SURVIVAL ETHICS: CONSEQUENCES FOR APPROPRIATE TECHNOLOGY

Charles C Verharen
Howard University, Department of Philosophy, Washington, DC 20059 USA

Key words: ethics, science, appropriate technology, survival

Abstract
This essay examines critically the demarcation of ethics and science. While its method is theoretical rather than experimental, it proposes a research program as a logical next step to test its conclusions. It offers a conceptual foundation for a new ethics whose chief aim is the survival of life. Only a global consensus can challenge contemporary threats to life. The foundation of this new ethics is compatible with classical ethical systems. The essay's concluding sections will sketch the consequences of survival ethics for new definitions of "appropriate" technology. The conclusion proposes both a new discipline called teleonomics that combines philosophy, science, and technology, as well as a demonstration project to test the feasibility of this new discipline.

INTRODUCTION
The discipline of ethics has never achieved consensus. Historically, this aspect of ethics has been an asset rather than a failure. The varieties of philosophical disagreement have amplified our choices about how we should live our lives. However, humanity now confronts a crisis never before experienced: the human destruction of life as we know it. A nuclear war of significant proportion will destroy the food chain through nuclear winter. Growing consensus acknowledges that global warming carries the threat of imminent species extinction. The unprecedented magnitude of these threats to life demands a global response. That response must be grounded in a common sense of ethics, a whole earth ethics.

Saturated in the wrangling that characterizes philosophy, current ethical systems cannot achieve that consensus. Philosophers and neuroscientists have recently suggested new methods for doing ethics as we begin to understand more clearly the relations between brain and behavior. Kwame Anthony Appiah's Experiments in Ethics insists that ethics is at its core an experimental discipline [1]. Richard Joyce's more radical The Evolution of Morality displaces ethics into the neurobiological and psychological sciences [2].

This essay examines critically the demarcation of ethics and science. While its method is theoretical rather than experimental, it proposes a research program as a logical next step to test its conclusions. It offers a conceptual foundation for a new ethics, a survival ethics, whose chief aim is the survival of life. Only a global understanding can challenge contemporary threats to life. The foundation of this new ethics is compatible with classical ethical systems developed over the past five thousand years. The essay's concluding sections will sketch the consequences of survival ethics for new definitions of "appropriate" technology. The conclusion proposes a new discipline called teleonomics that combines the strengths of philosophy, science, and technology. The conclusion also proposes a demonstration project to test the feasibility of this new discipline.

The foundation for a survival ethics springs from a comparison of rationality and ethicality. Richard Joyce collapses ethics into the neurobiological and psychological sciences. These sciences attempt to explain the origins and development of ethics by means of evolutionary theory. The mainspring of this kind of explanation is genetic change and natural selection. More traditional philosophers like Kwame Anthony Appiah
resist the conflation of science and ethics. For them, science is an instrument of
generalized description. Scientific generalizations do not have the force of ethical
prescriptions. The first two sections of the paper will compare rationality as the
embodiment of contemporary science with ethicality to examine their separability.

**RATIONALITY**

*Rationality*’s deepest meaning is to be discovered in its Proto-Indo-European root.
The *ar* sound in *rationality* is linked with other words like *harmony, architecture, arithmetic, arm, art, ratio.* The sound *ar* means to join or to connect. Like all rationality,
human rationality is connecting by means of abstractions. Abstractions are patterns
common to environmental and brain states and accessible through transform mechanisms
not now understood. The virtue of an abstraction is its generality, which enables us to
predict and thereby control our environmental and brain states.

This essay engages an instrumental or pragmatic definition of *rationality.*
Rationality evolves in the service of survival. To be rational, a belief or theory must
correspond with experience, be consistent with other beliefs, be practical, be of wide
scope, be generalized to an appropriate degree, call itself into question when appropriate,
and be meaningful in both semantic and emotional senses.

