



Lecture 8

Ethics in Science

What is ethics?

- We can say it is a system for guiding our choices in different situations
- But it is not just rational choices. It is about situations where our conceptions of right and wrong and good and bad play roles
- We could say that ethics tries to be a logical theory about something - perhaps - irrational

The rational person

- A rational decides what his/her goals are
- The goals are pursued in a rational way
- Rational probably means that they are pursued in a way most likely to achieve the goals
- But the goals should also be rational
- But then - what is a rational goal?
- Do we need ethics to find out?

Fundamental questions

- What is good and what is bad?
- Why is it good and why is it bad?
- What does good and bad mean?
- What is right and wrong? How are these concepts related to good and bad?
- There are no uniformly accepted answers - at least not now, 2015

Some famous theories

- Utilitarianism - We should increase happiness in the world
- Subjectivism - It is up to everyone to find his/her moral values
- Relativism - Ethics is something defined by your culture. Different ethics are equally true
- Intuitionism - We should follow our intuition on true moral values

- Deontology - There are a few general rules that must be followed unconditionally
- Supernaturalism - Moral rules are commands given by a supernatural being
- Emotivism - Saying that X is good means the same thing as saying: "Hurrah for X!"
- Virtue ethics - You should try to be a good person. Then good actions follow naturally

The best ones?

- We will focus on:
- Consequentialism/Utilitarianism
- Deontology/Duty ethics
- We will then look at a third form of ethics:
Contract Ethics

Best in what sense?

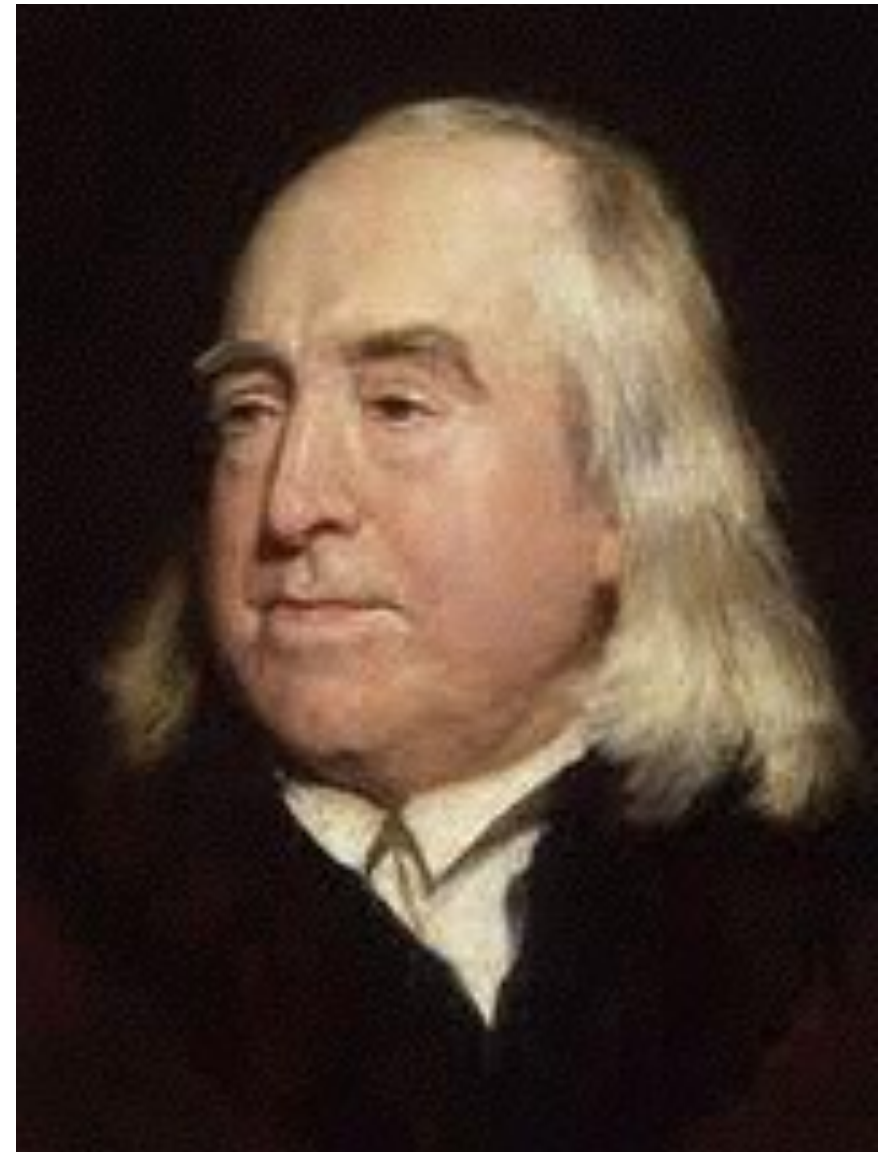
We could demand that an ethical theory should work

