

Moral Principles and The Life Sciences: Choices About Moral Matters

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ABSTRACT: Today, more than at any other time in human history, biologists are or should be concerned about the morality of biological research and newly developed technologies. Two questions confront any scientist or science student concerned about morality and the life sciences. Is there some theoretical framework that might be used to assist in deciding about moral matters? And how should people go about deciding matters of morality? This paper considers four ways in which people make moral decisions. These decisions are based upon Authority, Intuition, Science, and Ethical Reasoning (Duty and Consequentialist views).

KEY WORDS: morality, decision-making, ethics, biology

INTRODUCTION

Today, more than at any other time in human history, biologists are or should be concerned about the morality of biological research and newly developed technologies. There was a period of time during which many scientists were of the belief that they were responsible for conducting “honest” research and their responsibility ended. The development of the atomic bomb for World War II found well-known scientists in disagreement about their moral obligations not only in the development but the use of this “monster” (Atiyah, 1999). This initial concern was followed by a long list of scientists who wanted to outlaw the use of atomic energy for anything but the peaceful use of providing another source of energy for the world. The Asilomar Conference at Pacific Grove, California in 1975 was an effort by scientists to place restrictions on recombinant DNA research (Barinaga, 2000). Over 100 scientists met to discuss what they knew and didn’t know about recombinant DNA. They drew up guidelines that would permit research to go on but without undue risk. This meeting was an important

scientific landmark because it was, at that time, a rare instance of scientists independently questioning and regulating their own work. They agreed to suspend research of this nature until potential risks could be evaluated. This indicated they not only were aware that “good” intentions can go awry, but they also felt some responsibility for the possible results of their research. Today one can find numerous groups of individuals, many of them scientists, who have united to protect some aspect of human life. These aspects range from protecting the degradation of the environment to the cloning of human life.

Many biology teachers wish to include relevant social and ethical considerations in their teaching but lack the expertise to do so. This often results in either the omission of these considerations or a piece meal attempt to do so. This paper will help prepare biology teachers for the important task of letting students know that most aspects of biology do have social and ethical consequences, and there are ways to examine the morality of an act (Johnson, 1983-1992; MacDonald, 2002)

Two questions confront any science professor or science student concerned about morality and the life sciences. The first is the question of whether or not there exists some theoretical framework that might be used to assist in deciding about moral matters. In other words, how is a person to make decisions about what is morally right and what is morally wrong? An answer to this question can be obtained by observing how people make moral decisions. Do they rely upon some authority, such as a book: Bible, Koran, or Veda? Do they rely upon the teachings of a leader: Pope, Minister, or Imam? Or do they act instinctively because of a predisposition to favor some actions over or against others, in much the way one might choose ice cream over yogurt for dessert?

The second question will often be raised when answers to the first question are proposed. This question is, "How should people go about deciding matters of morality?" Answering this question is complicated by the fact that values change over time and in different societies. Early in human history and continuing through the 19th century, it was acceptable to reproduce with a girl as soon as she reached puberty. Today in the United States it is against the law to have intercourse with a girl below the age of 16. Here the value is determined not by the individual's anatomical and physiological ability to reproduce, but by an interpretation that emotionally and mentally a younger girl is not able to make "wise" decisions.

The concern of this article is with what we will call *Descriptive Ethics*. And that is to ask, "How do people go about determining whether something is morally right or morally wrong?" A simplified definition of moral is conducting oneself in a proper or right manner. Morals involve principles or habits with respect to right or wrong conduct. This seems simple enough until one attempts to answer what is "proper", "right" or "wrong." The use of embryonic stem cells illustrates the dilemma. It is right to attempt to save someone's life by providing her/him with stem cells that may correct a serious or life threatening problem from which she/he suffers. It is wrong to kill a potential human being by taking stem cells from the early embryo. So here is a single action that is both right and wrong. Another example, which recently attracted much discussion and controversy, was the case of a husband and wife who had another child to enable them to obtain tissue to treat an older child suffering from a fatal condition (Elwess, 2005; Sutton, 2002). Certainly, it is morally right for the parents to wish to help their child, but was the method they employed also morally right?