The conditions of rationality are set by its survival function. Three common
theories of truth express this relationship. The correspondence theory of truth derives its
plausibility from the consideration that brain states must mirror environmental states so
that the organism may make appropriate decisions about actions. The coherence theory of
truth is based on the foundational principle of rationality as connectivity. A connection
either exists or it does not exist; it cannot both exist and not exist at the same time in the
same way. The pragmatic theory of truth reflects the evolutionary origins of rationality.

A theory or belief as an expression of rationality must serve its intended use.
The remaining constraints of rationality follow from evolutionary mechanics. To
be rational is to know all possible facts and theories pertaining to a decision. A rational
belief or theory covers all pertinent belief and experience. The most perfect expression of
the rationality of a belief or theory is its degree of generality. The test of generality is the
ratio between the number of symbols required to express a belief or theory, and the area of
experience covered by the theory or belief. Since the rationality of our beliefs and theories
itself evolves constantly, a penultimate test is the propensity of a belief to call itself into
question.

The final test is a function of the instrumentality of expressing our beliefs. We at
present can only do that through symbols, literally in Greek “throwings-together.”
Symbols are aspects of experience that we choose to re-present other aspects of
experience. The potentially arbitrary nature of the relation between symbol and
symbolized means that we must constantly test that relationship—both for ourselves and
our interlocutors.

With this definition, we can now ask whether there can be a science of rationality.
At this stage of human evolution, there is no algorithm for making guaranteed decisions
about what to believe in making the foundational choices that direct our lives in general,
or our choices of theories and beliefs more particularly. The seven tests of rationality
constitute a basket that must be sorted through in making rational choices. *In extremis,*
one might create a hierarchy of values in the basket.

When faced with urgent choices upon which our survival might depend, practicality can
become an overriding concern. Consistency is infamously the “hobgoblin of narrow
minds.” The simplicity or beauty of a theory might encourage its proponents to dismiss
experiments that contravene the theory. Well-established theories become nearly impossible to question. Widely-shared symbols assumed to have meaning over long periods may acquire a false semantic stature. Nonetheless, deeply seated theories that persist over time meet all seven tests of rationality to the degree possible given the historical limits of understanding. Perfect rationality implies total knowledge, the myth that animates Plato’s definition of philosophy as love of wisdom or perfect knowledge. Philosophers through the ages have made their reputations through acts of hypertrophy—emphasizing one of the tests of rationality to the exclusion or diminution of others. Thus Leibniz’s “universal calculus” sets the stage for computation based on noncontradiction or consistency as the primary test of rationality. Locke, Berkeley and Hume exaggerate the role of empirical (rather than imaginary or calculative) experience. The eponymous pragmatists embellish the role of practicality in rationality. Idealists like Hegel, Spinoza, and Plato focus on the importance of generalization or simplification. Socrates makes his mark by emphasizing the hyper-reflexive character of rationality: “We know only that we don’t know.” Twentieth-century analytic philosophers like Wittgenstein make the most important if not the sole burden of philosophy the need to clarify meanings. These European philosophers demonstrate the variegated nature of rationality. Given our historical perspective, it would be a grave mistake to imagine with them that one aspect of rationality is of overriding importance—or even to imagine that there is no more to life than rationality. Rationality is in fact itself a value. As the primary instrument of human survival, rationality's importance may appear to be paramount. Humans are weak, slow, dimly sensing, poorly naturally armed, tasty creatures that would yield to our competitors at the top of the food chain if not for our ability to think. Thinking is generalizing through abstraction in order to predict and control the future. Philosophers like Plato, Aristotle, and Kant have exaggerated rationality's importance, declaring it to be the primary human value. However, rationality itself depends on our survival for its exercise. Pleasure also drives us toward survival, as do love, caring, and community bonding in our lives. Freedom, happiness, and contemplation as well are close allies of survival. Nevertheless, survival cannot be given a role as the preeminent value because many humans whom we respect and cherish over the ages have sacrificed their own survival for the sake of values they deemed more important than survival—love in the case of Christ, duty for Socrates, satyagraha for Gandhi. Rationality and ethicality are analogous in that no single element or trait can encompass the whole of either characteristic, as I will show in the next section of the paper. The bridge to ethicality is to ask what the value of rationality is for life itself. Shall we use "rational" means to judge our fundamental values? Does rationality receive its own value through an instrumental analysis along evolutionary lines? Is rationality valuable as an end in itself, or only as it serves other ends, such as survival or freedom or happiness?

