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# Genetic and Generic Determinism: A New Threat to Free Will?

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## Introduction

We are discovering more and more about the human genotypes and about the connections between genotype and behaviour. Do these advances in genetic information threaten our free will? This paper offers a philosopher's perspective on the question.

Whether or not genetic discoveries do really threaten free will, many feel threatened, and it is not difficult to see why. If genetic advances enable us to predict with increasing accuracy and reliability what people will do, this seems to undermine the pretensions of individual autonomy and agency. In what sense do I choose for myself what I do, if you can say reliably in advance what that choice will be?

At the same time, a philosopher may wonder how the new knowledge could by itself make a difference. Given the classic philosophical difficulties in seeing how free will is possible even under the best of conditions, it is unclear how new knowledge could make things any worse. Moreover, if free will is possible at all, it is unclear how the new knowledge differs in kind from the familiar threats to free will already posed by old knowledge. These two questions will focus the discussion to follow. My conclusion will be broadly deflationary: genetic information might enable us to anticipate that certain individuals are likely to suffer from exceptional conditions that threaten their autonomy, but it is the nature of these conditions or effects that count, not their source or how we come to know about them. Moreover, we have no particular reason to suppose that the conditions thus revealed will be different in kind from the already familiar ways in which a person's free will may be compromised. As for the majority of us who are not afflicted by these conditions, whatever free will we now enjoy will survive dramatic advances in genetic understanding.

**The Sceptical Dilemma and Diminished Responsibility**

To see why a philosopher might suspect that genetic information could not possibly make the problems of free will any worse than it already is, we need to consider the classic free will dilemma, an argument with three very plausible premises and a depressing conclusion. First, everything that happens in the world is either determined or not. Second, if everything is determined, there is no free will. For then every action would be fixed by earlier events, indeed events that took place before the actor was born. Third, if on the other hand not everything is determined, then there is no free will either. For in this case any given action is either determined, which is no good, or undetermined. But if what you do is undetermined then you are not controlling it, so it is not an exercise of free will. Finally, we have the conclusion: there is no free will. The argument has the form: heads or tails, if heads you lose, if tails you lose, therefore you just lose. Either determinism holds or it doesn't, if determinism holds there is no free will, if it does not hold there is not free will, therefore there just is no free will.

This dilemma is remarkably simple, and it packs an immediate punch. Let me nevertheless add a few comments on its structure and elements. The dilemma is clearly valid, in virtue of its form. To say that an argument is valid is not to say that its conclusion is true, but just that *if* the premises are all true, then the conclusion must be true as well, or equivalently that it is impossible for all the premises to be true yet the conclusion false. So anyone who wishes to reject the conclusion must also reject at least one of the premises. It is also worth remarking that the conclusion is extremely general. The moral of the argument is not that we are unlucky enough to find ourselves in a world without free will, where if only things had been a bit different, free will would have existed. For the argument does not assume any particular facts about our world, which suggests that the problem lies not in our world, but in our concept. If the free will dilemma is sound – that is valid *and* with true premises – it seems to show that the very concept of free will is incoherent, something that could not possibly exist, a round square.

The first premise the dilemma is indisputable, since it has the tautologous form P or not-P – everything is determined or not everything is determined. (Note that this is not the same as the disputable claim that either everything is determined or nothing is.) Just what determinism entails is a much more difficult question, and there

are several different versions of the concept that could be deployed, though the first premise remains a tautology whichever one is chosen. The two most common versions of determinism appeal to causation or to the laws of nature. Thus determinism may be taken to be the view that everything that happens has a cause, or the view that everything that happens follows necessarily from the laws of nature in conjunction with the full state of the universe at any single moment. In fact this yields more than two conceptions of determinism, since the concepts of cause and law have themselves been given diverse philosophical treatment. Thus, some suppose that a cause is a condition sufficient for its effect, while others claim rather that it is necessary, something without which the effect would not have occurred. And while some philosophers have supposed that laws are simple *de facto* regularities, others have claimed that laws describe what happens by necessity, what could not have been otherwise.

The second premise of the dilemma, which asserts the incompatibility of free will and determinism, lacks the iron-clad security of a tautology, but there are powerful considerations in its favour. Free will seems to entail that the actor 'could have done otherwise', while determinism rules this out. The incompatibility of determinism with 'could have done otherwise' is particularly clear when determinism is defined in terms of the laws of nature (van Inwagen 1975). If determinism is true, then what I did is entailed by laws of nature along with some particular facts about the state of the world before I was born. To have the power to have done otherwise, I would either have to have the power to change the laws or to change those pre-natal facts. Clearly neither is possible.