A descriptive study of moral decision-making requires some established boundaries, which come from a series of questions that need to be asked about moral values. For example, do people actually choose moral values? Or are moral values instinctual, a matter of biology? Some scientists respond "Yes" to this

question; morality is as much a matter of biology as sexual preference or the desire to preserve one's own life is a matter of biology. These are matters that are genetically determined.

Other scientists insist that moral values are directly determined by the social controls of peer pressure and social conditioning. Everyone is a part of a larger society that shapes a person's behavior according to what the larger society determines to be the proper behavior. The moral choices any person makes are determined by the values that a society dictates; the laws of society make it morally wrong to steal, to batter a wife, or to bear false witness in a court of law.



On the other hand, most people endorse the view that values are a matter of choice; people do occasionally go against the instinctual drives for sex and self-preservation, e.g., some people take vows of celibacy, and some are known to have given up their lives on behalf of others. However significant genetic wiring might be and however significant social conditioning might be, all of us have a sense that we make decisions about moral matters. People make choices, but on what basis (Andrews, 2005)?

FOUR WAYS TO MAKE MORAL CHOICES

1. Moral Decisions Based Upon Authority

Some people make decisions about morality by resting their conscience upon what they consider to be supreme authority (Clayton, 2003; Jonas, 1995). Two notable groups who subscribe to authority-based morality are Protestant Fundamentalist Christians and Traditionalist Roman Catholic Christians. But we might include religious fundamentalists of any persuasion: Muslims, Hindus, even Buddhists.

Protestant Fundamentalists provide a clear instance of authority-based morality. Spelled out quite

clearly are the principles, which encourage members to look to authority for assistance. The first principle is the belief that God relates to people on a personal level. The second principle is that each, individual human life is important to God, and there exists a divine plan for each life. In class when we discuss genetic diseases, students often refer to this principle. Tay Sachs disease results in degeneration of the nervous system and the retina (Tay Sachs, 2005). The process of degeneration begins shortly after birth, and at 18 months the child is blind and deaf with death usually occurring before age five. A significant number of students indicate that they would not abort the child even if they knew he/she would be born with the disease. Their usual reason is that God intended them to have such a child, and thus it would be going against God's will to prevent its birth. A third basic principle is belief in the inerrancy of the Christian scripture. Fundamentalists believe that the Bible is a true and accurate description of things, and it provides the true record of events both in the past and in the future. While teaching a General Education course to a class of students at another university, I provided them with three short articles on Human-Animal Hybrids (Organic Consumer, 2005). They were asked to comment on each article. One article referred to research in which mice were to be created with brains made almost completely of human brain cells. A student indicated he was against this type of research because if God had wanted this type of thing done, He would have put it in the Bible. A fourth principle is the belief that human beings are weak, frail, even depraved. People are sinful and prone to make wrong decisions about how to live.

One consequence of commitment to these four principles is the additional belief that people need authoritative guidance for morality. That authoritative guidance is found in the Bible. For a Fundamentalist Christian, the Bible is an infallible guide for choosing how to live and how to behave.

Fundamentalist Roman Catholic Christians differ from Fundamentalist Protestant Christians in that their commitment is less to a book than to a Church. The authority for the Church is the Pope. He communicates with members of the Church in various ways including Encyclicals, which notify membership of God's messages. For example, Catholics are informed that birth control methods other than the rhythm method are wrong, and artificial methods of conception are wrong. These believers are suspicious of values in these matters, which they see as deriving from science. Science has made it possible for an infertile woman to produce a child with her own genetic material. She need not even bear the child; a surrogate mother can carry it. These and other topics, which conflict with some Authoritarian decisions, are often covered in a general education course in biology. Thus it is helpful for teachers and students to understand how individuals arrive at their decisions about what is right or wrong.

