Introduction to ethics

The goal of the course is to develop a framework that can be used to reason about ethical cases and decisions.

Ethics is the theory of morality where morality is the quality of being in accord with what is right and wrong. A moral person knows why decisions have been taken and can explain his actions.

There are four ethical categories:
- descriptive ethics
  - How to describe ethical problems and ethical standards
- normative ethics
  - Theories about what is right and wrong
- applied ethics
  - ethics that address practical questions and helps in making decisions
- meta ethics
  - reasoning about ethics

Ethics can be used to evaluate other peoples behaviour, for instance ethics can be used as a framework to judge other people.

It is possible to discuss about why and on what grounds decisions are made, for instance:
- Divine command theories
  - Decisions are based on a indisputable text or persons guidelines.
- Utilitarianism
  - What is the greatest good for the most number of people
- Virtue ethics
  - Decisions are based so that character is build and that certain virtues are being considered.
- Duty
  - Do what is the defined duty
- Egoism
  - Do what is best for the person making the decision

Lecture #2

Relativism is to allow for different moral standpoints relative to moral standards existing. Moral can be relative to individuals, cultures, nations and groups. Knowing this it is important to know on what moral standards people base their decisions on. Prejudice about persons is often due to lack of understanding on what moral standards that persons based the decisions on.

Sometimes the cultures are overlapping and then it is hard to say what moral base serve as a ground for the decisions made.
And a big challenge for the next century is to overcome overlapping cultures and being able to cope with that.
Multinational companies must understand how to act and make decisions where the moral standards are different from the ones used in the company. The global diversity is enormous and to neglect these differences would be foolish when making decisions.

A simple question whether a girl is dressed properly or not, is not easy to answer. Depending on the moral standards different opinions are created. What is a proper dress might be very inappropriate for others. Knowing the moral standards and culture of the people we deal with gives understanding and also respect for others opinion.

There are some arguments against ethical relativism and that is that we can defend our actions just because the culture allow us to do that. There are three common universal codes that should be adhered to:
- caring for children
- truth telling and trust
- prohibition against murder
If we continuously break this codes the human society will diminish.

But to discuss and try to set universal codes for more standards is really difficult. Certain tolerance to diversity must be present and respected.

There is also ethical absolutism which is less what we believe and more how we believe. There is a single truth is a common standpoint, this get some things right but also some things very wrong, for instance, our truth is the truth for everyone. Many wars have been fought having this mind set.

The goal of having a common moral ground is the understanding of ourselves, others and the issue. This allow us to have agreement where appropriate, life even with disagreement and the possibility to change the situation. A common moral ground allow us to accept others and also that there is not one truth that everyone have to adhere to.

**Lecture #3**

There is a definition of moral IQ in terms of virtues, and the most important are empathy, self-control, Conscience, respect, tolerance, fairness and kindness.

Conscience is the awareness of right and wrong of a moral or ethical action. It can also be seen as the part of a superego that judges the ethical nature of the actions committed.

The notion of conscience is present in many cultures if not almost everyone, for instance even the ancient Egyptians where aware of conscience.

If conscience is present why couldn’t that be used to judge all actions? It is shown that the conscience is not consistent and also that it is not enough to have that as a base for taking moral decisions. For instance mark twain points out a deadlock situation in conscience in his novel about Huckleberry Finn. Conscience cant solve what to do when Huck needs to decide whether to turn in his black friend Jim or not.

How far should we allow private conscience to guide in professional decisions? It is important to know on what ground professional decisions are based.
Freud criticize the conscience and says that is almost always in the negative form, conscience tells what we are not allowed to do but not what is allowed. It is like the parent that tells the child what not to do. Restricting the available actions.

**Egoism**

There are two types of egoism: physiological and ethical. The physiological asserts that we act selfish while the ethical maintains that we should in a way that gain the ourselves. Social Darwinism is sometime an excuse for making selfish decisions, one is blaming decisions on that it is part of the natural selection. One is trying to survive. For instance, some argue that the rich could live of the poor since it is in the right of the strongest to feed on the poorer. Such arguments are ridiculous if we believe that every human have the same value.

Being selfish means that we do actions in our self interest. A certain degree of selfishness is almost present and it is very hard not to be selfish. But it is equally hard to be purely selfish. The balance of altruism and egoism is delicate and can be seen in a two dimensional manner. One can be both altruistic and egoistic in the same time.