Those who have tried to show that determinism and free will are nevertheless compatible have typically observed that the claim that my action was determined is compatible with my desires being among its causes and so that I would have acted differently, had my desires been different (Ayer 1954). But defenders of the second premise reply that this is not enough to show that I could have done otherwise, if my desires are themselves just intermediate links in a long deterministic chain stretching back before my birth. In such a case, that people would have acted differently had their desires been different seems no more to show that they could have done otherwise than would saying that they would have acted differently, had the weather been different. Neither circumstance shows they have the power to change what they would do.

Another way of resisting the second premise is to question the connection between free will and could have done otherwise. The desire being a cause of the action – which determinism allows – is clearly insufficient for free will. The miserable addict is a model of someone whose free will has been compromised; though the addict desires the drug and that desire affects behaviour. But it has been suggested that what rules out free will in such cases is not that everything is determined, or that the agent could not have done otherwise, but rather that the addict does not have a coherent hierarchy of desires, where the desire for drug is itself desired and perhaps also where that 'second-order' desire is a cause of the desire for the drug (Frankfurt 1971). Ultimately, we all have desires we do not choose, but on this view what enables us to enjoy free will is that many of our desires are maintained because they are themselves desired. It does not matter that in a sense we could not have done otherwise, so long as our desires are in harmony. This emphasis on the hierarchy of desires and the ways they may mesh or clash is important, but the defender of the second premise will insist that no appeal to the harmony within our mental economy is enough to make room for the possibility of free will if that entire economy and the actions it generates were determined by things that occurred before we were born.

I will be brief with the third premise of the dilemma, since it does not figure prominently in the discussion to follow. It asserts that free will is not compatible with indeterminism. Supposing that some of my actions or their causes are themselves uncaused or ungoverned by deterministic law may allow that my actions could have been otherwise, but it does not seem to allow that *I* could have done otherwise. Indeterminism does not seem to allow the agent to control her actions in the way free will requires. I do not exercise free will if my arm spontaneously rises, not does the situation appear any more promising if we construe an indeterministic process as one that is irreducibly probabilistic, rather than one that is entirely random. Loosening the link between desire and action does not create room for free will; nor does the supposition that desires themselves are uncaused or only probabilistically determined.

The free will dilemma is a hardy philosophical perennial. After thousands of years of work there is still no generally accepted solution, no clear demonstration that free will really is possible. One explanation for this lack of progress would be that the sceptical dilemma is sound, so free will really is impossible. If that is so, then the answer to our questions about genetic information is simple, if pathological. If free

will is impossible full stop, then genetic knowledge can neither reduce nor destroy it. Nothing can threaten what could not exist anyway.

But we may be unwilling to accept the sceptical dilemma, even if we cannot see exactly what is wrong with it. Indeed we may be unable to accept the dilemma. As Isaac Batshevis Singer is reported to have said, 'Of course I believe in free will. I can't help it.' Our tendency to treat others as in some sense free agents seems itself to be a kind of instinct, impervious to argument. At the same time, the dilemma may show that our full-blooded conception of free will is incoherent, and that we must pare it down if we are to believe in something that might exist. The big question is whether this process would leave us with something still strong enough to support the use we make of the concept, and the connections we make between judgements of freedom and judgements of responsibility and dignity.

Here as elsewhere in philosophy, I think that we ought to be opportunists, willing to vary our standards to suit our purposes. Free will is not the only area where powerful reasons are given for incredible conclusions. In the theory of knowledge, for example, all the best arguments seem to show that we do not have any justification for what we are quite sure we do know, that the sun will rise tomorrow or indeed that anything exists outwith our minds. Taking those arguments seriously helps us to illuminate our cognitive practices, but it is also important to vary the setting on the 'sceptic dial'. Supposing the worst – that we can no almost nothing – is a way of revealing some of the strata of our belief practices, but for other purposes we must take some knowledge for granted. In the context of the philosophy of science, for example, we consider arguments against the reliability of data, but also assume that reliability to consider the warrant for inferences from those data to claims about unobservable entities and processes.

