

Personal Identity and the Genome Project

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ABSTRACT: The findings of the Human Genome Project can strengthen the traditional philosophical argument from identity, which claims that a human being's status as a person—and the right to life rooted in personhood—is coterminous with his or her corporeal existence from conception until natural death.

ONE OF THE MOST INFLUENTIAL philosophical arguments against the practices of abortion and euthanasia has been the argument from personal identity.¹ According to this argument, a unique human being begins his or her existence at the moment of conception and ends his or her existence at the moment of natural death. Although the individual human being undergoes substantial changes at different moments of development in terms of capacity and achievement—a new-born infant cannot write a book and a nonagenarian is not a candidate for the decathlon—the unique personal identity of each human being perdures through these various changes. Just as a unique human being exists in a continuum from conception until natural death, the rights of each human being, of which the right to life is paramount, inhere in the individual throughout his or her progress through this continuum. According to the argument from identity, to place the boundary markers for human personhood later than conception or earlier than natural death is to deny the ontological fact that it is the same human being who emerges in conception as a unique individual, who emits brain waves in the first trimester of pregnancy, who cries at birth, who starts to reason at approximately the age of seven, and who survives a severe accident that might have inflicted severe brain damage. Concomitantly, to deny the right to life to any human being at

¹ For contemporary versions of the philosophical argument from identity, see Francis J. Beckwith, *Defending Life: A Moral and Legal Case Against Abortion Choice* (Cambridge UK: Cambridge Univ. Press, 2007) and Robert P. George and Christopher Tollefsen, *Embryo: A Defense of Human Life* (New York NY: Doubleday, 2008).

any stage of the developmental process is to commit a grave injustice, since it treats a unique, individual human being as an object to be disposed of by more powerful human beings.

It is the purpose of my paper to indicate how the recently completed Human Genome Project can strengthen the philosophical argument from personal identity. Obviously, empirical scientific data in and of itself can neither prove nor disprove a case for human personhood from the moment of conception. Nonetheless, recent genetic research has indicated how many distinctive physical and intellectual traits of the human person are established at the moment of conception when each human being receives his or her distinctive genetic endowment. The Human Genome Project's detailed map of the human genotype indicates how many of the personality traits considered as part of the human being's moral profile have a radical beginning in the moment of conception. Although metaphysically neutral in and of themselves, the findings of the Genome Project can bolster the argument from personal identity and the case against abortion supported by that argument by revealing the various ways in which the history of individual personhood begins simultaneously with the history of individual corporeality at the onset of conception.

HUMAN GENOME PROJECT

Sponsored by the National Institutes of Health and the U. S. Department of Energy, the Human Genome Project (1990-2003) pursued two major research goals: (1) the mapping and identification of the approximately 20,000 to 25,000 genes present in human DNA; (2) the determination of the sequences of the 3 billion chemical base pairs that make up human DNA. The term "genome" refers to all the DNA present in an organism, including but not limited to, its genes. The proteins present in DNA shape how an organism looks, functions, and behaves. In addition to the conduct of research into the human genetic constitution, the Human Genome Project was charged to provide storage, transfer, and analysis of the empirical genetic data generated by the research. From the inception of the project, one of its sub-projects (appropriately entitled ELSI) has subsidized papers and conferences dealing with the ethical, legal, and social issues posed by the new genetic profile of humanity sketched by the Genome Project's findings.²

Like other recent advances in genetic research, the findings of the Genome

² For the project's official findings, see *Human Genome Project Information* at http://www.ornl.gov/sci/techresources/Human_Genome/home.html.

Project indicate that certain traits of our intellectual capacity and moral temperament, as well as of our physical constitution, are shaped by our particular genetic endowment. It has long been known that the genetic code shapes our personal intelligence and our capacity to develop certain skills of the speculative and practical intellect. In addition to underscoring the contribution of our genetic endowment to our intellectual profile, the findings of the Human Genome Project underline how much our emotional temperament and moral character owe to our genetic constitution established at conception.

When I choose to tell the truth rather than a lie in a situation of social embarrassment, my action may well be a free act, inasmuch as it involves apprehension of certain goods, a weighing of alternative courses of action, and an election of the honest over the dishonest course. But my moral personality, which profoundly colors how I perceive and how I resolve this moral dilemma, seems to be deeply shaped by forces that predate and elude my limited zone of freedom. Collateral studies on the findings of the Genome Project are pinpointing the genetic causes of depression, elation, and other major mood-mental states—and it is not news to those involved in counseling how profoundly such states can color the perception, judgment, and activity of a moral agent affected by them. Recently publicized research exploring the data generated by the Human Genome Project suggests that such virtues as courage (and possibly such vices as foolhardiness) under the clinical guise of “risk-taking” have substantial genetic causes.³ A genetics of vice and virtue is a humbling prospect, but contemporary genetic research indicates that the basic moral temperament with which moral agency must work in the effort to foster virtue and repress vice is rooted in each individual’s genetic endowment.

GENETIC IDENTITY AND MORAL PERSONALITY

The Genome Project’s portrait of the genetic determinants of emotional and moral temperament in the genetic constitution established at conception indicates how radically the history of each human person, and not only the history of each person’s body, begins at conception. My history of cowardice and courage, industriousness and sloth, justice and bias owes far more to the genetic endowment that I have received from my parents than earlier

³ The most influential of the studies arguing for a genetic influence on risk-taking is J.B. Savitz and R.S. Ramesar, “Genetic Variants Implicated in Personality: A Review of the More Promising Candidates,” *American Journal of Medical Genetics*, 131B (2004): 2032.

generations could fathom. Environment, childhood history, and personal choice can counterbalance or modify such an endowment but not abolish it. This initial genetic constitution shapes the field in which we exercise our moral responsibility but it is neither the product of nor malleable by our moral responsibility.