- Intuitively: It should to some extent agree with generally accepted notions (whatever that is)
- Operationally: It should give working guidelines for our behavior
- Logically: It should be amendable to some form of logical analysis

Consequentialism- Utilitarianism



John Stuart Mill



Jeremy Bentham

Consequentialism

- The basic idea in consequentialism is that we act so that we maximize the goodness of the results.
- What do we mean by good? Utilitarianism means that we try to policy is to maximize the total happiness in a society. Because it is the most common type of consequentialism we will primarily deal with it.
- What then is happiness? One interpretation is that it is a pleasure. Another that there is fulfillment of desires. More interpretations exist.

Good things with utilitarianism

- It has a logical clarity that makes it seem quite believable.
- It can handle requirements of impartiality in a good way.
- It allows for detailed analysis of different alternative options.

Weaknesses of utilitarianism

- Is this kind of happiness calculus really possible in practice?
- It seems to defend injustices and indifferences to a person's suffering when this suffering is outweighed by many people's happiness.
- It seems to be able to justify almost any type of actions, assuming that they have good consequences.

Act utilitarianism and Rule utilitarianism

- The idea of Act utilitarianism is that every action must be assessed individually.
- The idea of Rule utilitarianism is that we should follow the rules that usually leads to acts that have good consequences.
- Both types of utilitarianism have followers.

Duty Ethics-Deontology



Immanuel Kant

Duty Ethics

- According to the ethics of duty, we shall make an assessment of the acts themselves. Certain actions are prohibited regardless of the consequences.
- For instance, this could be acts like lying, breaking promises, stealing, murdering, etc.
- These acts are said to be bad in themselves. But how do we know that they are bad?

The categorical imperative

- "Always act according to that maxim which you may like to elevate to a universal law."
- Kant meant that morality is a question of unbiased logical reasoning.
- According to Kant, several of the morality laws have clear, logical explanations.
- It is, for example, contradictory to say that it is permissible to lie because the concept of truth and falsehood would lose its meaning if we could freely choose to lie.

Good sides of duty ethics

- It is simple and easy to understand.
- It often seems to match well with our intuition.
- It is often evident how to use it in applications.

Weaknesses of duty ethics

- It can defend some acts that could have very bad consequences only because the acts are correct *in themselves*.
- If we have various different moral laws which are in conflict with one another (which seems to be possible), how should we then choose? Duty ethics often talk about a hierarchy of rules. This does, however, make the theory more complicated.

Ethical Thought Experiments

Many ethical thought experiments are about medical problems. For instance:

A child is born without a functional brain. She can be kept alive for some time, but it is not really a life (or we don't think so)

- If her organs are needed for saving lives of other humans - is it right to let her die and transplant her organs?
- If a costly and difficult operation can prolong her life, but not making her well - is it right to refuse to do the operation?
- If her life (if it is to be called so) is painful - is it right for her parents to kill her (a "mercy killing")?

All these are actual cases.

Ethical Conflicts

In cases like this we can detect a conflict between rationality and intuition.

Another way to put it is that it is a conflict between consequentialism and duty ethics (*thou shalt not kill!*).

If problems like this have "solutions" we normally get them by considering a so called *reflexive equilibrium*.

The scepter of Egoism

The pervious problems were problems of the what kind. But then we have problems of the why kind.

