Ethics Theories and Engineering Ethics
伦理理论与工程伦理

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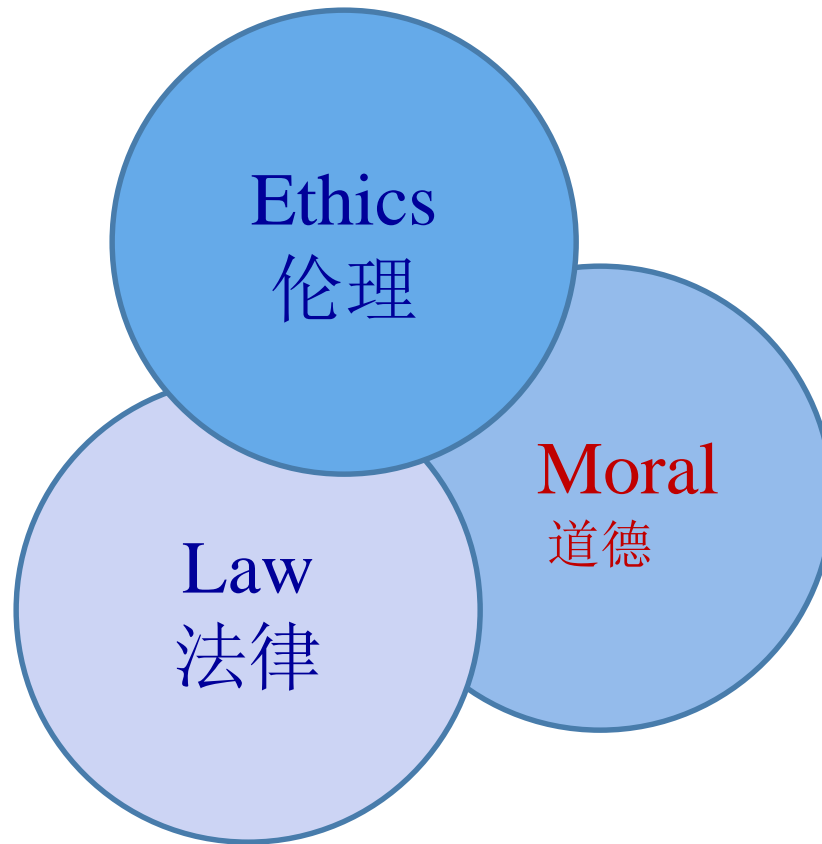
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伦理在工程中的应用