For the ethical egoism we have personal, universal and individual. Personal egoism is that I am acting from the standpoint that gains me most and whoever else might do whatever the like. The universal egoism is that each individual should act in his own self interest. For the individual egoism it is that everyone should act in my interest.

An argument for ethical egoism is that it creates a better world or that no one thank you for being non selfish. This theory is hard to get working in a universal consistent manner, also proposes a world of strangers indifferent from each other. Hard to imagine love between ethical egoists and that it seams to be morally insensitive.

**Lecture notes nr 4**

**The Ethics of Consequences: Utilitarianism**

There are severe basic insights and the one most prominent is that the purpose of morality is to make the world a better place. The simple answer on how to act is to guide people’s actions in such way to produce a better world. There is a general focus on consequences of the actions. One must put aside personal interests for the sake of the whole, but the problem is that it is not easy to know what is good or right for the whole world. By only focusing on actions and consequences gives the theory a scientific approach. This was popular when scientific approaches were very popular and hence this is a very scientific approach. Intrinsic value: pleasure, happiness, ideals, preferences are what we should maximize on. These different values all have advantages and drawbacks which make it hard to find a common base for assessment of good or right. Generally the people behind these ideas were upper-class people but caring or at least interested in the under class problems. One can ask if these thinkers are the right to lead the rest of the world’s theories?
Is it because we as students are upper-class that we like to read theories of the upper-class?? Happiness is impossible to maintain over a long period of time, according to cognitive studies.

How can we quantify happiness, pleasure etc. There is a danger to focus on counting. The theory defines hedons and dolors to measure the intrinsic value.

**Hedons**: standard unit of measurement for pleasure; every episode of pleasure contains some number of hedons.

**Dolors**: standard unit of measurement for pain; every episode of pain contains some number of dolors.

It is important to remember that “Everything that counts can not be counted, everything that can be counted doesn’t count.”, I think this quote is from A. Einstein.

There are several problems

1. Responsibility
2. Integrity
3. Intentions
4. Moral luck
5. who does the calculating
   a. the count depends on the one that does the counting.
6. Who is included

Most appropriate for policy decisions as long as a strong notion of human rights is present and not minority rights are violated.

**The Ethics of Rights**

Human rights are one of the most non questionable topic that many are fighting for.

Even if there is not written law about human rights there might be ancient laws as in England. Magna Carta is one example on established rules for human rights. This was introduced when King John of England misused the ancient laws to much or the people to accept. 1297

How to justify rights?

Declaration of independence and United nations article #1 are two examples.

Natural laws, our moral standards are derived from the natural needs.

Two different concepts with the rights, negative rights and positive rights.

Negative rights impose on others what the can not do, e.g. they should not interfere with our rights to free speech. Positive rights oblige others to support you in the rights I have. For instance the right of life. Others are obliged to see that you don’t die.

Who is obligated to provide positive assistance?

1. people in general
2. each of us individually
3. The state government.

Whos responsibility is it to take care of the old people? Is one typical example question on the above.

Rights are always defined for groups of people. Focus gives only a part of the picture. X-ray of the universe, vs visible light gives two different views. One must take all views into consideration to get the whole picture. Focusing on rights gives only a part of the whole ethical picture.

**The Ethics of Justice**

What is fair or not?
Everyting is fair?! Strict egalitarianism may discourage maximal production of wealth is the difference principle. Maximize on the average, allowing the really poor if there are enough rich to compensate for the poor.

General problem of the principles is that they focus on the working part of humans. To narrow focus will never lead to a universal principle.

Lecture 5 Magnus Larsson

The Ethics of Character

There are two fundamental questions when it comes to the character:
- How ought I act?
- What kind of person ought to be?

The character of a person defines how to answer these questions. The most important rule when answering these questions is how to apply.

Virtue is the strength of the character, involving both feeling, knowing and action.

Seek balance but remember that the balance is dynamic and that balance of everything is not possible to achieve.

The table on slide 8 defines the balance and the consequences if the sphere of existence is in excess or deficiency. Such a table could help balancing the virtues and answering what character we have.

There are Two conceptions of morality
- Restrictive conception
  - Child vs adult
  - Rules and habit formation are central
- Affirmative conception
  - Adult vs adult

The purpose of morality takes that both conceptions are appropriate at different times in life.