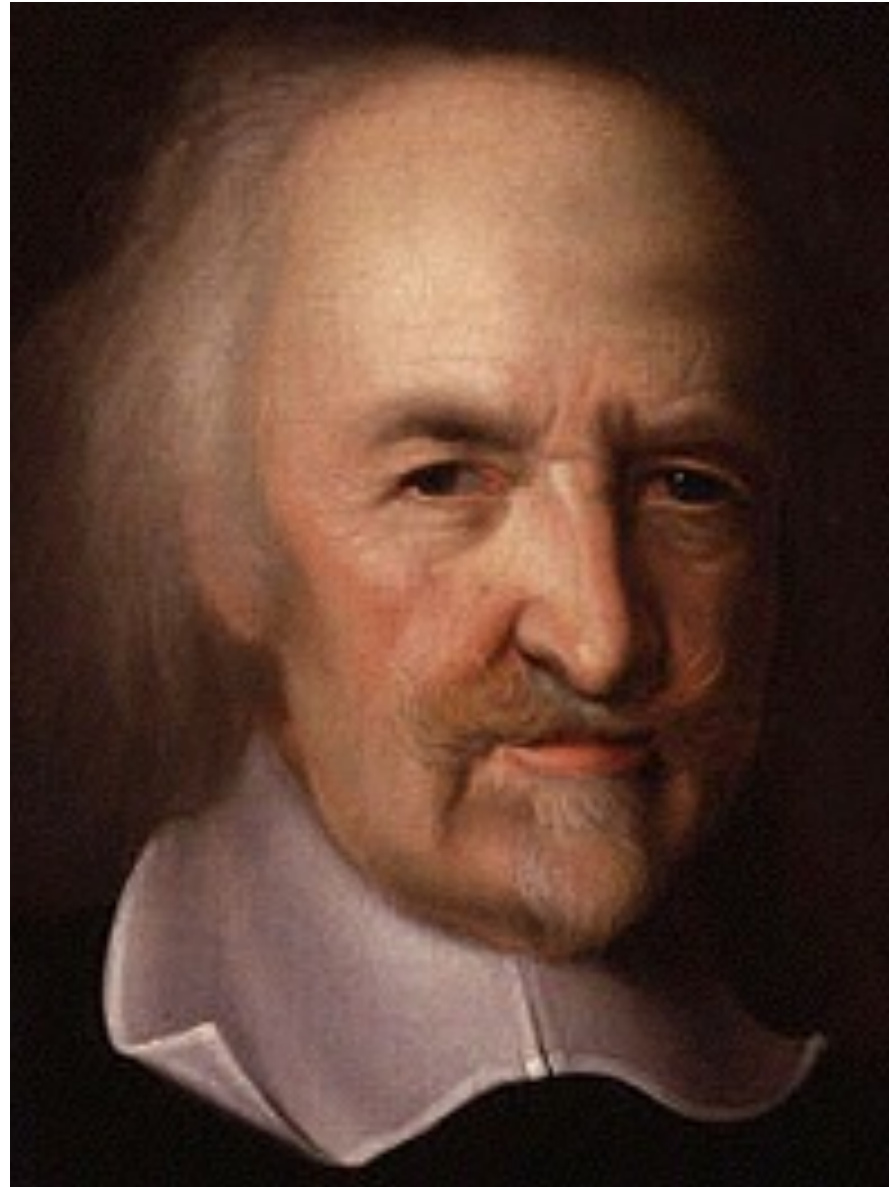
This is an expression of a common attitude to (business) ethics:

"Everyone knows what is right to do. The problem is to do it!"

A central question of ethics is this: *Why shall we avoid being egoistic and instead see to the common good?*

The next theory tries to provide sort of an answer to this question.

Contract Ethics



Thomas Hobbes

Contract Ethics

- A code of ethics is a set of rules that you agreed to follow. We have, so to say, drawn up a contract.
- According to Hobbes, ethics is such a social contract that all citizens must be aware of.
- We can think of a profession that has rules for how its members should act. If you do not follow the rules, you are not in the profession any longer.
- Compare with playing chess: If you don't follow the rules you don't play chess!

