The concept of genetic influence is often misunderstood, especially within the debate over homosexuality. Some Catholic writers and many homosexual activists and academics mistakenly believe that whether homosexuality is genetically influenced is related to its moral status and malleability. Here I try to defuse this aspect of the debate by providing a precise definition of genetic influence, reviewing its implications, and demonstrating its irrelevance to moral and therapeutic issues related to homosexuality. The Church does not compromise any aspect of its teaching by conceding that homosexuality may have a genetic component, but it must beware of deterministic interpretations of such research.

Genetic research has become increasingly publicized and controversial. Cloning, gene therapy, and the Human Genome Project have introduced substantial ethical and moral problems, and each week seems to bring a headline proclaiming the identification of another gene associated with this or that disease, disorder, or trait. Basic behavior-genetic research, which attempts to determine whether and how much a trait is influenced by the genes and environment (the old “nature-nurture” question) also has remained sufficiently controversial, as the reception of Herrnstein’s and Murray’s The Bell Curve attests.¹

Discussions of behavior-genetic research and its implications often succeed in generating more confusion than enlightenment. The meaning of the term genetic influence, fundamental to behavior genetics, is inadequately understood by many, including some behavior geneticists themselves. As it is a term about which we shall probably hear an increasing amount in the future, this is especially unfortunate. Here I attempt to provide a clear and precise definition of the concept of genetic influence and draw out its implications.

The debate surrounding the etiology of homosexuality provides an excellent framework within which to discuss the concept of genetic influence. Many homosexual activists and some academics have been eager to label a homosexual orientation “genetic,” while Christian political activists, writers, and scholars generally have resisted this interpretation. The debate gets its force
from the participants’ commonly held beliefs about the implications of genetic influence. These are: (1) If genetic factors are involved in establishing a homosexual orientation then it is more likely to be impervious to change, whereas if a homosexual orientation is environmentally-caused treatment success becomes more likely; and (2) If we allow that there are genetic influences on homosexuality then the morality of homosexuality is thereby established.

This state of affairs was demonstrated in some of the reactions to “Always Our Children,” the pastoral letter released a year ago by the National Conference of Catholic Bishops’ Committee on Marriage and Family. Directed primarily toward the parents of homosexual sons and daughters, the first edition of the letter included a sentence indicating that the “common opinion of experts is that there are multiple factors--genetic, hormonal, psychological--that may give rise to” a homosexual orientation.

To this, the Family Research Council’s Robert Knight responded that “more than 70 years of research . . . shows that environmental factors [are] paramount in formation of homosexual desires.” The context of Knight’s remark is revealing, as it came directly after his stating that the Bishops’ Committee “appears to be ambivalent about time-tested therapy to recover gender identity.” Here we see the belief that since “environmental factors” are really “paramount” in the etiology of homosexuality, we may safely continue to regard homosexuality as not only immoral but changeable as well.

Two articles in Catholic World Report also picked up on these themes. Editor Philip Lawler criticized the committee for conceding “the possibility that homosexual orientation may be encoded in an individual’s genes--a theory which has no solid scientific basis, but which leads to the acceptance of homosexuality as a permanent condition.” An accompanying article by a Dutch psychologist faults the bishops, a psychiatrist at the Roman John Paul II Institute for Studies on Marriage and Family, and the authors of the Catechism, for what he sees as their dangerous acceptance of the possibility that homosexuality may have a genetic component, i.e., that it is not completely traceable to “psychological” factors. Other Christian and psychoanalytic authors, even if they do not attack research into the biological origins of homosexuality, are usually more comfortable with the notion that the origins of homosexuality lie in faulty rearing, pathological father-son relationships, childhood molestation, narcissism, and addictive disorder.

