Ethics -- Part II

(the second of two lectures in Engineer's Toolbox)

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"Virtue is its own reward."

Cicero, c.a. 100 B.C.

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To review:

Our framework for ethical deliberations --

objectivity

conflict of interest

full disclosure

promoting the public good

In practice, how do we make ethical decision?

The moral dilemma

You discover a faulty blood oxygenator in a hospital and tag it. A supervisor removes the tag, stating “this is only a minor defect, and patients may die for lack of this machine.” You object and are threatened with disciplinary action.

You work for a device company, and developing a great new widget. But, it is far from a reality. Your boss asks for diagrams, photos and descriptions to put into ads that will bolster the stock position of the company.

Steps in confronting moral dilemmas:

1. Identify the relevant moral factors and reasons. What are the conflicts and clashing ideals?

2. Gather all pertinent facts (technical and moral).

3. Try to rank the moral considerations in order of importance
As they apply to the situation.

4. Consider the alternate courses of action and study implications.

5. Talk with colleagues, friends, mentors.

6. Arrive at a carefully reasoned judgement by weighing all the relevant moral factors and reasons in light of the facts (this is the HARD step).

A Structured Way to Approach Ethical Problems:

Dilemmas force hard moral choices. They cause us to deal with values. If we are going to deal with dilemmas in an organized manner that allows us to explain and defend our decisions, and not start from ground zero with each new problem, we need to:

- Think about what we mean by such terms as good, bad, right, wrong, and necessary.
- Consider, at the most general level, what kinds of actions are morally permissible. Is war ever justified? Can a price tag -- any price tag -- be put on human life? Is it ever permissible to eliminate a species?
- Bring the general and theoretical to specifics which relate to the here and now of the real world. Is capital punishment a moral way to deal with those who are guilty of murder? Was the Persian Gulf War justified? Was it morally permissible to drop atomic bombs to end World War II?

This process allows us to get in our minds clear ideas about what is right and wrong and helps us to decide what to do in other cases.
Then we have to make important distinctions. We have to distinguish between:

- Conventional and Reflective Morality - Is what we have always done what we ought to do?
- Morality and Law - Just because it is legal, is it right?
- Morality and Prudence - Can we morally do it, just because it is in our best interest?
- Morality and Economics - Is the most economic decision the most moral decision?
- Morality and Obedience to Authority - Is following orders that are not proper a legal or a moral defense?
- Morality and Mere Opinion - Are you obligated to search further for a reason to justify actions than mere opinion?

This takes you back to the start of the list and the considerations of what morality really means.

Follow the above system when you analyze ethical dilemmas and you will be able to completely encircle the problem and approach its solution from many directions. But remember: You usually have to give up something of value to get something of value, and with ethics, there frequently is no absolute right answer, just a personal best answer, and it all comes down to you.

http://www-hsc.usc.edu/~mbernste/

SEPTEMBER 11, 2001

What happened in the United States on September 11 2001 was so terrible and so grossly unethical and representing such a threat to peoples of our country and of the world that it would seem that the societal significance all of the bioethical discussions on this website just pales by comparison. One can say, "Why worry any more about whether cloning, euthanasia or genetic testing is ethical or whether a patient has received informed consent when such an unbelievable magnitude of maleficence has just occurred?" But is such comparison valid? All of society is made up of individuals and how individuals interact with each other has discrete moral value concerns that cannot be trumped or ignored by the concerns for the events such as what happened on September 11th or the Nazi holocaust, for example. In fact, it is the ignoring of the individual and that person's needs, goals and basic human rights, which has contributed to such events.