Contract Ethics

- The main idea is that we need ethics in form of laws in order to make co-operation between humans possible
- In a way it is more important to have rules even if they are bad rules than to have no rules at all
- But of course we should aim for good rules.
How? We can take inspiration from other theories like consequentialism and deontology

Who needs ethics?

- It could be individuals that are benefactors of ethics
- It could be society that needs ethics
- Depending on if you start with individuals or society, you could reach different conclusions about ethics
- Is an ethic good for society necessarily good for the individuals? - a classic political question
- Contract ethics seems natural if we restrict analysis to a specific part of society - like a profession - like science

A summary

Theory	Intuitiv	Operational	Logical
Consequentialism	No	?	Yes
Deontology	Yes	?	No
Contract	?	Yes	Yes

Contract ethics for scientists

- The idea of an ethical contract seems to fit well with what scientists are doing.
- But how should the contract be— what rules should you follow?
- We propose that the rules are selected both with regard to consequentialism and duty ethics.
- We are trying to achieve *reflexive equilibrium*.

The ethical problems for scientists

We now try to focus in the special problems that can face a scientist. Here are some of the main problems:

- Everything you go public with should be true and correct. *You shall tell the truth, the whole truth and nothing ...* and so on.
- You shall give recognition where recognition is due. (All these references, you know!)
- You should do research with good consequences. (Try not to be an *evil* genius.)

A proposal for scientific ethics

One suggestion is that a scientist should work in such a way so that he/she takes into account the following 10 principles

Ten principles

- Honesty
- Accuracy
- Openness
- Freedom
- Recognition
- Teaching
- Social responsibility
- Opportunity for all
- Mutual respect
- Respect for human (and animal) subjects in experiments

Based on: David B Resnik *The Ethics of Science*

Detail Studies

We look at some disciplines and some special problems.

Honesty

- The early 1970s. Summerlin "transplanted" skin from black mice onto white mice.
- It turned out that he painted the black stains on the white mice with a marker.