Instructors should require students to be aware of the scientific information, but **should not** attempt to change students' method of deciding whether some idea or technique is right or wrong

In the process of helping students examine the morality of certain situations or actions, it is also important to teach them the concept of the *Slippery Slope* (Numberg, 2003). Understanding this concept may help them clarify their basis for moral decisions. The issue of whether or not to interfere with nature serves well for this lesson. Some students regard artificial or unnatural ways of bringing about pregnancy in infertile women as being against the laws of nature or God's will. They state, "If God had wanted the person to have a baby, He would have provided her with the ability to do so." At this point it is appropriate to ask them, "Should there be organ transplants? If God had wanted a person to have a good organ, wouldn't He have provided one?" These questions may be followed by similar questions about blood transfusions. More difficult for students is the question, "Do you believe in vaccination?" This may be followed by a discussion of the proposition, If God had wanted a person to have a different or better immune system, He would have provided it. Further down the slope is the issue of whether a person should take vitamin or mineral supplements. Usually the Slippery Slope discussion concludes with students opting for the individual deciding for God or another authority at some point on the slope where the individual takes over for God or another authority. This exercise should help the students to understand they are the ones making some of the decision for moral actions, although they may cite another authority for their decision.

2. Moral Values Based Upon Intuition

Some people insist that moral values are first learned at a mother's knee, that the rewards and punishments administered by parents instill moral values. After a few years of parental discipline, a child acquires a value system that is intuitive. Animal behaviorists would call this imprinting. The child begins spontaneously, without reflection, to respond to situations with approval or disapproval based upon her/his past experience with punishments and rewards. In a sense, the argument goes, moral values are intuitions that a person has, which are just as certain as her/his distinction between sweet and sour, loud and soft, and rough and smooth. A person knows directly what is right and what is wrong. In actuality, the phrase, "Honesty is good," really means, "I like honesty." Moral choices are choices of personal preference.

The Intuitionist must admit, however, that moral arguments, disagreements, and even discussions are fruitless. Just as one cannot convince another of the deliciousness of a favorite candy without the other tasting the candy, so a person cannot convince another

of the morality of an act unless the other person has had a similar experience. In summary, the Intuitionist view removes morality from discussion, debate, and disagreement. A scientific problem with this concept is that, as we are not all endowed with the same nervous system or receptors due to inheritable differences, we may not obtain the same input from identical stimuli.



3. Moral Values Based Upon Science

This approach to moral values is widely held by people who study one of the sciences, especially the social sciences. The general view is that scientists are solving problems of health, medicine, housing, and food; therefore, science should be used to determine morality, too. Because of the success of scientists in so many areas, it is appropriate to trust scientists in matters of morality as well.

They use a method of moral reasoning that is structured and objective. The first step is to gather all of the facts about a problem or situation. They think through the implications of any decision that might be made to solve a problem. Is the decision based upon the facts of the matter? What might be the consequences of this decision? A form of this method utilized by many physical and biological scientists is referred to as the “Scientific Method.”

Suppose a woman becomes pregnant after being raped, and through no desire of hers a fetus exists within her. Is abortion a morally acceptable option for her to consider (Dreyer, 2004)? The first step is to gather the facts. Is the woman indeed pregnant? Is the pregnancy due to the crime of rape? How long has the

woman been pregnant? These are questions that can be answered by analysis.

Then a person must consider the variables within the situation. Is the woman capable or incapable of carrying a child to fruition? What sort of life is the baby likely to have given the social and economic situation of the mother? Is it likely that the alleged father of the child will provide support for the child? Answers to these questions can be provided by analysis also.

Then one must find measurable data related to matters surrounding the aftermath of the decision about an abortion. In short, showing a decision to be morally right lies with the ability to provide the data upon which the decision rests.