Underlying assumption is that we are born wild, and parents show what is good and bad. The first moral education is usually restrictive but as we mature it becomes more affirmative.

Virtue can be defined as the golden mean or balance,
- Deficiency: having too little of something
- Excess: having too much of something

The virtue is learning and practice and becomes a habit that defines the character.

An example is courage. We need courage and a balance of such to face our fears. Deficiency of courage leads to little confidence and excess to foolishness.

The brave man is the one with the balance of disposition of courage.

Heracles was a brave man that was charged to do good things after he did vices things. This can be seen as justice of compensation.

Without courage we are unable to take the risks necessary to achieve some of the things we must need in life, such as, ask someone out on a date.

Courage has to be in balance with the other virtues. But the problem is that the virtues are not orthogonal to each other, in fact, they are very much dependent on each other. There are cases where one virtue has to be sacrificed to achieve another virtue. Not all can be balanced at the same time.
Compassion and pity are other examples of virtues. And those can be studied in a similar manner with the balance in focus. Cleverness and wisdom. The clever person knows the best means to any possible end. The wise person knows which ends are worth striving for. Wisdom is often expected from old men and women. Equality distributed over the gender.

Conclusion
Virtues are those strengths that enables us to act according to ideals of good and right.

**The Ethics and Gender**
Freud suggests that women have not made many inventions during the years. Does female lack something?, was one of his questions.
Different stages of moral development was developed by Kohlberg.
Individuals could only progress through these stages one stage at a time. The family is the first source of moral values and moral development of an individual. The stages are:
1: Punishment obedience orientation, try to avoid physical punishment.
2: personal reward orientation
3: the food boy nice girl orientation
4: law and order orientation
5: Social contract, every one is responsible
6: Universal ethical principle: Gandhi, Mother Theresa ,

This scale was not applied to female; the research was only conducted on male. Later it was discovered that the female always scored lower on the scale than male.

Why are people more practically oriented vs abstract? If one chose that abstract is scored higher than practical then the scoring system is biased from the beginning. This was the problem with the Kohlberg scale. Kohlberg’s scale is biased against women.

Gilligan points this out and conducts own research in the subject.
Concluding that Kohlberg’s scale is biased, and that there is a difference in moral voice vs women voice.
She defined women’s moral development stages to match Kohlberg’s scale

Women and men have different but equally valuable moral voices.

But on gender diversity there are two views.
1. Exclusive features, the more male the less female
2. But it can be two dimensional as pointed out by Sandra Bem, one can be 100% female and 100% male.

A short conclusion.
There will be more and more women in research and eventually there will be a equilibrium. Slide 86 views the different light that shows the world. Ethics can be viewed from different angles and depending on such the results will be different.

There are several ethical points of view
- virtue ethics
- Utilitarian ethics
- Rights
- Duty
- Egoism
- Feminist ethics
- Justice
- Divine command

Lecture 6 Magnus Larsson

Professional and ethical responsibilities

Professional ethics is about relations. People

There is ethics contexts used for taking decisions, take the engineer for example. There are within the organization relations to managers and colleagues and externally clients, Industry (other firms) and Profession(Societies), and family (private sphere). Also global environment is part of the context.

Engineers have to handle the risk for users of their products or other people. Often there is a time in development when a product has to be released even if there are several known bugs in the product. These bugs or faults might cause errors and later failure that have severe consequences to the people or environment.

Studying code of ethics can give certain insights on how other thinks and also how to behave in different communities.

Code of conduct for example the one from ACM. They list the ethics base that a computer scientist or engineer should adhere to. There are several categories.

“Whistle blowing” is when an employee tells on the employer. The employee is protected by the US law. So in case of firing of the employee then the employee can sue the employer. This is of course hard to tell and these conflicts can be

Discussion

There were 3 case studies presented
- Mikes misery that analysis what to do when the company he works for produces a dangerous substance.
- Christinas crisis is about a software engineer discovering a new safety standard that might violate the test results of a software product developed.
- Daniels dilemma, is how bribes should be handled and how to act when getting into a situation where the borderline of a bribe is not clear.

The three cases covered professional ethics and spurred very interesting discussions that could probably have lasted more than the assigned 60 minutes.

The different ethical principles used as guidelines and also to provide angles of thoughts for the example.
Lecture 7 Magnus Larsson

Environmental Ethics
This topic is about global questions concerning the environment where we live.

