

Genetics – the Slippery Slope to Eugenics?

Genetics is a highly topical and debated field owing to the potential benefits and risks that come with it. One of the main arguments against genetics is the slippery slope argument, and there have been claims that steps that have already been taken could be the start of a slippery slope leading to a dystopia such as the one portrayed in Niccolò's *GATTACA*¹, where genetic discrimination or "Genoism" is commonplace and an underclass of genetically inferior people has been created. This may seem futuristic and detached from reality, but a case has already been heard in a court of law in present day society. To ensure the prevention of a *GATTACA*-esque dystopia, legislation needs to be put in place to formalize the ownership of genetic information in a way that can both benefit society and protect the privacy of the individual. This essay seeks to explain the slippery slope argument, citing examples of it in genetics. Then to consider two opposing theories of property and how they might be reconciled in a third theory, leading to the benefits of genetic study without the associated risks to the individual.

Those that have objections to genetic studies often cite a slippery slope argument as to why scientists should not carry out the procedures that are currently possible, nor look to advance the field. To understand how this argument functions and to analyse it, the basics of the slippery slope must first be understood.

All slippery slope arguments are a form of 'an argument from negative consequence'. This means that if an agent does A, it is likely to lead to B, which is a negative outcome and therefore the agent should not do A. However, a slippery slope argument is a special type of argument from negative consequence: they have the feature of a grey area in which control

of progressing from one step to the next is lost and the final catastrophic step will inevitably be reached. Douglas Walton explains the basic argumentation scheme for a slippery slope argument as follows:²

Initial Premise: An agent α is considering carrying out an action A_0 .

Sequential Premise: Carrying out A_0 would lead to A_1 , which would in turn lead to carrying out A_2 , and so forth, through a sequence $A_2, \dots, A_x, \dots, A_y, \dots, A_n$.

Indeterminacy Premise: There is a sequence $A_0, A_1, A_2, \dots, A_x, \dots, A_y, \dots, A_n$ that contains a subsequence A_x, \dots, A_y called the grey zone where x and y are indeterminate points.

Control Premise: α has control over whether to stop carrying out the actions in the sequence until α reaches some indeterminate point in the grey zone A_x, \dots, A_y .

Loss of Control Premise: Once α reaches the indeterminate point in the grey zone A_x, \dots, A_y , α will lose control and will be compelled to keep carrying out actions until she reaches A_n .

Catastrophic Outcome Premise: A_n is a catastrophic outcome that should be avoided if possible.

Conclusion: A_0 should not be brought about.

An example in genetics of a slippery slope has been debated recently in the UK. On the 3rd February 2015, the UK became the first country to allow mitochondrial donation for three-

parent IVF. The procedure is for mothers with genetic faults in their mitochondria and would stop them from passing this on to their child. The vote passed 382 to 128 in Parliament.³ In this case, the slippery slope argument which was brought forward by *The Economist*, states that this is “the first step on the road to designer babies”.⁴ The article then continues to say that this argument is “as weak as any other slippery-slope argument [as] approving one procedure does not mean automatically approving others.” However, relating back to how Walton sees the slippery slope argument, in this case the argument seems weak is because it is so compressed. This means that we do not know the steps between mitochondrial donation and the catastrophic outcome: that we reach a stage where eugenics akin to Nazi medical policies becomes legally acceptable.

Another example of a genetics slippery slope is highlighted in the movie *GATTACA*, in which genetic information is so well understood that it leads to discrimination.¹ Designer babies have become the norm, and to be born “the natural way” puts you at a disadvantage compared to everyone else who has been designed by scientists to be as healthy, intelligent and desirable as possible. The dystopian film represents what many people with concerns about genetics would consider to be the catastrophic bottom of the slippery slope. The film shows the potential social impacts of having an imperfect genome if the bottom of the slippery slope is reached: it is impossible for someone with an imperfect genome, which could mean an increased chance of a heart condition for example, to get any job that isn’t unskilled labour. It is possible that leading up to the movie, genetic engineering was used to eliminate a certain hereditary disease, yet through a series of other steps it has ended up that every child is now selected as “the most suitable candidate” of the embryos shown on a screen. The choices they then have include gender, eye colour, hair colour and skin colour.

