

3. http://www.belstat.gov.by/ofitsialnaya-statistika/realny-sector-ekonomiki/energeticheskaya-statistika/operativnye-dannye_3/istochniki-formirovaniya-toplivno-energeticheskikh-resursov/index.php?sphrase_id=401489 -Источники формирования топливно-энергетических ресурсов
4. [https://www.energy.gov/sites/prod/files/2013/03/f0/ShaleGasPrimer Online 4-2009.pdf](https://www.energy.gov/sites/prod/files/2013/03/f0/ShaleGasPrimer%20Online%204-2009.pdf) -US Department of Energy: Modern shale gas development in the United States.

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DO YOUR GENES DETERMINE YOUR ENTIRE LIFE?

Whenever you read stories about identical twins separated at birth, they tend to follow the template set by the most remarkable of them all: the “two Jims”. James Springer and James Lewis were separated as one-month-olds, adopted by different families and reunited at age 39. When University of Minnesota psychologist Thomas Bouchard met them in 1979, he found both had “married and divorced a woman named Linda and remarried a Betty. They shared interests in mechanical drawing and carpentry; their favourite school subject had been maths, their least favourite, spelling. They smoked and drank the same amount and got headaches at the same time of day.” The similarities were uncanny. A great deal of who they would turn out to be appears to have been written in their genes.

Genes are not only the key to understanding health: they had become the skeleton key for unlocking almost all the mysteries of human existence. For virtually every aspect of life – criminality, fidelity, political persuasion, religious belief – someone would claim to find a gene for it. In 2005 in Hall County, Georgia, Stephen Mobley tried to avoid execution by claiming that his murder of a Domino’s pizza store manager was the result of a mutation in the monoamine oxidase A (MAOA) gene. The judge turned down the appeal, saying that the law was not ready to accept such evidence. The basic idea, however, that the low-MAOA gene is a major contributing cause of violence has become widely accepted, and it is now commonly called the “warrior gene”. In recent years, however, faith in the explanatory power of genes has waned. Today, few scientists believe that there is a simple “gene for” anything. Almost all inherited features or traits are the products of complex interactions of numerous genes. However, the fact that there is

no one genetic trigger has not by itself undermined the claim that many of our deepest character traits, dispositions and even opinions are genetically determined.

What might reduce our alarm, however, is an understanding of what genetic studies really show. The key concept here is of heritability. We are often told that many traits are highly heritable: happiness, for instance, is around 50% heritable. Such figures sound very high. But they do not mean what they appear to mean to the statistically untrained eye. The common mistake people make is to assume that if, for example, autism is 90% heritable, then 90% of autistic people got the condition from their parents. But heritability is not about “chance or risk of passing it on”, says Spector. “It simply means how much of the variation within a given population is down to genes. Crucially, this will be different according to the environment of that population. Spector spells out what this means with something such as IQ, which has a heritability of 70% on average. “If you go to the US, around Harvard, it’s above 90%.” Why? Because people selected to go there tend to come from middle-class families who have offered their children excellent educational opportunities. Having all been given very similar upbringings, almost all the remaining variation is down to genes. In contrast, if you go to the Detroit suburbs, where deprivation and drug addiction are common, the IQ heritability is “close to 0%”, because the environment is having such a strong effect. In general, Spector believes, “Any change in environment has a much greater effect on IQ than genes,” as it does on almost every human characteristic.

Statistical illiteracy is not the only reason why the importance of environmental factors is so often drowned out. We tend to be mesmerised by the similarities between identical twins and notice the differences much less. “When you look at twins,” says Spector, “the one thing that always seems to come out are the subconscious tics, mannerisms, postures, the way they laugh. They sit the same, cross their legs the same, pick up cups of coffee the same, even if they hate each other or they’ve been separated all their lives.” It’s as though we cannot help thinking that such things reflect deeper similarities even though they are actually the most superficial features to compare. If you can stop yourself staring at the similarities between twins, literally and metaphorically, and listen properly to their stories, you can see how their differences are at least as telling as their similarities.