My personal history has a decisive onset in the moment of conception inasmuch as my way of perceiving and reacting to the world, especially to other persons, is shaped by my particular genotype. My ways of exercising freedom and my characteristic honesty or dishonesty have roots in my genetic constitution as surely as do my blood type and my eye color, even if the latter (unlike the former) are not open to alteration through environmental influences and personal choice. The data generated by the Genome Project on the genetic roots of moral personality can strengthen the argument from identity's claim concerning the radical unity between the embryo and the mature adult in the trajectory of the genetically identical human individual. This unity is moral, spiritual, and emotional as well as physical.

GENETIC IDENTITY, FREEDOM, AND ENVIRONMENT

To affirm the genetic roots of human moral personality is not to deny the influence of social environment on the development of moral character or to deny the reality of the personal exercise of free will. Indeed, the literature developed in tandem with the Human Genome Project indicates how the complementary contributions of genetics, environment, and self-determination to human personality can be affirmed. Throughout the papers written by researchers associated with the Human Genome Project, one finds a repeated distinction between "determinative" and "influential" genes that shape human behavior.

The discussion of the etiology of Alzheimer's disease reflects this differential rhetoric.⁴ A particular genetic marker is determinative for a rare version of Alzheimer's disease called "familial Alzheimer's disease." This disease affects nearly everyone in a small, identifiable group of families that transmit the gene. Between the ages of thirty and sixty, family members begin to exhibit the alterations in brain chemistry (the emergence of the plaques and tangles typical of the disease) that are characteristic of disease. The typical behavioral decline, expressed through memory loss, loss of motor skills,

⁴ For a presentation of the genetic evidence concerning Alzheimer's disease and inheritance, see the research findings of the Alzheimer's Association at <http://www.ygyh.org/alz/inherited.htm>.

aphasia, hallucinations, and delusion, also manifests itself during this early time span (thirty to sixty years old); hence, its common designation as “early-onset Alzheimer’s.” With familial Alzheimer’s disease, no environmental factors or personal choices can alter the designated course of the disease. The genetic causation here appears to be determinative. To echo traditional language of the free-will debate, it could not be otherwise.

The other type of Alzheimer’s disease, called “sporadic Alzheimer’s disease,” does not appear to have a determinative genetic cause. Also called “late-onset Alzheimer’s,” sporadic Alzheimer’s disease typically affects people after they have reached the age of sixty-five. Researchers have identified a particular version of the APOE gene on Chromosome 19 as increasing one’s risk of developing Alzheimer’s disease later in life, although the influence of the gene on the onset of Alzheimer’s in a particular individual seems relatively slight. In the etiology of sporadic Alzheimer’s disease, environmental and personal-choice factors appear more influential than do the genetic. One’s diet (especially the consumption of Vitamins E and C), one’s history of injury (especially of serious head injury), and one’s regular exercise of the brain tissue (especially through the use of puzzles, varied types of reading, and various types of problem-solving) appear to be more decisive in affecting one’s chances of developing Alzheimer’s disease late in life.

The findings of the Genome Project do not alter the basic components of a free human act. To use neo-Aristotelian language, the exercises of apprehension, deliberation, election, and execution remain what they always have been.⁵ The intellect and will continue to author an act that by its intentionality and voluntariness remains distinct from the actions dependent purely on instinct. As Francis Collins, the head of the National Institutes of Health’s team for the Genome Project, has remarked, our genetic constitution may hand us the deck of cards we have to play with, but we are the ones in our deliberate and calculated choices who play the cards in response to the various challenges that we confront as rational agents.⁶ The findings of the project may provide a far more detailed and precise map of the biological constraints on our exercise of free will, but these simply complement the limitations on free human activity that we have long recognized in our accounts of human nature. Like our

⁵ For a typical neo-Aristotelian presentation of the psychology of the moral act, see Martin D. O’Keefe, *Known From the Things That Are* (Houston TX: Center for Thomistic Studies, 1987), pp. 13-17.

⁶ See Francis S. Collins, *The Language of God* (New York NY: Free Press, 2007).

environment, our family history, our political community, and our emotional temperament, our genetic endowment creates a framework in which we choose to act in ways that could have been otherwise—but these are still rational and voluntary choices that could have been otherwise. The new map of the genetic constitution of human nature modifies but does not abolish the paradox of an authentic freedom that is exercised in and limited by a creaturely, physical, and spiritual nature that possesses only a limited malleability.

CONCLUSION

The philosophical argument from identity has long argued that despite developmental changes, the same unique human being exists from the moment of conception until the moment of natural death. The data generated by the Human Genome Project and similar projects of genetic research indicate how deeply personal this individual human continuity is. The genetic constitution established at conception shapes the individual's moral and spiritual personality. Subsequent alterations to this personality through interaction with the environment and through the personal exercise of freedom always bear the trace of the initial genetic direction of the human person toward a particular moral temperament and away from another. Although much of this personal determination may be a softer type of influence than strict causal determination, it indicates that the history of the individual person has a radical beginning and orientation in conception. The development and transformation of the person through subsequent stages of development occur to an individual whose personal history is coterminous with his or her history as an embodied being.