Honesty 2

- Millikan

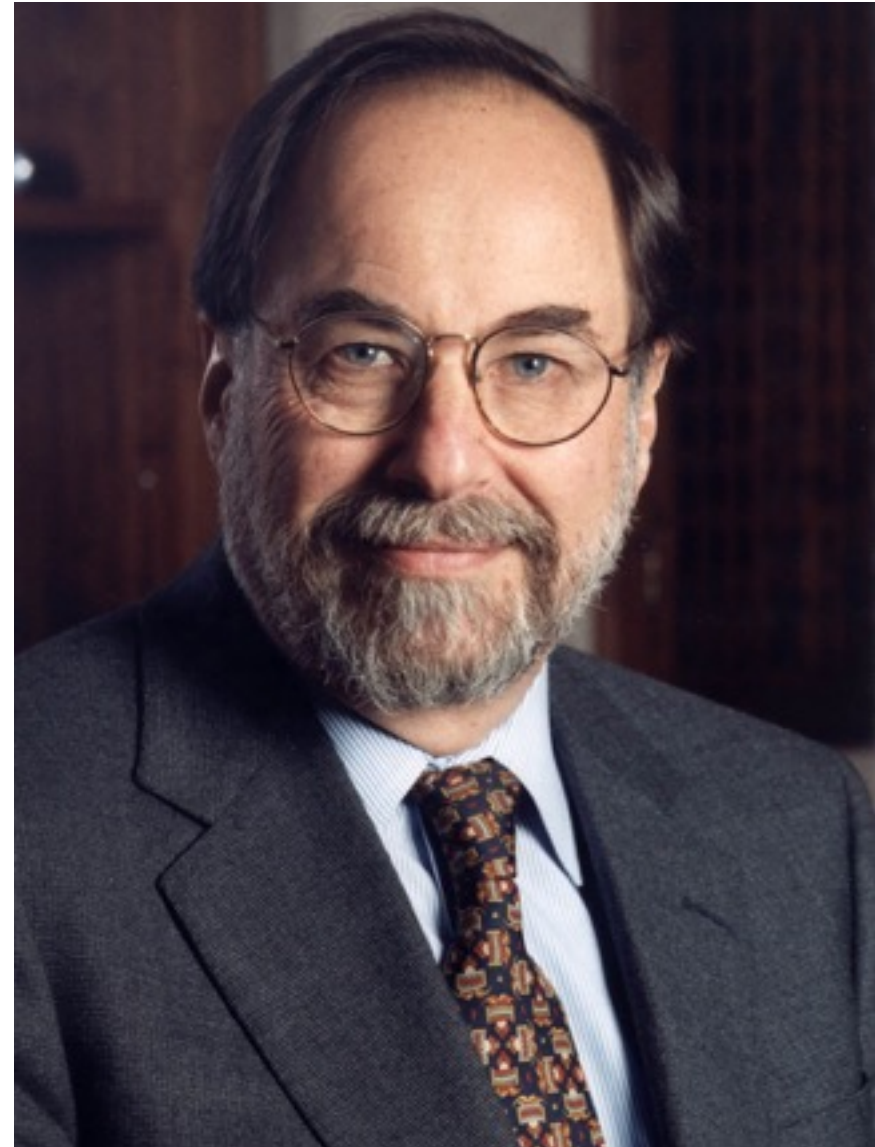


Honesty 2

- In 1910 Millikan determined the electron mass through experiments on the weight of charged oil drops.
- It turned out that he made 140 experiments but rejected 49 of them that didn't agree with the other ones.

Honesty 3

- The Baltimore Affair



- The Baltimore Affair (after Nobel Laureate, Baltimore)
- A researcher, Imamishi-Kama claimed to be able to implant genes in mice that changed their immune system.
- O'Toole, a post-doc, found notes in Imamishi-Kama's journal that contradicted the results.

- O'Toole reported this but it did not lead to any action.
- After that, O'Toole found it very hard to get jobs in the future.
- Later, the records were examined again and strange edits were found in them.
- Carelessness or forgery?

Honesty 4

- N-rays.
- N-rays "were discovered" in 1903 by Blondot. They could only be seen with the naked eye.
- Research on N-rays became fashionable. Around 100 scientists published about 300 articles about N-rays.
- But it turned out that they didn't exist at all!