A fundamental question is
Do non-living things have value? If not why do we care about the environment?
maybe because we, the humans, destroy for ourselves if the environment is damaged. Is the
caring for environment a pure egoistical care?

Descartes hope for universal moral laws of morality that also applies to environmental and
non living subjects.

There are worldviews and ethical perspectives that differs quite a lot:
- Dominations
  o Interpretation of some religious values
  o There is a current movement in religious
- Stewardship
  o Responsibility to manage our eco system, to get a balance on earth
- Biocentrism
  o A life centered perspective taking for instance animal rights into account
  o The whole is more important than the individual, Ecocentrism
- Ecofeminism
  o A network of personal relationships

It is possible to summarize the different worldviews in a table to get an overview that
classifies intrinsic value, incremental value and human role. Such summary makes it possible
to compare the different views. A table can be found on slide 12.

Is three environmental justices? A combination of civil rights and environmental protection.
Environmental racism, Unequal distribution of hazardous waste based on race. For example,
exporting dangerous waste to third or forth world countries.

Is nature fragile or resilient? In the past nature was seen as powerful but today we are aware
of the delicate balance that have to be sustained.
At a present state the industrial countries basically produces all toxic waste in the world.
Even the USA with 4 % of the world population produces 50 % of all toxic waste.
To solve an environmental problem costs money and a lot of money. This is a fundamental
problem since humans are to a wide extent greedy.
Is good ethics good business? At least one can hope. If not we have to change the money
focus society that we have.

Each person has the right to a healthy living environment, Therefore, no one has the right to
endanger or harm the environment.
Sustainable development is to develop human kind without impacting the environment we
live in.
One problem is how to protect the commons:
Oceans atmosphere outer space, who can regulate and enforce?
Humans are part of nature our knowledge of life is simplistic. Humans have cause extinctions of some species. Every life form is unique.

**Discussion**

There were 3 case studies presented

- Coral corruption
  - The case is about a young scientist that has the option to get a deal from a company to do research on coral reef. The catch is that the company wants the results to show that no pollution is from the company and that the research is conducted in an area of the reef where there is not pollution
    - From an utilitarian view the best good is not to take the money since it would do more damage to do research that only promotes the company polluting the world.
    - The duty of the scientist is to be objective at all cases, and from that he should not take the money with the catch that the results should be biased
    - From an egoistic standpoint it depends on the person. If he likes money he would take money, likewise if he likes environment he most likely should not take the money but rater go to the press and enlighten on the subject that this company wants biased results.

- Don’t drink the water
  - This discussion is about how to act when dangerous particulars are found in water
    - Egoistic - Do nothing
    - Duty - Continue to report and solve problem as soon as possible. If no response go higher up in the hierarchy. Check results to establish levels of analysis. As a final action would be “wistle blowing”
    - Utilitarianism – Talk to Groebel or to do Whistle blowing

- Animal testing
  - Egoism – Do you value your eyesight or your position as an activist? If egoistic towards his family that wants his eyesight.
  - Duty – to himself: as an activist, do not use medication to have a pure conscience, but there is a duty to the family and child.
  - Utilitarianism – Do not use medication if it will go away of its own. Use medicine if serious; is it greater good to humans or animals?
Lecture 8 Magnus Larsson

Ethics in Artificial Intelligence

Three are two parts of this lecture
1. Definition of AI
2. Goal vision, reality, and consequences

The definition is

*Hard AI* is that a computer can simulate not only mimic human intelligence. This implies that the computer is no more than a computer, however not understood yet. Is the human a computer? If yes, then maybe we can make a computer human.

*Soft AI* is where main stream research is performed today.
The goal is to provide methods and techniques to build smart computer systems solving practical problems.
Do not need to simulate human intelligence but rather solving the problems using search heuristics and different kind of knowledge mining. Sometimes the provided answers are not precise.
To get a computer to do the decisions as a human can do is extremely hard and AI is working on it

Hypothesis:
100 billions brain cells communicating (1000 connections for each cell is sufficient.) will develop conciseness. Conciseness is a side effect of complexity. The figures are what a human have and that serves as a base for the hypothesis.

Example of practical use of soft AI:
- Solve problems the programmer has not thought of in detail.
- Improve its skills based on own experience
- Ability to use others experience
For instance if the tried approach does not work then the AI can try another angle of the approach and try to find a solution to the current problem under investigation.