Similarly, while for some philosophical purposes we may wish to assume that free will is indeed impossible; for others we should suppose that people do sometimes act freely. To assess the impact of genetic information on free will, it is important to consider the radical perspective of the free will dilemma, which challenges the notion of free will under any circumstances. This will save us from claiming that genetic information is a particular threat to free will because it would deprive us of something that, as we can see from the sceptical dilemma, we never had anyway. But if we are accurately to assess the impact of biomedical developments, it is also important to consider the more conventional perspective, which allows that there is a distinction to

be drawn among the things we actually do, between those actions that are free and those that are not

The conventional distinction between free and unfree behaviour treats free will as a default condition which may be compromised in various ways. Addictive behaviour is one sort of case. Certain people lack normal inhibitory mechanisms and so are unable to control their desires. Some people are unable properly to recognise or characterise the nature of some of their own actions. Here one thinks of cases of serious psychological impairment, but it is worth noting that there is also a version of this phenomenon that afflicts us all. Our actions invariably have effects we are in no position to identify: we do things unintentionally, and these are not done by our own free will. It is also worth emphasising how common are the cases both of loss of inhibitory mechanism and of ability properly to identify one's actions, as the problems of excessive drinking illustrate. On the assumption that heavy drinking is not itself always addictive behaviour, we have here also the important complication of cases where, as one might put it, one freely chooses to make oneself unfree. And of course our free will may be compromised in other ways besides. Should the acquisition of genetic information be added to the list?

**Foreknowledge and Free Will**

Suppose that advances in genetics makes it possible to use information about an individual's genotype accurately to predict future behaviour. Would this sort of foreknowledge threaten free will? On the face of it, your knowledge of my future behaviour is irrelevant to my free will. Whether I act freely is a question of the kind of control I have over my actions: what you know about me seems irrelevant. Suppose that we are all lucky enough to enjoy free will. Now consider another situation, where our causal situation is unchanged, but there are invisible creatures observing us and discussing our performance. These creatures cannot interfere with us in any way, but they are extremely good at predicting what we will do. What difference does this make? If we had free will to start with, it is difficult to see how we would lose it in the face of this clever but passive audience.

Moreover, we already have a great deal of foreknowledge that requires no genetic information. This knowledge includes both general maxims of how almost anyone will act in a given sort of situation, and differentiated knowledge of how a particular individual is likely to behave, knowledge that is based on detailed

acquaintance with his or her background, personality and previous behaviour, including verbal behaviour. If we grant that people have free will at present, we must take free will to be compatible with very considerable foreknowledge.

Nor is it simply that we in fact acknowledge both free will and foreknowledge. It is not as if free will would be more secure if we knew nothing about what people will do. For without foreknowledge, it would seem that nothing like human society would be possible (cf. Hume 1748, section 8). If I knew *nothing* about how you will react to events, especially to what I say and do, we could share no projects, including the project of communication. Indeed if other people were completely unpredictable, we would not see them as agents at all. One reason for this is that we would find it impossible to attribute to them beliefs and desires.

Still, free will and foreknowledge might both be matters of degree, such that foreknowledge beyond a certain point would reduce free will. Perhaps, but let us consider some of the difficulties facing this view. As we have already observed, free will has to do with how actions are generated, not whether they were predicted in advance. I know some people better than others, and so I am better at predicting some people's behaviour than I am at predicting the behaviour of others; but I do not attribute more free will to those less familiar to me. Similarly, as I get to know someone better, I become better able to predict what they will do; but their free will is not thereby diminished. But these are not knock-down objections to the thought that too much foreknowledge might interfere with free will or its attribution. It might be that free will is compatible with a considerable range of foreknowledge, but not beyond a certain point. If my wife knew absolutely everything I was going to say (an achievement that sometimes seems within her grasp) perhaps she would find it difficult to see me as a free agent.

It is unclear whether even this extreme level of foreknowledge would really preclude free will; but even if it would, it is unlikely that this is the source of any special threat posed by genetic information. It is unlikely because of the enormously complicated interactions between genotype and environment in the aetiology of behaviour. Perhaps I underestimate the potential of the bio-technology, but it seems to me that while genetic information might show that Jones is substantially more likely to commit crimes of a certain sort that a randomly chosen individual, this kind of foreknowledge is very unlikely to rival the foreknowledge I could gain of Jones

through close acquaintance, a source of foreknowledge that is not taken to pose any special threat to Jones's free will.

If foreknowledge threatens free will, there must be some bridge from the epistemology to the metaphysics: the foreknowledge must make a difference. And so it might, since knowledge itself may be causally efficacious. Your knowledge of what I will or would do may cause you to treat me differently, and my knowledge of what I will or would do may feed back and influence my own behaviour. Could this create a world without free will? Perhaps in such a world the foreknowledge would interfere with the influence of desire, so that what we do is independent of what we want. This is the difference between determinism and fatalism. In a deterministic world, every action has causes, but our desires may be among them; in a fatalistic world, desires play no role in the determination of action. What we do is determined, by environmental factors, by what others do to us, and by features of ourselves such as our genetic endowment, but what we want has nothing to do with it.