Of course, the assumptions that genetic influence morally legitimizes homosexual activity and/or renders it more resistant to change are widespread among homosexual activists and some academics. Dignity/USA, a “Catholic” group which dissents, rather loudly, from the Church’s official teaching on homosexuality, publishes a brochure in which readers are told that research demonstrates homosexuality to be “biologically based,” and “fixed by early childhood,” and that, partly because of this, contemporary science undermines
official Church teaching. Two prominent investigators of the genetics of homosexuality, Michael Bailey and Richard Pillard, have acknowledged that the moral status and etiology of homosexuality are linked. Even academics who deny that moral conclusions can be drawn from scientific research often can’t help themselves from doing just that. Consider this statement, from an article in which the authors have put forth a biological theory of sexual orientation: “Although morality can never be directly derived from a scientific theory, our theory, at the very least, challenges those who are intolerant of homosexuals and those who support the retention of laws against their expressing themselves sexually.” This is interesting logic, indeed: Although X can never establish Y, in this case X establishes Y.

Now these beliefs—that the malleability and morality of homosexuality are connected with the question of whether homosexuality is genetically influenced—are fallacies. Others have already pointed this out, but here I hope to establish precisely why these beliefs are fallacies by focusing on the meaning of genetic influence.

What Does It Mean For A Trait To Be “Genetically Influenced?”

Let us start by examining what genetic influence does not mean. It does not mean the same thing as genetically determined or innate. Those are older terms quite out of favor in psychology, and with good reason. No human psychological characteristic, much less complex behavior pattern, is determined in the sense that an intervention of some sort could not prevent its occurrence. Although it is true that certain traits are less sensitive to environmental variation than others, nothing is developmentally inevitable. The word innate has become so loaded with connotations over the years that it has all but ceased to be scientifically useful; at any rate, it is difficult to know what most authors mean when they use it. But the most important difference between the concepts genetically influenced and genetically determined is that the first is a population concept and the second a concept that applies to individuals.

The criticism is frequently heard that it is impossible to call this or that trait “genetic” or “environmental” because, in reality, every trait depends upon a complex interplay of both factors. Genetic and environmental influences on development are impossibly confounded. This criticism is true if one is talking about the development of a trait or behavior within individuals. But when it means to be a critique of the behavior-genetic concept of genetic influence it misses the point. For that concept applies only to populations, or to differences between individuals, not any one individual or individuals in general.

Thus, one cannot ask whether, or how much, of Tom’s homosexual orientation is due to his genes or due to his environment. That is like asking how much of a rectangle’s area is due to its height or width. It is not a sensible question: Without both height and width, there is no area, just as without both genes and environment, there is no person. But we can talk about genetic and
environmental contributions to variation in a trait, like homosexuality, among a group of individuals, just as we can ask how much of the variation in area among a group of rectangles is due to differences in their height or width. Behavior geneticists partition the variation in a population into its genetic and environmental components. They are concerned with the sources of individual differences, not the developmental course of a trait as it occurs in individuals.

Another misconception about the term genetic influence is that its validity requires that a specific gene or group of genes be identified that somehow code directly for the trait in question. This is impossible. No gene codes directly for any human characteristic, whether that characteristic be relatively simple like eye color or extraordinarily complex like sexual orientation. Genes code merely for protein synthesis. Their influence on human traits, especially complex ones, is via multiple, elaborate, and variable physiological, environmental, and psychological pathways only beginning to be understood. At any rate, to say that a trait is genetically influenced does not mean that we need to know what genes act to make the manifestation of the trait more likely or even how they do it.

This is because genetic influence is purely a statistical concept, the technical term for which is heritability. Basically, a trait or behavior can be said to be genetically influenced, or heritable, when observed differences among a group of individuals on that trait or behavior are correlated with their genetic differences. The implications of this definition can be most easily understood by the following thought exercise. Imagine a community the same in every respect to the one in which we live with one big difference: all members have exactly the same genotype, in effect, they are all identical twins, victims perhaps of a mad scientist’s cloning experiment. In order for us to say a trait was not genetically influenced, we would have to see the same amount of variation in that trait in that community as we do in our world. But for what trait in our community of identical twins would there not be at least some restriction in the range of individual differences? It is hard to think of any. Plainly, to demonstrate genetic influence is to clear a low hurdle.