Societal Normative Systems
社会规范体系

Ethics
伦理

Moral
道德

Law
法律

The Engineering Design Process
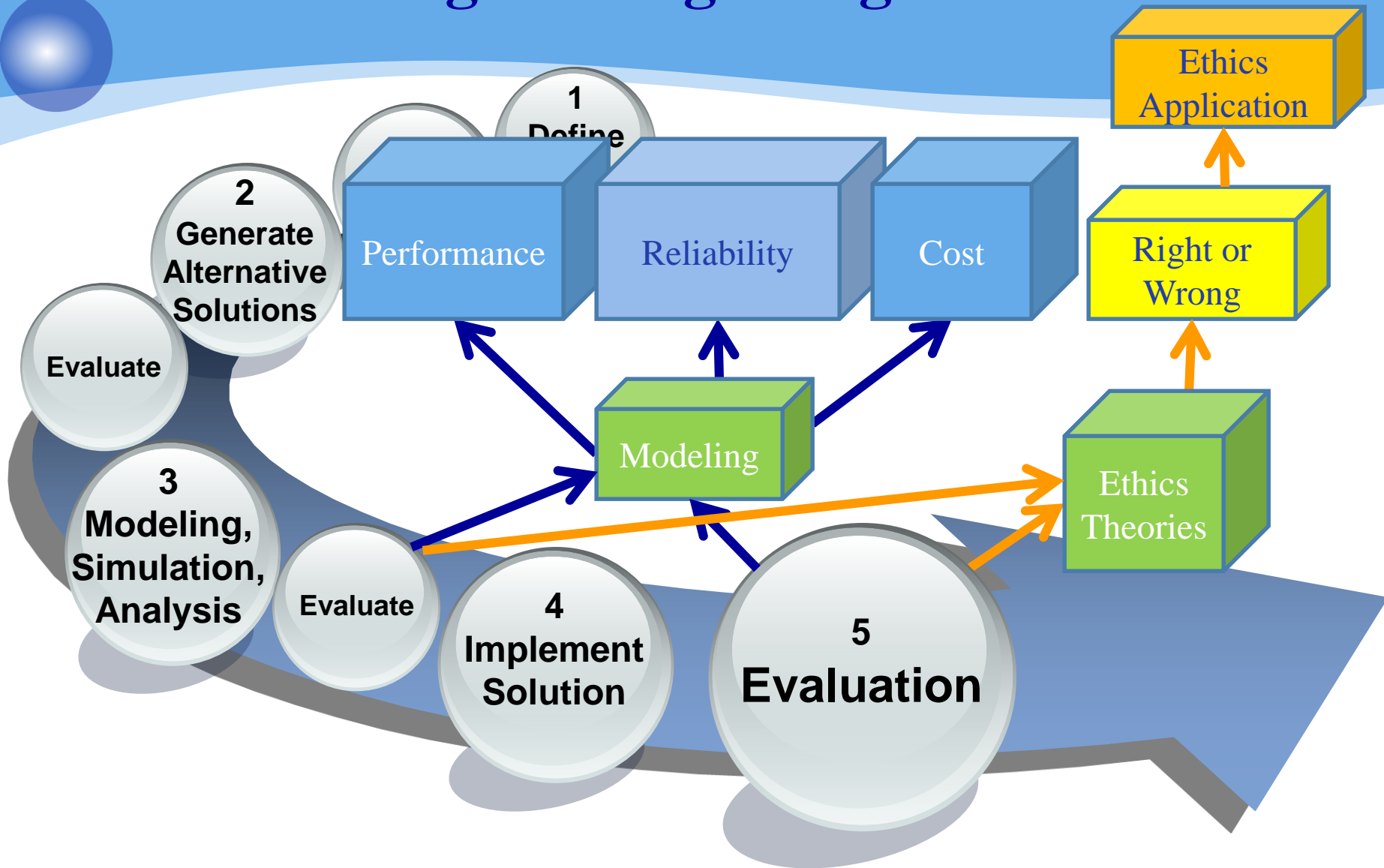
**Code of Hammurabi**
Ancient Babylon 1790 BC.

229. *If a builder has built a house for a man, and has not made his work sound, and the house he built has fallen, and caused the death of its owner, that builder shall be put to death.*

230. If it is the owner's son that is killed, the builder's son shall be put to death.

231. If it is the slave of the owner that is killed, the builder shall give slave for slave to the owner of the house.

232. If he has caused the loss of goods, he shall render back whatever he has destroyed. Moreover, because he did not make sound the house he built, and it fell, at his own cost he shall rebuild the house that fell.