We all, myself included, have felt shocked and saddened by what happened September 11 2001 and as with myself we are all rethinking our priorities. But our earnest attention and concern to the right and wrong of the old and new issues in bioethics should not change. .. *Maurice Bernstein, M.D.*

A few ethical issues in the news:

Computer-directed animals

The right to patent a human being

Implantable identification devices

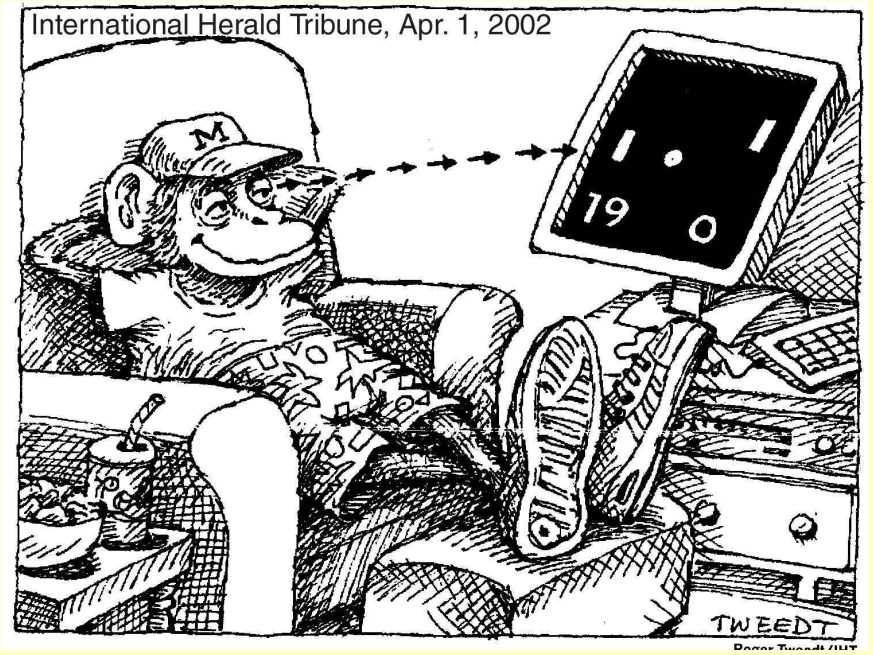
Is it ethical to buy organs?

A heart pump saves lives

Who are the parents of a baby?

When is death -- what is death?

Better than human with prostheses



J. Donoghue, Brown University

Some solid rules (preachin' and guidelines)

Accept personal responsibility

Avoid conflict of interest

Reject bribery in all its forms

Maintain your technical competence

Seek, accept and offer honest criticism

Treat people fairly (regardless of race, age, sex, national origin, religion)

Avoid injuring others

Assist others in following these guidelines

Based on the IEEE code of ethics

Ought to…

Integrity

Honesty

Virtue

Most good for the most people...

Respect (self respect)

Human rights

Responsibility (professional responsibility)

Engineers, in the fulfillment of their professional duties, shall:

1. Hold paramount the safety, health and welfare of the public in the performance of their professional duties.
2. Perform services only in areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act in professional matters for each employee or client as a faithful agent or trustee.
5. Avoid deceptive acts in the solicitation of professional employment.

National Society of Professional Engineers (NSPE), "Fundamental Canons," *Code for Ethics for Engineers (1987)*

A contemporary thinker and his double.

From “Engineer’s Toolkit” C. Mitcham and R. Duvall

http://www.cen.uiuc.edu/~vincens/peo_hydrogels.html

Books, Review Articles

"The Principles of Biomedical Ethics," T.L. Beauchamp and J.F. Childress, 4th edition, Oxford University Press, NY 1994

"The New Engineer," S. Beder, Univ. of Wollongong, Australia, 1998

"Ethical Issues in Engineering," D.G. Johnson, Prentice Hall, NY, 1991

"Ethics in Engineering," 3rd Edition, M.W. Martin and R. Schinzinger, McGraw Hill, NY, 1996

"Biomedical Ethics and the Biomedical Engineer: A Review" S, Saha and P.S. Saha, Critical Reviews in Biomedical Engineering, 25(2), 163-201 (1997)

"Engineer's Toolkit: A First Course in Engineering," Carl Mitcham and R. Shannon Duval, Prentice-Hall (2000)

"Fundamentals of Ethics for Scientists and Engineers," Edmund Seebauer and Robert Barry, Oxford University Press, (2001)

Some items from the table of contents:

"Fundamentals of Ethics for Scientists and Engineers,"
Edmund Seebauer and Robert Barry, Oxford University Press, (2001)