Usually the AI programs are created in special languages that are designed for separating the knowledge and the algorithms, for instance, Prolog or Lisp.

AI is a melting pot for new ideas, is basically a multidisciplinary field of science. For instance Herbert Simon that got the Nobel Prize in economics but was the leading AI researcher in the 60 70ties.

Part 2

AI vision 1940 “A computer may one day be able to have a conversation with a human”. Turing test
How to know that the computer on the other side of a conversation is actual intelligent? There might be a gigantic database with questions and answers.
AI Vision 1968,
A computer is able to play chess better than a human, able to see and have a conversation. As demonstrated in the movie 2001, Kubrik 1968

An intelligent device should be able to handle conflicts in belief. As human can do

AI Vision 1980
Autonomic entities with limited intelligence will be able to perform simple tasks and have limited intelligence.

Vision 1999: To have Emerging creativity and consciences

Vision 2002: Computers with emotions
Film “AI by Kubrik” about an AI boy that shows feelings and that human feel for the AI. Kubrik was working with Arthur C Clark which is AI researcher.

Vision “outperforming humans” as for instance in “matrix” the movie.

If we build AI we probably need to allow the AI to make faults since faults are human. And that will leave out AI for certain areas of application where 100% certainties is wanted.

False memories?!? Can be planted into humans. Experiments have shown that this is possible, although the ethics of those experiments can be questioned. Not all memories are real. The therapists can actual plant false memories when trying to remove the experience.

Intelligence without moral or ethics are quite dangerous or efficient. Analogy: A psychopath may be very successful as a business man.

Vision: “Self emerging intelligence”
Internet is growing fast, one day 100 billion reasonable powerful computers in a network. Would that mean that consciousness is created? Research is needed to understand the risks with awareness and AI

Iain Banks “The player of games.” Describes a society where humans live side by side with entities 1-1000 times human intelligence.

Vision “Mixture of human and machine”
For instance, this vision is described in the book “necromancer”

Concluding question:
If we create conscience do we have the right to switch it of?

Check the www.idt.mdh.se/efi for ethics for intelligent systems network
Lecture 9 Magnus Larsson

Ethics in Medical Care and Nursing

The ethics is the theory behind or analyzing moral decisions and other decisions. This is the course definition but as pointed out in this lecture ethics try to answer several other questions.

Ethics tries to answer what is:
- good and evil
- right and un-right
- true and false

These questions are not as black and white as they might be perceived and the current view on medical ethics is that medical care must conserve integrity and autonomy even if there are ambiguous cases where both can not be fulfilled or it is not clear what to do. The persons should be treated as autonomous individuals with high integrity.

Example on a difficult case:
What if there is a person that refuses to take prescribed medicine? If forced he is not treated autonomously but if he doesn’t take the medicine than he might turn out very ill and that will affect the integrity of the person. So the answer is not very clear what to do.

Ethicists try to analyze such cases to provide simple answers on these questions and also to come up with the good questions that shed light on the problem.

Jean Paul Sartre, who was an existentialist, says that what is unique about a person is that we are aware of two things. We know that we are going to die and the second is that we know we have to make choices.

Aristotle:
When a person wants to perform an action then he considers the value, profit, and goal of the action.
Most important value is Life in health care.
Other values are health appreciation, meaning, reproduction, trust, friends, happiness, love, food, Safety, cloth, work, justice, mercy, freedom, forgiveness, peace …

The list of values in life can be arbitrary long and some are taken for granted. Especially when the values already are achieved.
1. The value is realized when the value taken away from us.
2. Peace is important
3. Health, work and love are central.
The moral problem is when two values are contradicting or that it is not possible to get both at the same time. The value can be blocked by some reason.
Decisions of which values to chose gives anxiety.
There is an ethical discussion about how to address choices of values.

In a moral problem it is usually possible to find a solution
In a moral conflict between values might be worse, discussions are the mean to find the solution; perhaps the only way forward.
In a moral dilemma is unsolvable in what either way a choice is made.
The moral reality is complex all these three kinds of moral standpoint occurs.