In addition to this, the geneticist has removed any tendency towards premature baldness, alcoholism and addictive susceptibility. The parents then voice their concern and say that they only wanted to avoid diseases, but leave the rest to chance. At this point, and here is where it seems catastrophic – the geneticist practically pressures the parents into taking all the extra choices as they need to “give [their] child the best possible start”. This shows that society has got to a point where to not select every characteristic of a child puts them at a huge disadvantage to their peers as it is now the social norm to do so.

Whilst we may not be at the bottom of the slippery slope of eugenics just yet, GATTACA also raises some questions about how careful we need to be with our legislation to avoid discrimination in what evolutionary biologist, Professor Richard Dawkins, describes as “The Age of the Genome”.⁵ The film calls discrimination based on genetics “Genoism”, and the audience is told “no one takes the law seriously”, as Vincent, a character who has not got a perfect genome, enters a job interview. The film then goes on to say that if you don’t tell the potential employer about a condition, there are many other ways of finding this information out, from a handshake, to residue left on the door handle, or even using “a legal drug test [to] become an illegal peek at your future in the company”. This may all seem very futuristic and not like something we must worry about now, however a case has been heard in 2015 which set a precedent for future cases of “Genoism”. In what has been dubbed the case of the “Devious Defecator”⁶, Federal District Judge Amy Totenberg heard of two employees suing their employers for violating the Genetic Information Non-discrimination Act (GINA).⁷ The case was that it was suspected that a “disgruntled employee” had been defecating in the warehouse and the company wanted to find out who it was. In this case, there was no actual “Genoism”. Instead, what the company, Atlas, was

trying to do was use cheek swabs to try to match the DNA of an employee to the DNA found in “offending fecal matter”. The DNA that Atlas took from the two men exonerated them of any wrongdoing, however GINA was violated for another, much more GATTACA-esque reason: Now that the company had unrestricted access to the men’s genetic material, it could be used to do exactly what occurred in GATTACA. Even more disconcerting than that: GINA only forbids the act of *asking* for DNA, which leaves employees open to more backhanded ways of obtaining DNA such as a legal drug test.

Once a company has access to someone’s genetic information, it is then free to mine it for any known genetic defects or predispositions and as such this is valuable information. It is also valuable information in the biotechnology industry, as discovering a gene linked to a condition could lead to a cure being found for that disease. As such, biotech companies are very keen to get hold of this information, a fact being utilised by genealogical data company Ancestry which launched AncestryHealth in 2012. The site is a free service which aims to use genetic data to compile a complete family health history. However, the company has been very open about its intentions towards the data stating that they are “definitely in conversations with multiple groups to assess the value and interest of the information for medical research.”⁸ With the value of the data clear and the potential impact on society of this information being available, the law will have to address the issue of who owns genetic information or else the information could be abused as seen in GATTACA.

When it comes to genetic ownership, it has not yet been decided which arm of the law should be responsible, however Jessica Roberts suggests that it could be Property Law.⁹ She doesn’t suggest that it should be property, however she is currently making a “more

meaningful inquiry” into the subject. However, supposing that we treat genetic information as property, Roberts looks at how property rights should be allocated. The two conflicting parties at this point in the bid for who owns genetic information is the biotechnology companies and the donors of the genetic material. Roberts suggests that the two are applying two different theories of property and therefore the conflict cannot be resolved: The biotechnology companies see genetic information as a purely economic resource and therefore are more in keeping with the labour theory of property, whilst the donors see it rather as a dignitary resource, which is based on the personhood theory of property.

Labour theory of property

In this case, the biotechnology companies believe they have ownership claims over genetic information. This is because it is the researchers within the company who have produced the genetic information from the raw material they were provided. The theory was first written out by John Locke who described it as follows:

“Though the Earth, and all inferior Creatures be common to all Men, yet every Man has a Property in his own Person. This no Body has any Right to but himself. The Labour of his Body and the Work of his Hands, we may say, are properly his. Whatsoever then he removes out of the State that Nature hath provided, and left it in, he hath mixed his Labour with and joined to it something that is his own, and thereby makes it his Property. It being by him removed from the common state nature

placed it in, it hath by this labour something annexed to it, that excludes the common right of the other man.”¹⁰

By this he essentially meant that if we own ourselves, then we own our labour and therefore anytime we mix something from nature with our own labour then we have claim to ownership of it. In the case of the genetic information, the people working at the biotechnology companies took the raw genetic material and have taken that part of nature and mixed it with their labour to produce the genetic information. Under Labour theory, therefore, claiming ownership of it.