The social sciences have adopted reasoning of this sort. Psychologists, sociologists, and anthropologists often find themselves making moral judgments based upon what they see to be clear-headed analyses of social facts. Recently, a field of study has appeared, which claims the title of “sociobiology,” a mingling of sociology with biology. The argument for moral reasoning is as follows: nearly all, if not all, human behavior is biologically determined, that is, behavior is genetically determined; all behavior is directed toward the single goal of personal survival, which involves the necessities for life, such as food, shelter, and sex and is genetically built into people; even altruistic behavior such as kindness, courage, heroism, or devotion has the same aim of survival. Yet studies have indicated that environment plays a major role in one’s personality; identical twins raised under different conditions not only don’t respond the same to similar stimuli, but they might even have some physical differences.

The biological basis for behavior makes for trouble for some people, for example the inescapable urge for sex causes conflict. So people lay down some rules of conduct, rules, which will curtail conflict. And this is the origin of morality. Moral values are socially required and culturally reinforced. They have resulted in the development of techniques over thousands of years to keep as many people as possible alive and reproducing.

4. Moral Values Based Upon Ethical Reasoning

The formal study of Ethics is the study of how to acquire moral knowledge based on reason (Schroeder, 2002). The first question an ethicist asks is whether or not there actually is something called “moral knowledge.” Is it possible to know what is right and what is wrong? But what is knowledge? Might intuition be knowledge? Might a conviction be knowledge? Might a preference be knowledge?

Ethicists and their philosophical colleagues define knowledge as “justified true belief.” For an intuition, a conviction, or a preference to qualify as knowledge there are three requirements. First, there must be evidence, something to justify the claim of knowledge.

Second, it must be the case; it must be true. And third, it must be believed, not just by anyone, but by the person claiming to have knowledge. Ethicists want to make the claim that moral issues can be based upon knowledge of what is right or wrong, good or evil.

There are two general ways by which ethicists claim to gain knowledge about what is morally right and what is morally wrong. There are “refinements” of these two general ways, which have kept ethicists vigorously arguing for centuries. And, unfortunately, the two ways are not compatible with one another.

The *Duty View* of gaining moral knowledge rests its case upon what might be called a human sense of “unconditional obligation.” Human beings possess within them a sense that they are obligated in some instances to perform some action or actions. In other words, people possess feelings of obligation; they feel obligated to eat properly, to practice good hygiene, and to get a proper amount of sleep. But in some instances, the sense of obligation is “unconditional,” which means a person performs an action *for its own sake*, not in order to gain some result. For example, most people have a sense of obligation to their parents to behave in certain ways *for the sake of the behavior itself*, not for any reward. Such a feeling of obligation is rational because it occurs to a person that were it not for parents, he or she would not be alive. Every living person is unconditionally obligated to a mother and father for life itself. So, one can know moral obligation to a mother and a father.

The Duty View of morality is that people have a rational sense that they carry an obligation to do some things simply for the sake of doing them. And, it is maintained, the moral act is the act done for its own sake. Thus, moral knowledge is acquired through reason; a person knows that at some times and under some circumstances one is obligated to act on behalf of another. The feeling of obligation may occur as one of reciprocity; a person given a gift feels obligated to return the favor. This is illustrated very well in the case of transplantation. The recipient of a heart, lung, liver or kidney, feels an obligation to the donor, if still alive, or to the family of the donor. The obligation may be impossible to repay. Or the obligation may be based upon justice; people feel obligated toward fairness. Commiseration, a sense of sorrow at the misfortune of another, and respect, a sense that another is superior as a person, are two other conditions that may cause a person to feel obligated to act.