Ethics is sometimes called the moral philosophy. And it can be divided

- Descriptive ethics
- Normative ethics – suggestions about what is a good practice in an area.
- Meta-ethics – discussion about the other ethics on an abstract level

There are different ethical theories

- Egoism – An action is good if it satisfies my own feelings and wants. Thomas Hobbes
- Deontology – is mainly from Emanuel Kant and it is the virtue ethics theory. Look at rules and what other has defined of what the duty is and act upon.
- Teleology – telos means goal. Consequentialism or utilitarianism. An action is good if you maximize the good consequences. Is it possible to rank options and quantify good consequences?

These are the main three theories but they are not complete and there are holes in them.

Ethics cannot answer what is right but can provide a mean for discussion about it.

Phronesis – practical wisdom

1. Why am I doing what I am doing?
   a. Self-reflection, a need to get practical wisdom in why the actions are carried out.
2. What feeling is connected to that action?
   a. Ex: Am I angry doing a particular action?
3. How am I reflecting on the action done?

A bottom up reasoning starts with your own actions and work itself up.
A top down reasoning seeks the theories and then implements those.

It is important to reflect on an action just before committing it. How is it otherwise possible to answer and stand up for the actions when asked?

The moral competent person has the ability to explain his/her actions.
A moral competent person has the ability to reflect on the actions committed. A morally good person both takes and gives and also has a certain attitude towards other persons not to violate persons integrity and autonomy.
The first duty is to treat the person as if he or she was the most important.

What is ones opinion of what is good? Self reflection.

Ethics is a mirror of the current society, for instance the move from Christian value to health value to today’s economical value.

The purpose of ethics is to draw borderlines and then to both stay short and exceed the borders.
Privacy and human rights

There are several declarations that consider the human rights and the privacy of humans. Although there is a risk that a declaration is not followed, who is to see that privacy is followed? As there are different aspects of privacy there are also different means to enforce privacy. UN is our global authority that might but should enforce human privacy.

Civil liberties.

There are several important documents that:
- 1293 Magna Charta
- 1690 The second treatise of civil government
- 1789 constitution

These documents all cover the rights of humans that applies to all without distinction of any kind.

Privacy is the right to keep personal data and information from being misused. Without persons knowing their data appear in several databases.

The view on privacy is changing and major events such as sep 11 certainly affects the view on privacy. There is a general conflict between privacy and the safety and social responsibilities, for instance after sep 11 new laws are filed to allow more intrusive investigations to and to monitor more communications.

The case about vigilantism

Rights, Ted basically has every right as any other since he has taken the punishment. The neighborhood has no right to harass him.

Duty, there are no duties on him but the neighbors have no right to harass his family.

Virtue, no it does not develop the character of Joe, rather the opposite. A mediator would probably not help since peoples mind are hard to change.

Egoism, it is not egoistic by the neighborhood to feel like this. It might be better for him to move and change name, even for egoistic reasons. The problem is the impact on his job situation and possible other connections to the neighborhood that have to be taken into consideration.

Utilitarianism, he should move to benefit himself and the others.

2nd case fingerprints

She has no rights as it is her choice to rent the car or not, following the rules and policies of the rental company.
The companies’ duty is not to misuse the finger print register.

You would build a character by denying renting the car because of your principles to not let out your private information such as a fingerprint. If one sticks to ones principles then it always build character in one way or another.

Most egoistic of the company which protects their property

If all car rental firms introduce this kind of fingerprint policy, fraud can be cut down.

**3rd case death help**

Rights, the laws are there for a reason that is to protect people from not blaming death help when they actually committed murder.

James has a duty to his father and his family to try to help his father as much as possible but possible not to kill him? James has the duty to follow the law.

The decision to kill might seem right but is it really?

Egoism: James should not kill, as then he will not be sentenced for 2nd degree murder. And in the long run it would feel better.

Utilitarianism refusal to carry out the death wish brings most good to the most people, maybe even the father.

**Lecture notes #11 Magnus Larsson**

Spread of nuclear weapons. “Proliferation“

There is a basic non-proliferation treaty that is used as a basis for different countries. There is a discussion about the fairness that there are only 5 countries that today claim having nuclear weapons and that these should have separate rules to follow.

There are other treaties that are in place to prevent spread of these weapons. As there are both peaceful and warful use for nuclear material it is important to be equally careful with the peaceful material as with the warful.

16 % of the world’s electricity is from nuclear, 50 % in Sweden. How to use it for peace and not allowing it for war is a question that ought to be discussed.

