientific logic to solve all one's problems; indeed, this assumption is part of the problem. Rather, one's primary concern must be to analyze carefully the different orders of knowledge that come into play when diverse social and normative orders meet the technical order. The movie raises precisely these questions, and the transhumanist maxim of founding decisions purely scientifically [9], while disregarding emotional factors, reveals just how far its good intentions fall short of accounting for what had already been acknowledged *sub specie inhumanitatis* by modernity.

It remains to ask: what stance, then, does Gattaca ultimately take? The movie's twofold narrative perspective engages the view of the inhumane espoused by modernity while largely preserving its humanist premises. This puts the movie at odds with transhumanism's optimism about technology, but also with (post)modern critiques of technology and with postmodernism. By no means does Gattaca mark a turning-point of modernity; it does, however, serve as an interesting focal point for the contemporary discussion. Like Niccolò's subsequent science fiction movies, it attempts to penetrate as deeply as possible into the problem of the inhumane and to uncover tensions lying beyond homogenizing language games, all the while preserving the premises of humanism. It therefore constitutes an important contribution to the transhumanist debate as well. Watching the movie we can see that the techno-scientific language game is insufficient as a tool to describe the problem (let alone solve it). The Gattaca Argument is ultimately convincing not as an argument but as a reminder of the fact that there is more than one order of knowledge in play here, which it behooves anyone to remember who does not want to undercut modernity's reflection on the inhumane.

6. Conclusion

Sensitized by the film "Gattaca" the revision of the counter arguments against the "Gattaca Argument", which questions the effects of genetic discrimination and social inequality, led to two conclusions: (1) The transhumanist counterarguments operate on premises (autonomous individuals) that are being questioned by

the film (see the problem of the inhuman, that is, a structural context that sabotages the possibility of autonomous individuals), and therefore cannot adequately convince. (2) The expansion of perspectives suggested by the film raises the awareness of a specific problem of the (post)modern history of ideas: the insight into an irreducible heterogeneity of the orders of knowledge. Against this ideological background, transhumanist argumentation turns out to be reductionist and therefore problem-enhancing, and not problem-solving.

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