**ETHICALITY**

Ethicality first requires its own definition. Ethics has acquired the sense of a field distinct from morals. Morals refers to behavior that is customary or acceptable in a given society. Ethics means the study of morals and more deeply the study of value itself. What is valuable is what is desired or, more strictly, what is desirable given some set of fundamental assumptions. At its most basic level, ethics considers appropriate mechanisms for choosing principles or
values to guide our lives. Rationality and ethicality are analogous in the sense that both are complex phenomena that cannot be given a single-factor analysis. Both are indispensable for choosing the directions of our lives. What I want to do in this section is to draw an analogy between tests for rationality and ethicality. Just as rationality cannot have a single defining criterion, so ethicality is expressed through a basket of values. The separate values have their champions in the history of philosophy. Each philosopher makes a case for a single value’s having overriding status.

The history of African, Asian, and European ethics presents a medley of sometimes conflicting goods. Early African and Asian primary values appear to be commonsensical and grounded in the conditions necessary for human survival and flourishing. The oldest written philosophy, that of ancient Egypt starting around 2800 BCE, presents Maat as the highest good. Maat is variously translated as harmony, order, peace, justice, tranquility.

Other African cultures like the Oromo in Ethiopia emphasize a similar overriding ethical principle. The principal ethical good of the Borana, the Oromo group in the southernmost part of Ethiopia bordering on Kenya, is Nagaa, translated as peace or harmony. The Oromo ensure a community-wide harmony among themselves, their neighbors, and the environment through a democratic system called gaada.

The ancient Chinese philosophy of Taoism, canonized by Lao-Tzu and Chuang-Tzu around 600 BCE, enjoins the ethical principles of wu-wei, translated as passive nondoing. The Taoists, as their name suggests, believe that the universe is comprised of a single principle, the Tao, which is a balance of complementary principles striving for harmony. As the Tao or nature seeks its balance, humans live well if they follow nature’s guiding principle of harmony rather than forcefully imposing an artificial system of control on nature.

The common-sense principles of Maat, Naaga, and Wu-Wei contrast sharply with the ethical maxims of other ancient traditions. Hindu philosophy enjoins a value of moksha or liberation from our common-sense conviction that this life we live daily is real rather than a dream. The primary ethical practice of this tradition is meditation, known through the practices of yoga, or the union of Self with God. Buddhism dispenses with the metaphysical presuppositions of Hinduism to focus on a single practical problem—how to eliminate suffering or achieve nirvana. Like Hinduism, however, Buddhism focuses on meditation as the instrument of liberation from suffering.

Plato's concept of the good is the very idea of good itself. For Plato, the whole point of life is to contemplate the perfect model of all that is good. Plato stands out among Greek ethicists for making the contemplation of the good by an immortal soul the overarching end of humanity. Other Greek ethicists are much more down to earth. The hedonists notoriously make pleasure the end of all ends. Aristotle rejects pleasure and substitutes happiness. He defines happiness as activity in accord with excellence. Excellence is a function of the nature of an organism. As thinking beings, our highest activity is thinking, and the greatest kind of thinking is thinking about thinking itself, defined by Aristotle as contemplation or philosophy.