SKI founded in 1974 to assure use and questions around these nuclear
The non-proliferation office part of SKI takes care of all sorts of areas to prevent spread of the nuclear material. The office shall ensure that Sweden undertakes the treaty of nonproliferation of nuclear material.

There are only a few countries that are able to build nuclear power and using nuclear material. So the question is how to export knowledge about this without transferring technology that can be misused by other countries.

The treaty assures that this will not happen. However this treaty can be unfair as the nuclear countries are treated differently.

There is of course a problem to follow the treaty and to enforce that. Who could enforce?. The UN is the organ that enforces the treaty and also makes sure that no violations are being taken into place.

Because of the technical difficulties it is hard to reduce the number of weapons. The treaty states it should be zero. For instance the nuclear states do not have to adhere to the same control that a non-nuclear state has to.

High problems are to manage the nuclear waste of from the weapons and old reactor. Sweden has a program that you cant start a new reactor before proven that the waste can be taking care of. Few countries have these kinds of program.

There are for instance funds that are in place to take care of the waste after the reactor is shutdown. Such funds are being put in place in other countries as well to secure the money.

It is possible to reprocess used fuel but that has a side effect that it produces pure plutonium. By reprocessing it is possible to get new fuel. Economical upside but not so strong as it sued to be, nowadays the uranium is cheap to mine. A question is that maybe it should be prohibited to reprocess waste, to get ride of the side effect. There is a balance between safety and environmental and economical benefits.

There are trouble spots in the world. How to take care of this is a huge problem.

Many countries have signed the non-proliferation protocol but not many have signed the additional protocol.

The modern means to check is to take satellite images and follow up on those using computer technology. Resolution is 0,5 meters in commercial satellites. Military are much better.

Export control can be used to put pressure on the countries. Transmission of technology or description of technology is under export control but it is very hard to enforce that.
Professional ethics in science and engineering

There is a risk in using technical systems controlling critical processes or systems. Technology might not be proven 100% before taken into use.

Also engineers very often focus on the functionality and not the safety of the systems.

Companies like Westinghouse have a criticality safety handbook that describes what and how to address safety problems in a power plant.

For safety one can take the most conservative approach to start with, i.e. means always take the pessimistic approach. This will put a lot of constraints on the functional design but when safety is understood it is possible to reduce constraints and take a less pessimistic approach.

A system is often modeled to gain reasoning capabilities, but the design of a system is often changing in the minds of the people and there are no specifications. Under this condition the model will not represent the system and if follows that safety reasoning around an inconsistent model will not produce safe results. Hence it is very important to specify the problem to be solved and agreeing on it. It is hard to have a changing problem to work on and that usually lead to inconsistencies in the model and the problem or design of the system.

Different Safety levels are identified to achieve and classify the risk levels and consequences of non-normal operation

For safety a lot of authorities are established with a lot of power to assure that procedures are followed. If reviews discover issues the will be corrected otherwise enforcing actions will take place. To achieve high degree of safety it is import to have these objective control organizations that can enforce that safety regulations are followed.

There is a precautionary principle states that the risk of an inadvertent criticality must not be underestimated under any circumstances.
But not all scenarios could be covered by the design.

A common design approach is to eliminate single point of failure.
Multiple errors might cause a failure but then it is much more unlikely if a fault tolerant architecture is taken into consideration.

Risk = probability x consequence.

How to quantify the consequences and probability? Estimates are always needed, but then it is important to note the assumptions that serve as a base for the estimation.

A case study about airbag design

Airbag design and it seams that it is not safe and all engineers have to sign the documents. Bob refuses to sign since he thinks it is wrong with an unsafe design.
The duty is not to sign since it was a faulty design
Egoistic he could have signed and not cared for the society
Justice can get back to him if he signs the documents and later it shows it is not working.
He did not have the right to be silent. He should have whistle blown.
Bob will not develop character since he resigned quietly without fighting the problems of the faulty airbag. This is just moving the problem onto someone else.

Lecture notes #13 Magnus Larsson

Intellectual properties and right on knowledge

IP is very much hidden assets since hard to identify, therefore it is also hard to claim rights to it. Data can be transferred into knowledge, which in turn can be transferred into intellectual capital.

Intellectual capital is growing dramatically. It gets more and more important.

How to control intellectual properties?
There is a shift from unstructured knowledge to a more structured approach to knowledge. Ontology and taxonomies of knowledge is produced for knowledge. But as lack of standards it is hard to get a common view on certain area.
Knowledge management is becoming more important.