233. If a builder has built a house for a man, and has not keyed his work, and the wall has fallen, that builder shall make that wall firm at his own expense.
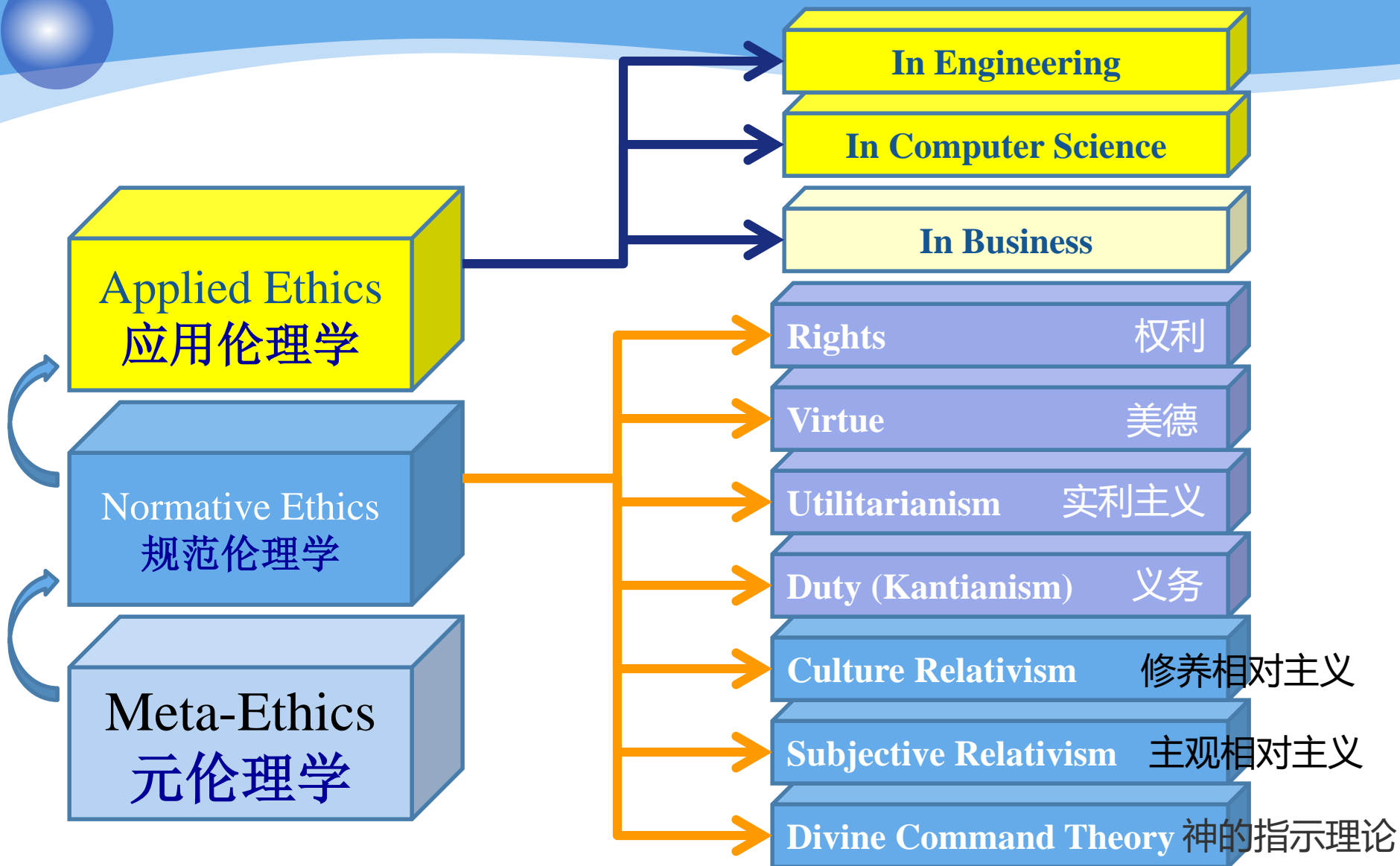
Ethics...

伦理学
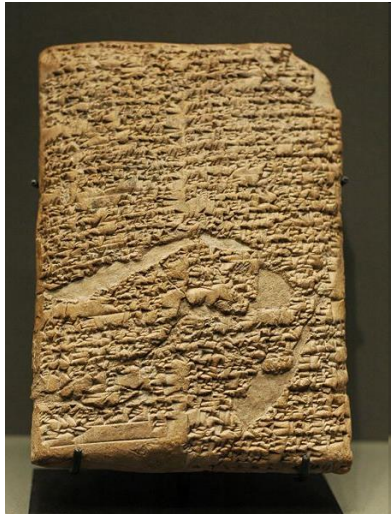
❖ Rules, principles, or standards that govern the conduct of the person or the conduct of the members of a profession! 管理一个人或一个职业行的行为规则、原则或标准！

❖ Theories that define terms in uniform ways and links ideas and problems together in consistent ways