Environment is almost always more influential than genes. Too much attention to genes blinds us to the obvious truth that access to financial and educational resources remains the most important determinant of how we fare in life. Identical twins show us that in the nature-versus-nurture debate,

there is no winner. Both have their role to play in shaping who we are. But although we have reason to doubt that our genes determine our lives in some absolute way, this does not solve a bigger worry about whether or not we have free will. Who we are appears to be a product of both nature and nurture, in whatever proportion they contribute, and nothing else. You are shaped by forces beyond yourself, and do not choose what you become. And so when you go on to make the choices in life that really matter, you do so on the basis of beliefs, values and dispositions that you did not choose. The critical point is that these key commitments don't strike us primarily as choices. You don't choose what you think is great, who you should love, or what is just. To think of these fundamental life commitments as choices is rather peculiar, perhaps a distortion created by the contemporary emphasis on choice as being at the heart of freedom.

What's more, the idea that any kind of rational creature could choose its own basic dispositions and values is incoherent. For on what basis could such a choice be made? Without any values or dispositions, one would have no reason to prefer some over others. Imagine the anteroom in heaven, where people wait to be prepared for life on Earth. Some angel asks you, would you like to be a Republican or a Democrat? How could you answer if you did not already have some commitments and values that would tip the balance either way? It would be impossible. Throughout human history, people have had no problem with the idea that their basic personality types were there from birth. The idea of taking after your parents is an almost universal cultural constant. Discovering just how much nature and nurture contribute to who we are is interesting, but doesn't change the fact that traits are not chosen, and that no one ever thought they were. Accepting this is ultimately more honest and liberating than denying it. Recognising how much our beliefs and commitments are shaped by factors beyond our control actually helps us to gain more control of them. It allows us to question our sense that something is obviously true by provoking us to ask whether it would appear so obvious if our upbringing or character had been different. It is only by recognising how much is not in our power that we can seize control of that which is. Perhaps most importantly, accepting how much belief is the product of an unchosen past should help us to be less dogmatic and more understanding of others. It doesn't mean anything goes, of course, or that no view is right or wrong. But it does mean that no one is able to be perfectly objective, and so we should humbly accept that although objective truth is worth striving for, none of us could claim to have fully attained it. Some may not be convinced yet that we should be so relaxed about our debt to nature and nurture. Unless we are fully responsible, it might seem unjust to blame people for their actions. If this seems persua-

sive, it is only because it rests on the false assumption that the only possible form of real responsibility is ultimate responsibility: that everything about who you are, what you believe and how you act is the result of your free choices alone. But our everyday notion of responsibility certainly does not and could not entail being ultimately responsible in this way. This is most evident in cases of negligence. Imagine you postpone maintaining a roof properly and it collapses during an exceptionally fierce storm, killing or injuring people below. The roof would not have collapsed if there had not been a storm, and the weather is clearly not in your control. But that does not mean you should not be held responsible for failing to maintain the building properly.

If the only real responsibility were ultimate responsibility, then there could never be any responsibility at all, because everything that happens involves factors both within and outside of our control. As the philosopher John Martin Fischer succinctly and accurately puts it, “Total control is a total fantasy – metaphysical megalomania.”

The ultimate punishment requires an ultimate responsibility which cannot exist. That is why we should not be worried to discover that factors outside our control, such as our genetic makeup, are critical to making us the people we have become. The only forms of freedom and responsibility that are both possible and worth having are those that are partial, not absolute. There is nothing science tells us that rules out this kind of free will. We know people are responsive to reasons. We know we have varying capacities of self-control which can be strengthened or weakened. We know there is a difference between doing something under coercion or because you decide yourself you want to. Real free will, not a philosopher’s fantasy, requires no more than these kinds of abilities to direct our own actions. It does not require the impossible feat of having written our own genetic code before we were even born. If we become accustomed to thinking of freedom as completely unfettered, anything more limited will at first sight look like an emaciated form of liberty. You might even dismiss it as mere wiggle room: the ability to make limited choices within a framework of great restraint. But that would be a mistake. Unfettered freedom is not only an illusion; it makes no sense. It would not be desirable even if we could have it. Quite simply, the commonplace idea of free will we must ditch was always wrong. Good riddance to it.