Intellectual properties can be traded.

Ethics about information concerns:
Privacy, Accessibility, Accuracy, Property

The university of the future combines academia, industry, and government. But to achieve this it is hard to keep the fundamental view on results. Scientific results should be public and if commercialized it will be hard to keep this policy.

Case about patents and what to do

The case is about Joe that has developed a tool that might infringe on a competitors (STONE) patent. Joe’s company ACME have some old patent that STONE might infringe.
Rights: ACME has the right to sue STONE with the old patents and STONE has the right to sue ACME if ACME continue to develop the tool ignoring the patent.
Utilitarianism: Both companies should cooperate, maybe ACME can pay license for the STONE patent and still make a lot of money on the tool
Duty: Joe’s duty is to inform management
Egoism: Joe could ignore the STONE patent and develop the tool to get his bonus.

What to do: Try to redesign tool so it does not infringe on the patent. Prepare for defense if there still is a risk for getting sued. Maybe also take a look at the old patents to see if ACME should sue STONE.
Another possible action is to try to invalidate the STONE patent.
Video game violence, ethical issues

Is it appropriate for a child to play a highly violent game?
Games are a preferred leisure activity especially among children. The games are designed to be as addictive as possible.

What is the games industry standpoint? And what ethics principles are involved?

A typical US 2-7 year child play games average 7 hours per week and the enormous market of 6,5 billion $ is sustaining this play.

Games can be good and bad, and there are examples where the games are actual used to train people in a good manner but this lecture focus on the violent games.

A highly violent games is the ones where one harm humans and perform severe violence to humans.

There is a significant link between violence in games and aggressive behavior. But some research deny this link. Denying research could even be sponsored from the game companies themselves. However the TV research is very huge and the results for the TV violence are that it is a strong link in early exposure of violence and later violence in life.

It is likely that the link in video games is equal or stronger as in the TV case.

There is a term called conditioning where violent actions are rewarded to remove normal borders of what you can do. It is possible to push the limit of what a human can do, this is similar to the 2nd world war when Japanese recruits had to commit murder on kinese prisoners as part of the initial rites, Killing was rewarded, and humans learnt that if I kill I get reward, the games reward brutal killing, like head shooting, with extra score etc. Kids are conditioned to act on instinct and not on an active decision.

One of the contributing factors of the violence in the society is the violence of the TV and violent video games. The society has to pay the price.
For instance the school shootings, how much will the society stand before taking action. What could happen if the violent games where prohibit to sell.

Of the 20 most popular games only 4 are highly violent, can these removed and what is then the impact?

There are several relevant ethical principles.
- The right to free speech is often used to argue for the production of violent games free speech should however be restricted when harm for others is possible, for instance similar to the racist propaganda.
War begins in the minds of the man hence it is in the minds of men where peace have to be created.

The non-democratic governments are based on violence.

Possible is to have the media act under license like the lawyers. The media can sensor itself it only act on the free market rules. Someone has to govern the media. And impose ethical rules to reduce the violence. This is however hard to accomplish since money is controlling the free market.

There are 3 cases.

What is society doing to prevent kids from seeing violent movies? What is the hope when it comes to video games if not even the TV industry can be controlled?

Gaming case
Duty: The company has a duty to make profit but also not to break code of ethics.
Als duty is not to take part in this development but he has a duty to support his family.
Utilitarianism: The society has to draw a line and clearly state what is wrong and right. More research is needed.
Virtue Ethics: Al must follow his conscience by standing up to his superiors he build character. It is wrong to play violent games if he believes in virtue ethics.
Human rights: Adhere to chile convention
Free speech has second priority to universal codes: Caring of the children, Truthfulness, prohibition against murder.

Bills decision
Duty: the government has the duty to prevent shootings
Parents have duty to listen to their parents.
Utilitarianism: violence is not good for the society
Virtue: is to protect children
Human rights: right of free speech but it has exceptions
Children have rights to healthy environment.

Marys case
Duty: she has a duty to the society to raise him as an responsible citizen
Utilitarianism: ´She should prohibit her son playing violent games. Her son’s behavior might affect others in the future.
Virtue: By talking to her son she will strengthen her own character
Human rights; Children are not mature to make the right decision
Right to live in a peaceful world.