Subsequent European philosophies lose this passion for pure abstraction, but make abstraction the ground for more practical pursuits—the enslavement and colonization of large portions of the world's populations. Augustine carries on the theoretical Christian tradition of universal, unconditional love as the primary ethical principle. However, this principle, first enunciated by the now little known Chinese philosopher Mo Di (or Mozi) in the fifth century BCE, is honored more in the breach than in the observance.
Subsequent ethicists in the European tradition subscribe to more common-sense ethical principles: pleasure for Bentham and Mill; duty expressed through universalization for Kant; freedom for Hegel, Marx, and the existentialists; and the return to the basics of survival and flourishing by "American" pragmatists like James, Dewey, and Rorty. These apparently quite diverse and seemingly random ethical "goods" or values can be reduced to a basket of seven fundamental values. My reduction here is provisional. The basic values are survival, rationality, pleasure, love, happiness, freedom, and contemplation. They cut across African, Asian, and European traditions, and they are associated with the most illustrious philosophers in the traditions of these continents. The common key values are the following: survival for Darwinists, pragmatists, Taoists, and Africans; pleasure for hedonists, Bentham, and Mill; rationality for Kant, Hegel, and Spinoza; love or caring for Christians, Mohists, and feminists; happiness for Aristotle; freedom for Hegel, Marx; and contemplation or meditation for Hindus, Buddhists, and many Judaic, Christian, and Muslim sects.

Can these disparate values be ranked or does each hold an independent status, as is the case with the basket of values comprising rationality? As the pragmatic criterion for believing a theory may sometimes take precedence over other rational values, so survival may under certain circumstances trump all other values—particularly for communities or for the whole earth population when survival is at risk. To be good, after all, is first to be. If survival is not an issue, however, it may deserve little consideration in choosing the fundamental values that are to serve as guidelines for one's life.

Nonetheless, the six values other than survival may be given an explanation through evolutionary considerations. Rationality is the primary instrument of human survival. Pleasure is the stimulus for the behaviors most necessary for the survival of the species—breathing, temperature control, hydration, eating, reproduction, and the like. Love is indispensable for human survival, given the long maturation period of humans and the need for community bonding for group survival. Variation is key to survival, and the value of freedom promotes variation. Contemplation may seem to be quite disconnected from the immediate concerns of survival. However, the primary focus of contemplation or meditation is the control of the attention. Ordinarily, random environmental circumstances dictate the attention's direction. Survival under this condition is a matter of luck. Meditation gives the individual rational control of her attention.

The fact that basic human values may be grounded in considerations of survival does not confer a privileged status on survival. In fact, we may deliberately choose to dismiss survival as a ground value. We may very well be the kind of species that sets up the "ethical" conditions for its own extinction. Powerful historical slogans point in this direction: "Live free or die!" "Give me liberty or give me death!" "Patria o muerte!" Religions like Hinduism, Buddhism, Judaism, Christianity, and Islam proclaim that this life is merely a test. "Real" life starts only after death or transcendence of life. However, the fact that the survival of the species is now at risk makes survival an issue of overriding contemporary concern. The key question is whether enough humans believe that a primary mission of our lives is pass life on to our successors in better condition than we have received this gift. If this proves to be the case, we need a new "technology" to furnish the grounds for continuing life. This technology must synthesize three disciplines: ethics or philosophy, science, and technology itself. The technology must find a common ground for a "whole earth" ethics that the majority of humans, regardless of their individual cultures and religious beliefs, can subscribe to. This new ethics must have as its primary focus the survival of the species.
TELEONOMICS: A NEW STRATEGY FOR A SURVIVAL ETHICS

My proposal for a new discipline assumes that basic human values or ends are naturally defined. Just as we are born to be grammatical, so we are conceived to be ethical [3]. Nevertheless we can assign hierarchies to naturally ordained values as well as subvert them. The enterprise of selecting our deepest ethical ends, interpreting what they mean, and assigning weights to them is a basic task of philosophy or more specifically ethics. This task includes highly theoretical proposals for achieving ends or values in ways that are consonant with other ends.