A fatalistic world is one without free will, but it is difficult to see how genetic foreknowledge could make the world like that. If desires were causes before genetic discoveries were made, they will continue to be such afterwards too. One reason for this is, ironically perhaps, that many of our patterns of behaviour, our 'natural instincts' in Hume's terms, are too rigidly determined to be so radically influenced by biomedical information. My discovery of the genetic influences on my behaviour does not have the power completely to alter the aetiology of my action, so that my wants no longer have any role. Science barely has the power to unseat folk belief, much less folk action. Thus I continue really to believe that it is the pain that caused my hand to withdraw from the flame, even if physiologists show that it comes too late to play that role. To suppose that scientific claims have on their own the far greater power completely to alter the causal mechanism of action is incredible. If desires really do now play a central causal role in action, as we all believe, this mechanism is so basic as to be impervious to fundamental alteration simply on the basis of new information. If I was a creature of desire before the genetic information was available, so will I remain afterwards.

**Genes and Determinism**

Perhaps we have been looking for the threat posed by genetic foreknowledge in the wrong place, because the threat comes not from the foreknowledge itself or

from its consequences, but rather from something the knowledge would reveal. That is, the real worry may be not that genetic foreknowledge might destroy free will, but that it would provide compelling evidence that we never had free in the first place. The intuition is simply that precise foreknowledge would only be possible under a determinism that precludes free will. So as we gain that foreknowledge, we would also gain the knowledge that free will has always been an illusion.

If foreknowledge does indeed pose a threat to free will, this is I think the way the threat operates: foreknowledge provides evidence of determinism, and so evidence that we never had free will. Of course we know that genes do not by themselves completely determine behaviour in all its detail, since we know that identical twins do not behave in precisely the same way. But genetic discovery might make it appear increasingly likely that our behaviour is the output of a deterministic mechanism, in which genes play an important role. This does not however seem genuinely to pose a new threat. Recall the discussion of free will dilemma from the start of this essay. The dilemma suggests that an increase in our knowledge is unlikely to reveal any special threat to free will simply by making it more likely that determinism holds. The dilemma makes it difficult to see how determinism in itself is any more or less of a threat to free will than its denial: either way we lose. So genetic information cannot pose a special threat to free will simply by exposing generic determinism.

There might however be a peculiar threat to free will revealed by genetic information, in virtue of the peculiar form of determinism it exposes. Even the most optimistic compatibilist will admit that free will is not available in all deterministic worlds. One deterministic world without free will is a world without agents who enjoy beliefs and desires; another is a world where although there are beliefs and desires, they play no role whatever in the aetiology of behaviour. Might genetic information reveal that we live in a world bereft of free will, not simply because it is deterministic, but because of the type of determinism it contains? (Cf. Nuffield 2002, ch. 12.)

In certain cases of genetic abnormality, this might be so. As has already been noted, we judge there to be loss of free will in diverse cases, arising for example from addiction, lack of inhibition, and inability to recognise that nature of one's actions. Insofar as genetic information were reliably to predict such cases of diminished responsibility, it would reveal an absence of free will. But what about the normal cases? Even here one might worry that genetic information reveals a type of

determinism incompatible with free will insofar as it reveals that we all have innate dispositions to do what we do. That these are dispositions suggests that they somehow bypass the mechanism of belief and desire that free action requires. That they are innate shows that the dispositions themselves could not have been chosen.

In my view, however, the innate dispositions that genetic information might reveal poses no special threat to free will. That one had a disposition to perform a certain action cannot by itself specially undermine the claim that this action was freely performed, since whatever people actually do, we may say they were disposed to do. In many cases, we may only discover these dispositions retrospectively, in light of the actions we see the agents perform, but that is not difference in the disposition, only in how we discover it. Similar points apply even if we take 'disposition' to mean long-term personality trait. Long term patterns in my behaviour reveal long term dispositions, but these are not usually taken to show that I am bereft of free will. In any event, genetic information cannot be special in virtue of providing information about dispositions, since we regularly acquire that information by other means.