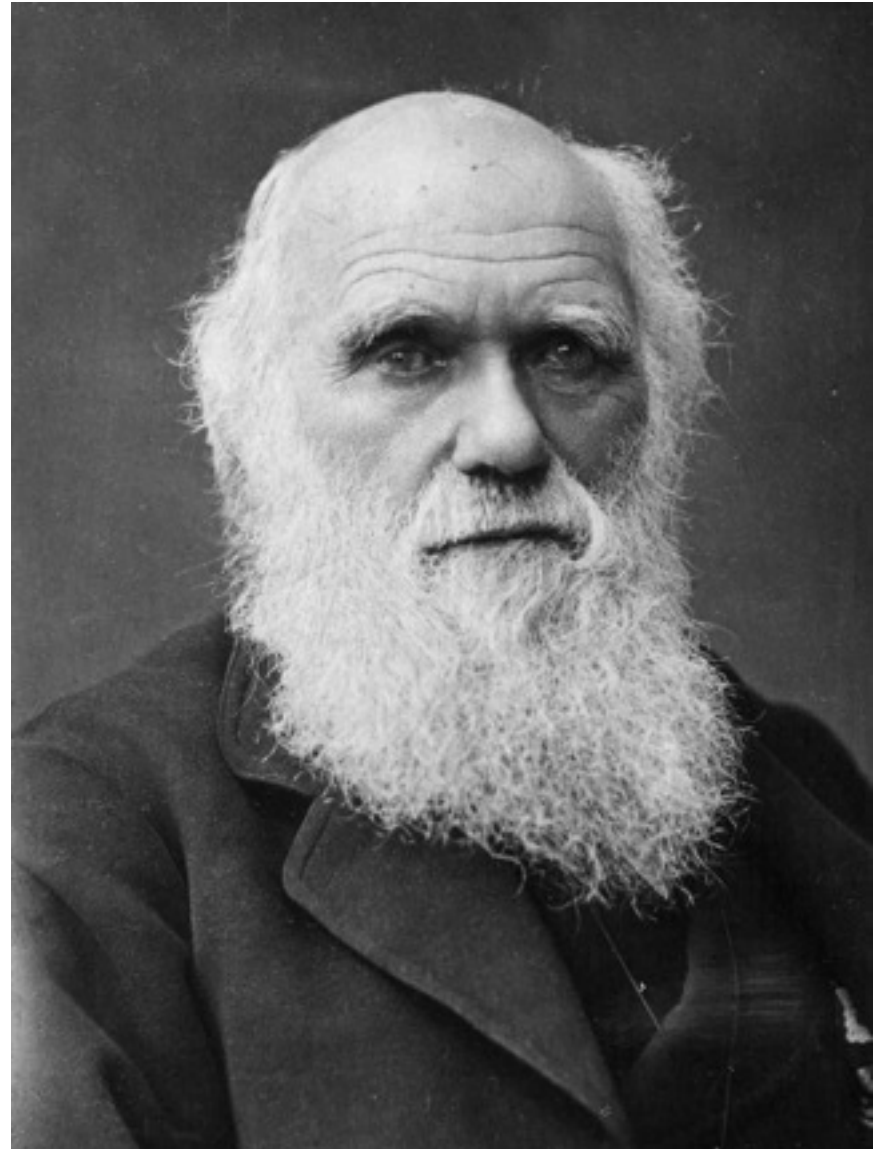
Honesty 5

In conclusion, it seems that weird errors in research can depend on:

- Intentionally cheating.
- Carelessness.
- Wishful Thinking.