The *Consequentialist View* of gaining moral knowledge rests its case on the view that people should act in such a way to bring about consequences that are most beneficial to the greatest number of people involved. Edward Jenner, the discoverer of the smallpox vaccine, illustrates this view with his actions. He injected a young boy with the cowpox virus and then after a period of time injected the boy with the smallpox virus. This turned out to be the first

vaccination. Entering unknown territory, Jenner could have given the boy a deadly case of smallpox; however, the potential for benefit to millions of people made the risk, in Jenner’s mind, worthwhile. Attention must be given to the consequences of an action, not the motivation. The consequences determine whether an action is good or bad, right or wrong, in a moral sense. In the case of Jenner, the act was good. What is important is that it is possible to know what is right or wrong; the determining factor is the consequence, the result of the action. A person holding to the Consequentialist view of morality is convinced that the problem of moral knowledge is solved.

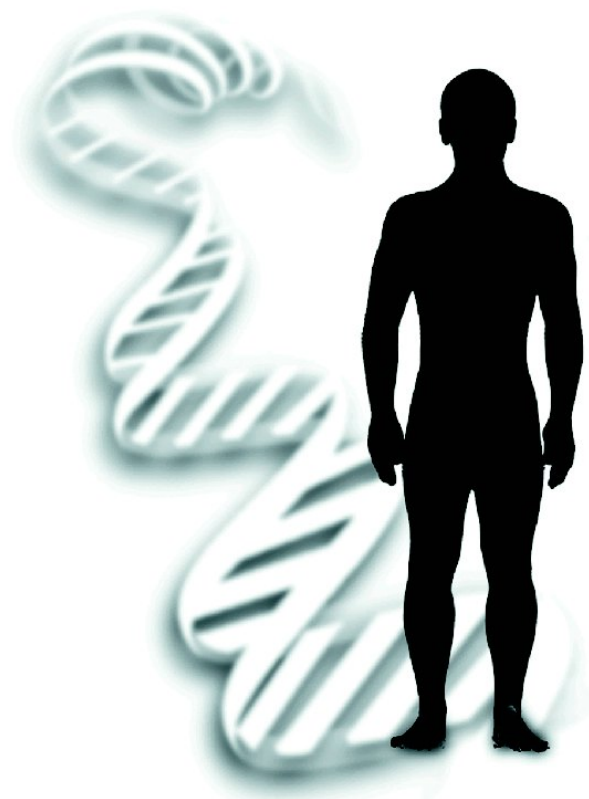
It is important to remember that there is no need to worry about motives, intentions, feelings of obligation, or duty. Although a person might have intended to do something evil, the act must be regarded as good if the consequences turn out to be beneficial. It is the consequence that determines the moral value of an action. One might be perfectly content to say that the end justifies the means. Hitler during World War I instituted a human breeding program in which he used the storm troopers as a sperm source for some German women (Hitler’s Master Race, 1999). He wanted to create a superior race; as a result of this program, the next generation did show some increase in size. If an increase in size is the objective, then Hitler instigated a good act.

A crucial question, of course, is, “For whose benefit should a person be concerned?” There are three alternative answers to such a question. One alternative is called *Ethical Egoism*; a person should regard his or her own benefit when acting. A second alternative is *Ethical Groupism*; a person should regard the benefits for his or her group, family, community, organization, nation, or race and its benefits when acting. A third is *Ethical Universalism*; a person ought to act for the greatest benefit of all humanity. Promotions on television attempt to promote Ethical Universalism when they seek help for needy people in other parts of the world. The hope is that concern for these persons is universal; therefore, people will rally to their support.