❖ 以统一的方式定义术语，以一致的方式将观点和问题联系在一起的理论

Subdivisions of Ethics 伦理学的分支

Applied Ethics
应用伦理学

Normative Ethics
规范伦理学

Meta-Ethics
元伦理学

In Engineering

In Computer Science

In Business

Rights   权利

Virtue   美德

Utilitarianism   实利主义

Duty (Kantianism)   义务

Culture Relativism   修养相对主义

Subjective Relativism   主观相对主义

Divine Command Theory 神的指示理论

Subdivisions of Ethics伦理学的分支

❖ Ethics has three main subdivisions:

- ▪ Meta-ethics元伦理学: Deals with the origin, purpose, and nature of ethical evaluations (*not* deciding what is right & wrong)

- ▪ Normative ethics 规范伦理学: Determine how to identify right from wrong, and how to make ethical decisions

- ▪ Applied ethics元伦理学: Applies principles of normative ethics to particular subjects or topics (e.g., business ethics, engineering ethics, ethics of abortion or other current issues, etc.)

Ethical Thought 伦理问题的考虑

❖ Important theories for analyzing cases 案例分析的重要理论

❖ Ethical conduct is fundamentally grounded in a concern for other people 道德行为从根本上是以关心他人为基础的

❖ Having multiple theories to apply actually enriches the problem-solving process
应用多种理论实际上可以丰富解决问题的过程

  ▪ Allows problems to be looked at from different angles
     允许从不同的角度去看问题是

  ▪ Each theory stresses different aspects of a problem
     每个理论强调一个问题的不同方面

Kantianism (Duty) Ethics
康德主义

Immanuel Kant
1724-1804

❖ "Always treat humanity, whether in yourself or in other people, as an end in itself and never as a mere means."

无论是在自己身上还是在别人身上，总是把人性当作一种目的，而不是单纯的手段

❖ Act only from moral rules, which are universal moral laws and duty. 只从道德规则出发，这是普遍的道德法则和责任。

❖ Duty Ethics 责任伦理

❖ The only thing in the world that can be called good without qualification is a good will. 世界上唯一无需资力就可以称为 好的东西是善意

❖ Be honest, do not cause others to suffer, and be fair. 要诚实，不要让别人受苦，是公平的

❖ Specific duties to be performed regardless of whether it leads to the most good result. 执行特定的职责，而不管它是否能带来最好的结果

❖ Actions are good that respect the rights of the individual 尊重个人的权利行动就是好的

❖ Consequences for society as a whole are not the only moral consideration。 对整个社会的影响并不是唯一的道德考虑

Basic Insights of Kantianism Ethics

❖ All persons are treated as moral equals.
所有的人都被视为道德等同的

❖ The same morality (rule) ought to apply to all people of all history, which allows moral judgments based on the history.
同样的道德（规则）应该适用于所有历史上的人，这允许基于历史的道德判断。

❖ Kantianism ethic is rational, which allows us to use logic to explain the reason behind the solutions to ethic problems.
康德主义伦理是理性的，它允许我们用逻辑来解释背后的伦理问题的解决方案的原因
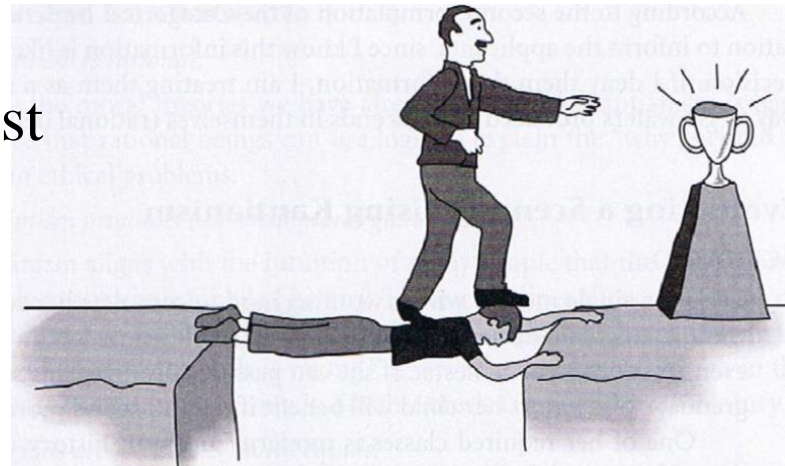
The Cases Against Kantianism Ethics
康德伦理学的反例

❖ Sometimes, no single rule fully characterize an action.