Openness

Darwin withholding knowledge

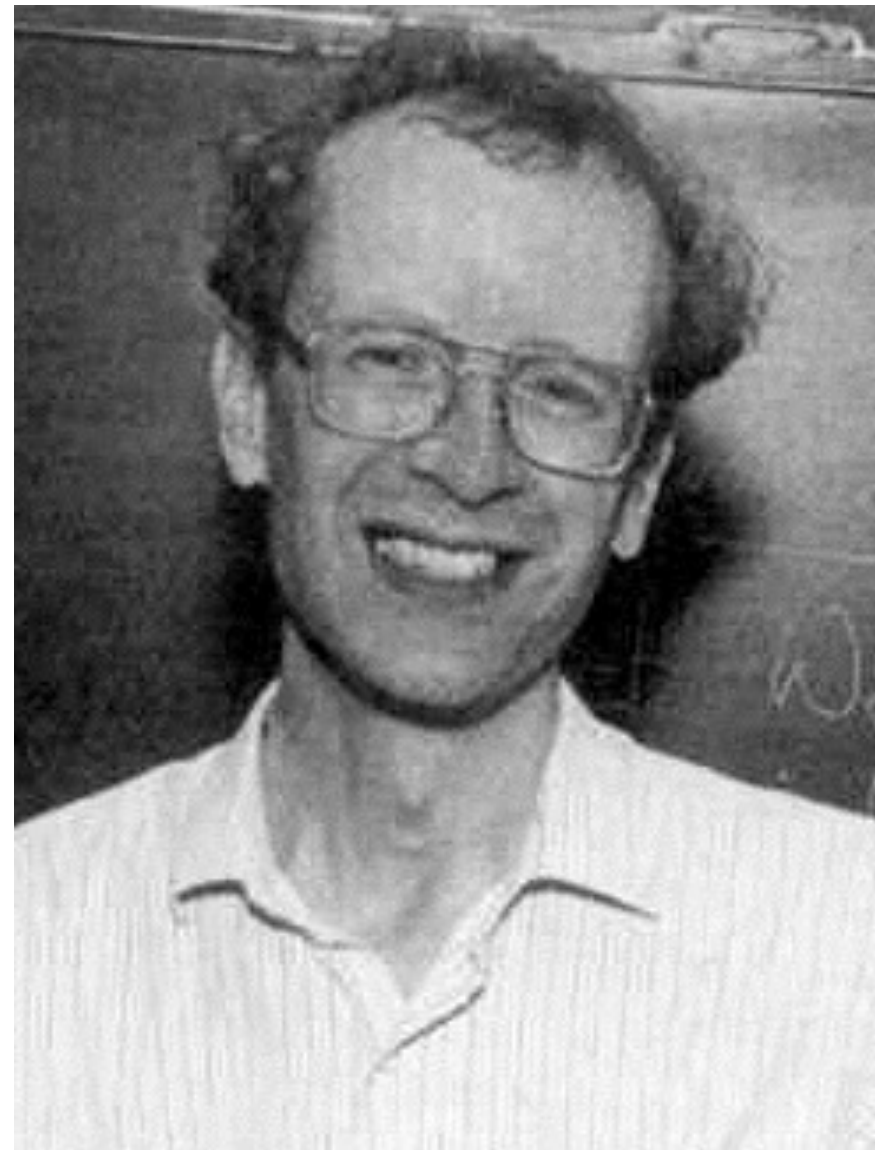


Transparency

- Darwin would say nothing about the insights he made during the trip with the Beagle. He remained silent for more than twenty years.
- Only after Wallace seemed to have come up with the same ideas, Darwin chose to publish.
- Unethical?

Transparency 2

- Wiles's actions



Transparency 2

- Wiles announced a proof of Fermat's last theorem. The first proof he presented contained an error.
- He withdrew it and refused to explain his (partial) proof or to collaborate with anyone.
- Later he presented a corrected proof.
- Unethical?

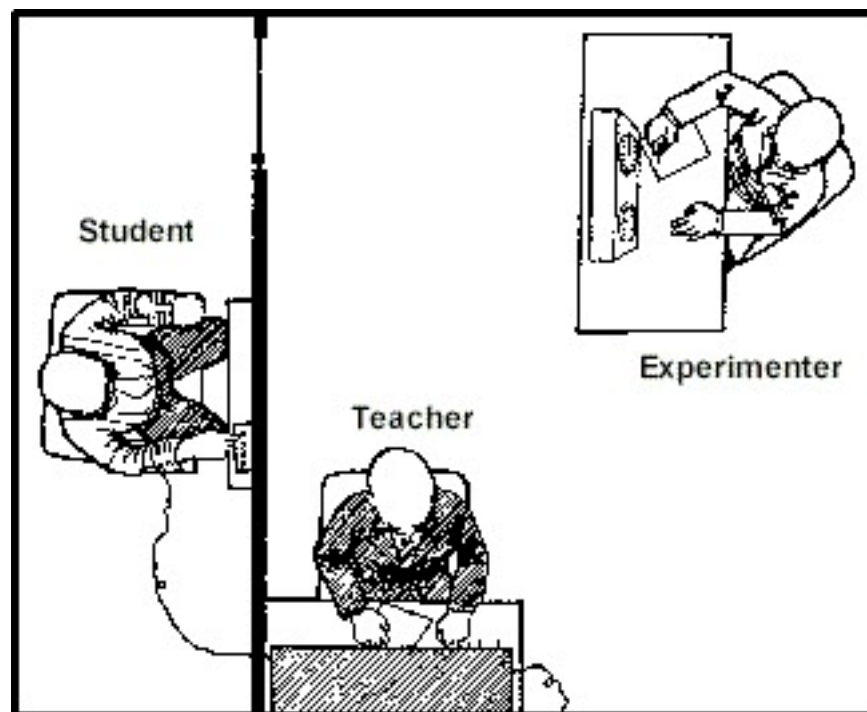
Research on human subjects

- Milgram being tricky



Research on human subjects

- A famous experiments by Milgram in 1974.
- A person A got to ask questions of a person (B); If (B) answered wrong, (A) should give him an electric shock. The voltage was increased gradually.
- Finally A gave B a lethal shock!
- The experiment was repeated with many subjects. The results were the same on many cases.



Research on test subjects 2

- But the shocks were not real even if A thought so!
- People seem to be able to be manipulated to become evil.
- The experiment violates the rule that research subjects should be informed about what the experiment is.