In fact, one of the major findings emerging from behavioral genetic research over the last twenty years or so is that almost every trait or behavior you can think of (depression, schizophrenia, aggression, intelligence, dyslexia, obesity, extroversion) is to some extent genetically influenced. Divorce provides a particularly instructive example. At least one study has concluded that risk for divorce is moderately heritable. How can this be? Divorce is an institution which has varied widely across time and still varies tremendously across cultures. It is obviously non-physiological. Surely this is a clear case of genetic research gone mad.

Perhaps. But some reflection on what we have outlined as the definition of genetic influence makes this finding unsurprising. For although the pathways by which genes affect the propensity to divorce must be incredibly complex, it
is not hard to construct many plausible scenarios by which divorce might be genetically influenced. One possibility is that genes influence brain organization, which affects basic temperament, which affects personality development, which affects frustration tolerance, which affects the likelihood one will put up with a spouse even when times are rough. The reader can no doubt think of other possibilities, keeping in mind that even this explanation is greatly over-simplified.

From this example we can see that genetic influence on a trait in no way excludes a host of complicated, environmentally-mediated pathways by which this influence comes about. However, the environments one experiences are usually correlated with one’s genotype. Behavior geneticists recognize three ways in which genes and environments come to be correlated. A passive gene-environment correlation exists, for example, when a child is raised by his biological parents: each parent not only provides a rearing environment for the child but half of his or her genes as well. An evocative gene-environment correlation exists because persons with different genotypes tend to evoke different responses from their environments. And genes and environments can be correlated actively, that is, because persons with different genotypes seek out different experiences.¹³

Genetic influence on a psychological trait always comes about because of some type of gene-environment correlation. Therefore, even were it complete (i.e., 100%, which it never is), genetic influence on a trait does not imply that psychological factors play no role in the trait’s development. Failure to recognize this appears to lie behind some of the hostility to behavior genetic research exhibited by many psychologists and psychiatrists, especially in the case of homosexuality. Dr. Charles Socarides, a courageous psychoanalyst who works in changing the sexual orientations of homosexuals, is a case in point. Dr. Socarides rejects the idea that genes influence the development of homosexuality partly because of his clinical observation that homosexual men often come from homes with overbearing mothers and detached fathers.¹⁴ But Dr. Socarides’ clinical observations cannot rule out genetic factors because he has not shown that this kind of family constellation is independent of its members’ genotypes. (Dr. Socarides has presumably observed families in which the members are biologically related.) Only by showing that the rate of homosexuality in adopted children with overbearing mothers and detached fathers was the same as in biological children of overbearing mothers and detached fathers could Dr. Socarides rule out genetic influence on homosexuality. That study has not been done.¹⁵

**Is Homosexuality Genetically Influenced?**

Back now to the issue of homosexuality. Given all of the above, it should be somewhat surprising if the likelihood of developing a homosexual orientation were not to some degree under genetic influence. There is, in fact,
evidence for a moderate level of genetic influence on homosexuality, at least male homosexuality.\textsuperscript{16} Despite the arguments of many well-intentioned critics,\textsuperscript{17} it seems to me a fair-minded assessment of the literature that, although the question is certainly not resolved and environmental factors are clearly indicated, differences in sexual orientation among men are associated to a moderate degree with genetic differences between them. Homosexuality among men is genetically influenced.

However, unless one is a behavior geneticist with a theoretical interest in the subject, it is quite irrelevant whether one agrees with this interpretation of the literature. These findings reveal nothing about the likelihood of successfully changing homosexuals’ sexual orientations, nor do they mean anything about the morality of homosexual acts.