A quite separate enterprise is the task of actually achieving these ends. This part of the enterprise must be both scientific and technological. I define science as the system of generalizations and explanations that we use to understand, anticipate, and control experience. Technology is defined as the art of translating our understanding of experience into action. I call the fusion of philosophy, science, and technology teleonomics after the Greek terms for ends and laws.

The point of teleonomics is threefold: to choose ethical ends consonant with survival; to propose general means for achieving those ends through scientific reflection; and finally to propose practical means for realizing those ends through a synthesis of appropriate technologies.

The epistemological status of teleonomics must be comparable to that of economics, the “rules of the house” in Greek. Scientific generalizations about “what happens when” with respect to human behavior are notoriously statistical and often unreliable. However, the less general aspects of teleonomics are based on experience, and are quite reliable. Appropriate technologies exist to translate scientific or common sense generalizations into practical arts. The statements of teleonomics are hypothetical rather than categorical. Ethics tells us "Thou shalt do thy duty!" or “Thou shalt survive!” or “Thou shalt maximize pleasure!”

Teleonomics phrases its commands in hypothetical form: "If you wish to survive, then you must breathe, regulate your temperature, drink, eat, sleep in descending orders of urgency." Techniques for survival have been worked out over perhaps hundreds of thousands of years. Teleonomics is a synoptic discipline in that it relies on all other sciences to project its conclusions. It is an evolving science because it must change its hypothetical imperatives to fit altered circumstances. Weapons of mass destruction and global warming provoke unprecedented calls for ethical action.

Teleonomics is a bridge between ethics and science in unique ways. All sciences have a philosophical component—the extreme assumptions that drive research in the sciences in different directions, assumptions that cannot be tested given the current state of knowledge and their degrees of generalization. The Duhem-Quine hypothesis holds that theories cannot be refuted nor verified, because we cannot test the deepest assumptions. Parallax serves as an example. Geocentrists held that the failure to detect parallax meant the earth could not be moving. But geocentrists assumed that the distance between the earth and the stars was not sufficient to make parallax detection difficult. The falsity of that assumption required better instruments for measuring stellar distances. 383

All sciences face this difficulty. However teleonomics must not only cope with our inability to test deep ethical assumptions, but also translate scientific generalizations into appropriate technologies. Appropriate here means ethically appropriate—productive of global peace and sustainable with respect to the rights of future generations. Teleonomics must bridge the spectral divides between science and philosophy as well as between science and technology.
The relations among the three disciplines are not hierarchical. Working with appropriate technologies may in fact show that our philosophical choices of ends or our basic scientific understanding of their realization have been wrong. The current hypertrophy of technology (“things are in the saddle and ride mankind,” as Emerson declares) illustrates this claim. Choosing to focus on rationality and using complex technologies to realize basic human values have threatened our survival. In translating philosophical assumptions into scientific generalizations, and those generalizations in turn into ethical and sustainable technologies, teleonomics is neither philosophy nor science nor technology, but a fusion of all three disciplines. The sciences should furnish the chemistry, physics, and biology of alternative renewable safe energies and other resources. The technologists or engineers using these fields should propose appropriate techniques for survival. By reason of its synoptic character, teleonomics is not a discipline that can be exercised by a single researcher.

CONCLUSIONS
This paper sketches a theoretical instrument for assessing technologies that are ethically and practically appropriate in the largest possible sense of ensuring human survival and sustaining our environment. Implementation would entail recruiting interdisciplinary teams to collaborate on the planning of appropriate micro- and macrotechnologies. The first phase of a practical execution of this research proposal will select a small-scale demonstration project on water treatment and management to be developed by an interdisciplinary team of philosophers (Charles Verharen), scientists (George Middendorf, biology, Howard University) and engineers (John Tharakan, chemical engineering, Howard University). Because the appropriateness of a technology is inseparable from reflection on local culture, the team will include anthropologists (Bruce Dahlin, Shepherdstown University) and critical members of the community (to be selected from the Global South) where the project is to be implemented and tested.

REFERENCES