Recognition and Publishing Questions

- Scientific articles are assessed according to the Peer Review System. Articles are reviewed by anonymous researchers (referee) in the same area. The system is single blind.
- It would be a better system was double blind?
- It would be better if the system was completely open?

Publishing questions 2

Code of ethics for a referee:

- Shall assist the author.
- Must be fast and accurate.
- Shall not steal ideas.

Publishing questions 3

What are the main reasons against plagiarism?

It seems mainly to be that plagiarism complicates assessment of a person's qualifications.

Researchers must avoid accidental plagiarism (also).

But similar ideas may emerge at the same time.

Publishing questions 4

- Who should stand as main author?
- Basic principle: If X persons are stated as authors it should be assumed that they are equally responsible for the article.

Publishing questions 5

Problem:

- The Mathew effect: The best known gets all the glory.
For to the one who has, more will be given, and he will have an abundance, but from the one who has not, even what he has will be taken away.
- All authors are responsible for errors.
- How serious is it for example, a doctoral student needs career help and a professor puts the student's name on a paper?

Teaching and popularization

Problems for popularizers:

- Takes time away from research
- Requires skills that often have not been taught.
- Often have to deal with disdain from colleagues.

Teaching and popularization 2

- Results presented in popularizations can be misunderstood.
- Is it, for example. useful to drink wine?
- Should the public know everything?

Teaching and popularization 3

To hide the information (on moral grounds) is often referred to as paternalism

- Three attitudes:
- Strong paternalism: Manipulating information in order to help people.
- Weak paternalism: Manipulating information in order not to harm people.
- Autonomy: Describe everything as it is.

Teaching and popularization 4

Research and teaching must in principle be regarded as equally important.

But in practice, teaching gives lower status.

Social conditions in the laboratory and research environments

Same problem as in other workplaces with harassment, and so on.

Strong interdependence between the supervisor and the doctoral student can give problems.

The problem is, of course, the supervisor has so great influence over the students career.

The ten principles again

Honesty

Scientists shall not falsify or distort the results.
They must be objective and impartial in the research process.

Ex: the Baltimore affair and Millikan's experiment.

Accuracy

Scientists should avoid errors in research caused by carelessness and uncritical thinking. They should avoid self-deception and conflicts of interest.

Ex: cold fusion that didn't get reviewed before the press conference.

Openness

Scientists should share data, methods, and ideas with others. They shall permit criticism.

Example: Wiles's actions in connection with Fermat's last theorem can perhaps be criticized.

Freedom

Scientists should allow all kinds of research, ideas and theories. They shall, however, criticize research, ideas and theories they perceive as wrong.

Example: The Soviet Union was dominated by Lysenkos genetic theories and he was not challenged.

Recognition

Scientists should give recognition to those who deserve it, above all at the publication of books and articles.

Example: what does it mean when someone is standing in as one of the authors of an article but have not done anything?

Teaching

Scientists should devote part of their time to teaching. They should also strive to inform the public about science.

Example: Researchers that "flee from" teaching or deliberately miss-manages it.

Social responsibility

Scientists should avoid research that harms society.

They should try to produce good effects. Scientists are responsible for their research and to inform the public about the possible negative consequences of it.

Ex: Research might show that wine drinking is useful in certain circumstances. Should they report it uncritically?

Opportunity for all

Scientists should strive for the goal that everyone have the opportunity to work in science regardless of gender and ethnic or social background.

Example: perhaps there should be "quotas" for certain groups.

Mutual respect

Scientists should treat colleagues with consideration and respect.

Ex: in some institutions there may be informal coffee room bullying.

Respect for the subject

Scientists should treat human subjects and laboratory animals with dignity. Scientists should not violate anyone's rights or privacy.

Ex: Milgrams obedience experiments is probably unethical.

Social responsibility

A few problems:

- Shall we allow research that can have bad impact on society?
- What about research that has political consequences?
- Expert evidence in trials. What is the problem?
- To keep secret the results of research for military reasons?

Objectivity

- The most important thing about science is perhaps objectivity.
- The true research results must always be accounted for.
- But can the choice of research fields be made objectively?
And what about financing? Is it not always guided by
economical interests?
- It is often said that research is be value free but still guided
by values.