That leaves the innateness of dispositions, or of the genotype that it supposed to be their basis. Crudely put, you don't choose your genes, so insofar as your genes cause your actions, you don't choose your actions, so you are not free. But this argument is undermined by the free will dilemma. The causal history of our actions must extend back before we were born, and the fact that this history travels in part on genetic paths makes it no more or less a threat to our freedom. The causal history of our actions also extends outside our body, to the diverse environmental influences upon us, largely again beyond our control.

No good reason has been given for the claim that the genetic influence on behaviour should create a special threat to free will. The idea of genetic predictability makes vivid the thought that we have desires we did not choose. This thought may appear to threaten our free will, even though it is no part of folk psychology that we do choose our desires: we do not normally speak of deciding to want, any more than we speak of deciding to believe. But given that our desires are not in any event determined by choice, it is difficult to see why the discovery that our genetic makeup plays a causal role should make any difference, so far as our free will is concerned.

Finally, perhaps the feeling of special threat comes not just from the fact that genes are innate, but that they are essences. An essence is a determinant of identity.

Thus a piece of gold has both a shape and a chemical composition, but while it could survive a change of shape, it could not survive a change in composition, for then it would not longer be gold. Similarly, it has been claimed that people have essential properties, such as their parents: you could not have had different parents, in a way that you might, for example, have gone to a different school, for a child from different parents would literally be a different person (cf. Kripke 1980, Lecture III). Now suppose that my genotype is one of my essential properties. In this case, there is a special and perhaps a specially deep way in which my genotype is beyond my control, something that goes beyond the way, for example, I cannot now change the school I went to. For although I myself can change neither, I might have gone to a different school, but could not have had a different genotype, while still being me.

If this were so, then genetic information would have the special status of revealing essences. This thought that genes are essential may be a source of the intuition that our free will is threatened by biological discovery. This is similar to the thought that genetic determination of action threatens free will because it shows my action is a consequence of my nature. What is particularly interesting about this form of the worry is that it suggests a kind of determination that goes beyond the causal determinism that has been our focus. For having a certain chemical composition does not simply cause something to be gold: it constitutes being gold. Similarly, on this causal-essentialist view, my genes not only causally determine my actions, but they are also constitutive of my identity.

We are in deep metaphysical waters, but readers who have come this far will not be surprised to discover that I do not find here any special threat to our freedom. Indeed some might hold that it is reassuring to be told that one's actions flow from one's deepest nature, rather than from adventitious causes. But essentialism has little to do with free will. Perhaps I could not for example have had different parents while retaining my identity. This does not threaten my freedom. The same holds for my genes. If my genes causally determine my behaviour, then we have the familiar worries about determinism. But the additional claim that my genes are essential to my identity does not make the situation any worse. Presumably, one of my essential properties, if I have any, is being human: I could not be the same individual if I lost that property. But this hardly threatens my free will. The threat to free will comes from causal determination, not essentialism, and that threat is not new. It the old threat of generic determinism.

**Conclusion: from Causes to Effects**

This completes our whirlwind survey of the different ways in which advances in genetic science might be taken to threaten free will. The discussion has been framed by the philosopher's classic free will dilemma, an argument which highlights the double challenge posed to free will by determinism and by its absence alike. This raises very high the hurdle that genetic information must clear if it is to pose a new and distinctive threat to our autonomy. I have considered what I hope are at least the most plausible ways this might occur, whether by enabling us to predict people's behaviour, undermining the role of desire in action, or revealing causes of behaviour that are innate or even essential constituents of an individual's identity. My conclusion is that none of these factors make things any worse that the old dilemma already did. It can be deeply disturbing to be forced to face the ways in which determinism would make it true of all of our actions that we could not have done otherwise, and advances in genetic research may make it increasingly difficult for us to ignore this depressing fact. But even if the threat is thereby made vivid, it is not thereby made new.

That is main moral of our discussion: advances in genetic knowledge will not in themselves pose a novel threat to free will. Another moral is that, when it comes to free will, we ought to worry less about causes and more about effects. On any plausible view of the world, the aetiology of our behaviour will include causes that are beyond our control. So if anything can make a difference, it is not the existence of such causes, but rather the kind of effects they have. When it comes to free will, what matters is our cognitive phenotype, not its genotypic source. Ordinary responsible behaviour and diverse cognitive and behaviour pathologies that do involve diminished responsibility may both have genetic bases, so the fact of genetic determination, insofar as it is a fact, will not explain the contrast. Of course if you want to alter effects, you will want to look back to causes that may provide you with a handle. So the possibility of substantially increased powers of genetic intervention will give those concerned about human autonomy plenty to worry about. Genetic knowledge does not itself threaten free will, but what we do with that knowledge is another story.

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