Personhood theory of property

The personhood theory of property suggests that there are certain things that a person must have ownership or control of for their self-development and fulfilment as a human being. Therefore, in this case the genetic source has ownership of their genetic information because they require it to be a self-fulfilled person. Hegel theorised that “property is the embodiment of personality”, by which he meant that the system of private property establishes individuality and personality through contracts formed around said property and exchange of property between individuals.¹¹

Welfare-maximisation theory of property

The third theory of property is one that seeks to find a balance between these competing theories. It has been argued by Calabresi and Melamed that “society can distribute legal

entitlements along at least three different kinds of metrics: economic efficiency, distributional goals, and justice-oriented concerns”¹². By this they continue to say that utilitarianism is providing that legal rights and entitlements should go to the individual “who values them most highly.”¹² In the case of genetic ownership therefore, a balance would need to be struck between the individual whose genetic information can reveal sensitive information about them and/or their family against the fact that on a social level it is the effects of the genetic information that researchers need to improve healthcare.

To try to prevent the dystopia portrayed in GATTACA from becoming a reality, ownership of genetic information needs to be formalised in the law to ensure that genetic discrimination does not prevail in society. This would therefore put a stopper in place to ensure that the slippery slope argument never reached its catastrophic conclusion of “Genoism”.

In conclusion, although there are legitimate fears about a loss of control over genetic technologies leading to genetic discrimination, the nature of a slippery slope argument is that there is a point at which the agent loses control, as explained by the loss of control premise. I would argue that developments such as mitochondrial donation have not yet reached that point and so society still has control over the progression of genetics. In order to make sure that the point of loss of control is not reached, genetic ownership needs to be formalised in the form of legislation to enable the benefits of genetic studies without compromising the right of the individual to genetic privacy. The suggestion here being a utilitarian approach to property law leading to society structuring property institutions to generate the most net utility for both the individual and society.

References

1. GATTACA. Dir. Andrew Niccol. Perf. Ethan Hawke, Uma Therman, Jude Law. Columbia Pictures, 1997. Film.
2. Walton, Douglas. "The Basic Slippery Slope Argument." *Informal Logic* 35.3 (2015): 273-311. Print.
3. Coghlan, Andy. "UK Parliament Gives Three-parent IVF the Go-ahead." *New Scientist*. N.p., 3 Feb. 2015. Web. 22 March. 2017.
4. "Oh, Baby." *The Economist*. The Economist Newspaper. 05 Feb. 2015. Web. 22 Mar. 2017.
5. Dawkins, Richard. "BBC Radio 4 – The Age of the Genome." *BBC News*. BBC, 23 June 2010. Web. 23 Mar. 2017.
6. Roberts, Jessica L. "The 'Devious Defecator' Case Shows Why Employers Should Never Ask for DNA | Jessica L Roberts." *The Guardian*. Guardian News and Media, 08 June 2015. Web. 22 Mar. 2017.
7. Genetic Information Non-discrimination Act. Pub L. 110-233. 881 Stat. 122. 1 May 2008. Print.
8. Nowogrodzki, Anna. "Ancestry Combines Genealogy Research with Genetic Data." *MIT Technology Review*. MIT Technology Review, 16 July 2015. Web. 10 Apr. 2017.
9. Roberts, Jessica L. "Theories of Genetic Ownership." *Draft*. 9 Sept. 2015. Web. 22 Mar. 2017.
10. Bell, Abraham. "A Theory of Property" *Cornell Law Review*. 90.3 (2005): 542. Print.
11. Locke, John. "Locke and Hobbes." *John Locke: Two Treatises of Governments* (1960): 67-92. Print.
12. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Alienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972)