- The Person and Virtues
- Analyzing Acts and Intentions
- Toward a Hierarchy of Moral Values
- Moral Judgments
- Moral Responsibility
- Truth
- Fairness
- Resource Allocation
- Risk (and Benefit)
- Differing Ethical Systems
- Habit and Intuition

Novels that directly address ethical principles important to scientists and engineers

"The Spire" William Golding

"The Bridge Over the River Kwai" Pierre Boulle

"I Robot" Issac Asimov

"Cantor's Dilemma" Carl Djerassi, Penguin-Viking Books, NY, 1989

"Nice Work" David Lodge

There are many WEB sites:

http://www.scu.edu/SCU/Centers/Ethics/ (see cases and comments)
http://www.onlineethics.org/
http://www.chowan.edu/acadp/ethics/science.htm
http://www.niee.org/Default.htm

The Three Laws of Robotics:

1. A robot may not injure a human being, or, through inaction, allow a human being to come to harm.

2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.

3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

Issac Asimov

Two ethics cases

Ethics Case: The Backwards Math

http://www.murdough.ttu.edu/EthicsModule/Ethics1.htm

Murdough Center for Engineering Professionalism
Texas Tech University
Lubbock, Texas

Jay's boss is an acknowledged expert in the field of catalysis. Jay is the leader of a group that has been charged with developing a new catalyst system, and the search has narrowed to two possibilities, Catalyst 'A' and Catalyst 'B'.

"The boss is certain that the best choice is 'A', but he directs that tests be run on both, 'just for the record.' Owing to inexperienced help, the tests take longer than expected and the results show that 'B' is the preferred material. The engineers question the validity of the tests, but because of the project's timetable, there is no time to repeat the series. The boss, therefore, directs Jay to work the math backwards and come up with phony data to substantiate the choice of Catalyst 'A', a choice that all of the engineers in the group, including Jay, agree with. Jay writes the report."

Consider the following with regard to the "Case of The Backwards Math:"

1.If you were Jay, what would you have done? Would you have written the report?
2.If you had refused to write the report, how could you have justified this refusal since you, along with all of the others on the team, felt that the test data was invalid and there was not time to duplicate the test? Is it not likely that experience is a better guide than one set of questionable test data? If yes, does this impact on the ethical nature of the dilemma?
3.Would it have been a good idea to write the report and also write a memo saying that you were being directed to do something which was unethical? If you did this, would it be done just to cover you if you are found out? Would that make what you did any more ethical than it would have been without the memo?
4.How about an alternative -- writing the report, but not signing it? Is this a satisfactory solution to your ethical dilemma?
5.Is this a case in which you would become an "internal" whistleblower by going over your boss' head and reporting that you had been asked to write a false report?

More cases: http://onlineethics.org/eng/cases.html

A mercy or a murder?

Bradley, once a successful scientist, was diagnosed a few years ago with amyotrophic lateral sclerosis (Lou Gehrig's disease), a ultimately fatal neurodegenerative disorder. Dr. Fiona Jones had been treating Brad since the onset of this illness. Over the last few years, Brad had gradually lost the ability to work, walk, dress himself and feed himself. He could, with painful struggle, speak only a few words. The prognosis was terrifying -- the condition always deteriorates. Soon he would lose the ability to partake in all aspects of life that most view as normal. He would need a respirator to prevent him from drowning in his own secretions. He had become severely depressed. He was a liability to his wife. He had no more joy in life.

Brad asked Dr. Jones to "end it all" for him. Dr. Jones was sympathetic. She could not help his condition or even offer him much comfort -- only sustain his life, his agony. But, her Hippocratic oath and the laws of the land forbade her to perform euthanasia.

She had an idea. Could a machine be designed that would allow Brad to quickly and painlessly take his own life? Dr. Jones' good friend was an engineer. Dr. Jones asked her to design an apparatus to give to Brad that would allow him to control his own fate.

What are the the ethical considerations that Brad must address?

What are the the ethical considerations that Dr. Jones must address?

What are the the ethical considerations that Dr. Jones' engineer friend must address?