\textbf{Genetic Influence, Morality, and Malleability}

The idea that if individual differences in a trait are largely genetic in origin then that trait must be impervious to environmental manipulations seems deeply entrenched within the modern psyche. It was a common concern among critics of \textit{The Bell Curve}, who were concerned that if it could be shown that much of the variation in cognitive ability was due to genetic factors, this meant that intelligence could not be improved through environmental means. As it turns out, it is quite difficult to raise intelligence through environmental interventions, but this has nothing to do with the large genetic influence on intelligence. The two are logically unrelated.

Some simple examples should serve to make the point. Phenylketonuria, or PKU, is a genetic disorder caused by a single recessive gene that prohibits the liver from properly processing an amino acid, phenylalanine. If not diagnosed early, PKU can lead to mental retardation. Fortunately, this genetic disorder can be treated effectively via a simple environmental manipulation: the elimination of dairy products and other foods containing the amino acid from the affected person’s diet during his childhood years. Almost everyone would admit that there is a huge genetic influence on height, but nonetheless we have witnessed considerable generational increases in height in this century alone, increases that cannot adequately be explained genetically. Better nutrition deserves some credit. The number of fingers on the left hand is genetically determined, but one can become four-fingered with a simple environmental manipulation of a chainsaw to the thumb.

Nor are disorders with environmental origins necessarily easier to treat because their etiology is not genetic or biological. Post-traumatic stress disorder (PTSD), by definition an environmentally caused psychiatric disorder, can be quite impervious to psychological treatment. And sexual and physical abuse during childhood often results in long-lasting psychological scars.

In short, and despite the widespread assumption to the contrary, the etiology of individual differences in a given trait, behavior, or disorder tells us
nothing about how effective environmental manipulations of that trait, behavior, or disorder will be. From a logical standpoint, the two are completely unrelated. No matter how large (or small) the genetic influence on homosexual orientation may turn out to be, those who attempt through psychiatric means to change that orientation needn’t worry.

Earlier we alluded to findings that divorce is genetically influenced. Of course, the decision to divorce one’s spouse is, undoubtedly, ultimately a matter of the will. The crucial distinction that must be drawn is that between the *propensity*, or disposition, to do something and the very *act* of doing it. Genetic and environmental factors affect our propensities to engage in particular behaviors (sometimes very strongly), as does habit, but in order to actually engage in them our will must become involved. This bald-faced assertion that man is endowed with free will is, of course, heresy within modern psychology (certainly it is a heresy to virtually all behavior geneticists). But if one wishes to refute this stance, as many have, one must make the case philosophically.

Data showing that genetic factors influence homosexuality are irrelevant. This fact seems to escape many contemporary social scientists, whose understanding, nay awareness, of elementary philosophical questions is often remarkably deficient. Consequently, whenever a social scientist can “explain” a behavior with reference to some antecedent factor, he feels entitled to enlighten his audience with non sequiturs of the following generic form: “It used to be thought that Behavior X was simply a matter of ‘free will,’ but now we know it is really precipitated by Factor Z.” There are no reasonable free will proponents who assert that for behavior to be chosen freely its occurrence must be statistically independent of the biological and environmental conditions surrounding it. Nevertheless, statements in some such form are painfully frequent in the social science literature.

It is one thing to be a determinist; it is quite another to be an inconsistent determinist. Most psychologists know, and accept, that propensities towards alcoholism, violence, and other socially unacceptable behaviors are, like homosexuality, influenced by genetic factors. But none of them goes around saying that being a lush or a wife-beater is therefore natural and as such to be tolerated. Rather, here is the recognition, if only implicit, of the difference between a general disposition or orientation and freely chosen behavior. Alcohol abuse and wife beating are condemned as unhealthy and immoral behaviors for a man to engage in. Nothing need change when we consider homosexual activity.