It is easy to conclude that *Ethical Egoism* reflects selfishness and *Ethical Groupism* reflects chauvinism. *Ethical Universalism* is a compelling option to many Consequentialist thinkers. How should things be distributed fairly in specific situations e.g., the allocation of extraordinary medical technologies or access to kidney dialysis or distribution of organ transplants? Recent news reports on the ravages of AIDS in Africa have resulted in certain medication being made available from drug companies at a very reduced price. Bill Gates has donated millions of dollars to educate the people of India in an effort to prevent the rapid spread of AIDS in our second most populous nation. These are examples of Ethical Universalism. The point made is that what is morally

right can be known by the careful calculation of the consequences of the actions being contemplated. Should the life of a severely brain-damaged infant be saved, if saving the infant will be a hardship for the mother, father, and family that must care for the infant? For a physician in a hospital delivery room, the question is poignant; he or she knows that care for the brain-damaged infant often does not bring a family closer together, but instead results in unhappiness, separation, and divorce. Should a U.S. citizen be given a heart transplant at the cost of vaccination for thousands of children in a developing nation? If the person in need of the heart transplant is a close relative of yours, you might very well prefer the alternative, *Ethical Egoism*. An individual concerned with suffering children and having no relative needing a new heart could very well choose the alternative, *Ethical Universalism*. The Consequentialist does not escape difficult questions. He or she argues only that what is required is that some reasons be given for a moral decision. It is not enough, the Consequentialist maintains, that a person intuitively obeys some authority, or feels a sense of obligation; reasons for a moral decision are required.

The Consequentialist's position most closely resembles the Scientific approach to morality. In both cases, however, the question of consequences is problematic. When does a person know that the consequences have been realized? Is a person to judge an act by short-term consequences or long-term consequences (Berggren, 2005)? For example, the short-term consequence of the invention of atomic warfare was the end of World War II, when the Japanese surrendered. The long-term consequences include the whole world living under the threat of a nuclear holocaust and large numbers of Japanese living with serious mutations. Was the discovery and employment of nuclear technology morally good or morally bad? Consequentialism does not provide an easy answer to such a question. Time is an important factor in determining whether an action is morally good or morally bad in the Consequentialist view. The life saving potential of a lifeboat helps illustrate this point. A ship goes down, and the captain and 24 other passengers manage to board a lifeboat. The boat has a maximum capacity of 20 people and is already taking on water, when the captain is called upon to make a decision. Five people must be sacrificed for the boat to remain afloat. Throwing five people overboard to certain death does not appear to be a moral act; in the short term the act is morally bad. However, in the long term this will permit 20 people to live. A consideration of the consequences of the act would determine that killing five is the morally right thing to do. Other questions to address include which people should be "murdered," and which saved, and in which group should the captain be?



SUMMARY

All people make moral decisions. That is to say, every human being is faced with decisions about how to act in specific situations, and everyone should be aware that to choose not to choose is still to choose. In other words, everyone is faced daily with moral choices.

Scientists of our time are particularly challenged. Today, many areas of science are involved, not simply with the description of the way things are, but with the capability to change the way things are. The result is that scientists are faced with many moral dilemmas. Is it morally right to control population growth? Is abortion a morally proper procedure? Is it morally right to alter nature by genetic manipulation? Is it morally right to take the resources from one population group in order to benefit another population group (Hinrichsen, 1997)? Is it morally right to transplant an organ from one body to another?

It will benefit biology teachers, who often cover material of a controversial nature, as well as their students, to help the students determine the basis for some of their "moral" decisions. In addition, whether they base their decisions on Authority, Intuition, Science, or Ethical Reasoning, or a combination of these, they should be aware that once they have chosen a particular basis for their decision, they must take ownership of the decision. To say their God or mother indicates to them that something is morally good or morally bad means that they believe it is. Neither God nor a parent is present to defend the students'

decisions. In the end, they are accountable for their decisions.

This paper has considered the various ways in which people make moral decisions. Moral decisions are based upon *Authority*, *Intuition*, *Science*, and *Ethical Reasoning* including *Duty* and *Consequentialism Views*. Whereas, the

Consequentialist's view for moral decision-making appeals to the methodology of many scientists, it is clear that the procedure does not promise easy solutions to moral problems in the life sciences. It does, however, encourage scientists to extend their analytic abilities to a consideration of the social consequences of scientific work.

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