**Genetics, Homosexuality, and Church Teaching**

The distinction between orientation and act has been an explicit part of the Church’s teaching on homosexuality, at least since *Persona Humana*, which allowed that although some homosexuals may not be responsible for their...
orientations, homosexual acts are always objectively wrong. The Congregation for the Doctrine of the Faith has taught that

[w]hat is at all costs to be avoided is the unfounded and demeaning assumption that the sexual behaviour of homosexual persons is always and totally compulsive and therefore inculpable. What is essential is that the fundamental liberty which characterizes the human person and gives him his dignity be recognized as belonging to the homosexual person as well. As in every conversion from evil, the abandonment of homosexual activity will require a profound collaboration of the individual with God's liberating grace.

The 1992 English edition of the Catechism of the Catholic Church stated that many persons experienced “innate homosexual tendencies.” The revised edition deleted the word “innate” and replaced it with “deep-seated.” This change, which more faithfully reflects the Latin, is good; that homosexuality is innate does not mean the same thing as what I believe has been shown, at least among homosexual men: that homosexuality is moderately heritable. Perhaps it would be good, however, if in the future Church documents on the subject were to explicitly admit the possibility of a heritable component in homosexuality and explain its irrelevance, so as not to invite the speculation that such findings somehow undermine its teaching.

Conclusion

Because genetic influence on a trait is independent of that trait’s morality, Catholics need not pledge their eternal loyalty to the idea that environmental or familial factors operate exclusively in the creation of individual differences in sexual orientation. And because genetic influence on a trait is independent of that trait’s malleability, those courageous enough to offer treatment to homosexuals who wish to change their sexual orientation needn’t worry about research purporting to show that homosexuality is to some extent heritable. Rather, Catholic theologians, social scientists, and psychologists ought to ensure that behavior genetic research in all fields is interpreted correctly. In that regard, the deterministic assumptions so deeply embedded in contemporary social science are the real enemy.

Notes

1. I do not wish to imply that the critics of basic behavior-genetic research and the critics of cloning, gene therapy, etc. are one and the same. Ideological, rather than ethical or moral, motives more often guide the former. A prime example of this can be found in R.C. Lewontin, Steven Rose, and Leon J. Kamin, Not in Our Genes: Biology, Ideology, and Human Nature (New York: Pantheon, 1984).
10. For example, Thomas E. Schmidt, Straight & Narrow? Compassion & Clarity in the Homosexuality Debate (Downers Grove, IL: InterVarsity Press, 1995). In addition, I highly recommend Jeffrey Satinover’s article, "The Complex Interaction of Genes and Environment: A Model for Homosexuality," Collected Papers from the NARTH Annual Conference, 29 July 1995, in which several of the arguments presented here are considered in more detail.
15. Recall that a "schizophrenogenic" mother was once thought by psychoanalysts to be the primary cause of schizophrenia. An adoption study served to cast grave doubt on that view, and later studies have shown it to be spectacularly false.
17. For instance, Dr. Gerald van den Aardweg, in his Catholic World Report article cited earlier, writes that "there is not a shred of solid evidence...of an inherited predisposition" for homosexuality. If he means homosexuality specifically, he is right; no one could ever say that any gene or group of genes influenced the development of homosexuality alone. But if he means to say that there is no evidence of a relationship between genetic differences among men and the differences in sexual orientation
observed among them, I must disagree.


19. A point made well by Stanley L. Jaki in his discussion of the physicalism characteristic of contemporary psychology. See his *The Absolute Beneath the Relative and Other Essays* (Lanham, MD: University Press of America and Intercollegiate Studies Institute, 1988), 80.

20. This line of thinking is subtly indicated in Simon LeVay and Dean H. Hamer, "It's in the Genes: Evidence for a Biological Influence in Male Homosexuality," *Scientific American*, May 1994, 44-49. It is also more typical of popular treatments. In Lawrence Wright’s *TWINS: And What They Tell Us About Who We Are* (New York: John Wiley & Sons, 1996), behavior genetics research is used as evidence against the existence of free will.