❖ There is no way to resolve a conflict between rules.

❖ No exception is allowed. For example, if your girlfriend has an ugly haircut and she asks you if you like her haircut. If you say "It looks good", then you are violating the duty ethics code.

❖ You should feel guilty to take your child to Disneyland, instead of using the money to feed 1000 hungry children in Africa.

❖ Get a balance between the good and bad consequences of an action
在行动的好坏之间取得平衡

❖ Balance the needs of **individual** with the needs of **society** that will provide the most benefit to the most people 把个人的需要和社会的需要相结合，这将给大多数人带来最大的利益

❖ What's best, in general, for everyone?
在一般情况下，对每个人什么是最好的？

Basic Insights of Utilitarianism

❖ To make the world a better place 创造一个更美好的世界

❖ We should do whatever will bring the most benefit to all of humanity 我们应该做任何能给全人类带来最大利益的事情

❖ Consequently, the emphasis in utilitarianism is on <u>consequences</u>, not on intentions
因此，实利主义强调的是结果，而不是意图

❖ Is a demanding moral position that often asks us to put aside self-interest for the sake of the whole.

❖ Can be criticized for its view that "the ends justify the means".

[Ethics, M. Quinn, 2008] 9/19/2017

Rights Ethics

❖ Do not violate people's moral rights
不违反人们的道德权利

❖ "Humans have a right to life, liberty and property"
"人类有生存的权利、自由和财产"

❖ Respect individuals and protect the rights of others
尊重个人和保护他人的权利

❖ Duty Ethics and Rights Ethics:

▪ Duty: More on the right of majority 职责：在多数人权利

▪ Rights: Everyone's right 权利：每个人的权利

John Locke
1632-1704
约翰·洛克

Virtue Ethics (by Aristotle)

亚里士多德

❖ Virtue = "goodness"

- Intellectual virtue, developed through education
- Moral virtue, coming from repetition of the appropriate acts

❖ Virtue ethics are about **happiness** through character—and the type of person we should strive to be

❖ Actions are considered right if they support good character traits (virtues)

❖ And wrong if they support bad character traits (vices)

Virtue Ethics (by Aristotle)
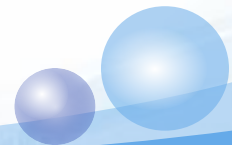
美德

Virtues (good characters) that result in happiness include

- Benevolence 恩惠
- Civility 礼貌
- Compassion 同情
- Conscientiousness 尽责
- Cooperativeness 合作
- Courage 勇气
- Courteousness 礼让
- Dependability 可靠

- Fairness
- Friendliness
- Generosity
- Honesty
- Industriousness 勤奋
- Justice
- Loyalty
- Moderation 适度

- Patience
- Prudence 谨慎
- Reasonableness
- Self-disciplined
- Self-reliance
- Tactfulness 识相
- Thoughtfulness
- Tolerance

Strengths of Virtue Ethics

❖ It provides a motivation for good behaviors.

- ▪ Utilitarianism and Kantianism's reasons behind the action is cold and analytical;

- ▪ Virtue ethics stresses the importance of loyalty, thoughtfulness, courteousness of healthy social interactions

❖ It provides a solution to the problem of impartiality

- ▪ Utilitarianism and Kantianism require to be completely impartial and treat all human beings as equals.

- ▪ Virtue ethics justifies you to take your children to Disneyland, instead of donating the money to starving children in Africa.

Weakness of Virtue Ethics

❖ The multiple virtues can allow the justification of injustices.

❖ One cannot apply virtue ethics alone in many cases. One has to set different priorities to different virtues in different situations.

❖ Example: You have limited resource to fight one of the two fires

  ▪ Prudence: Fight the fire that can cause more property damage (Utilitarianism)

  ▪ Fight the fire in the area that paid the city tax (Duty)
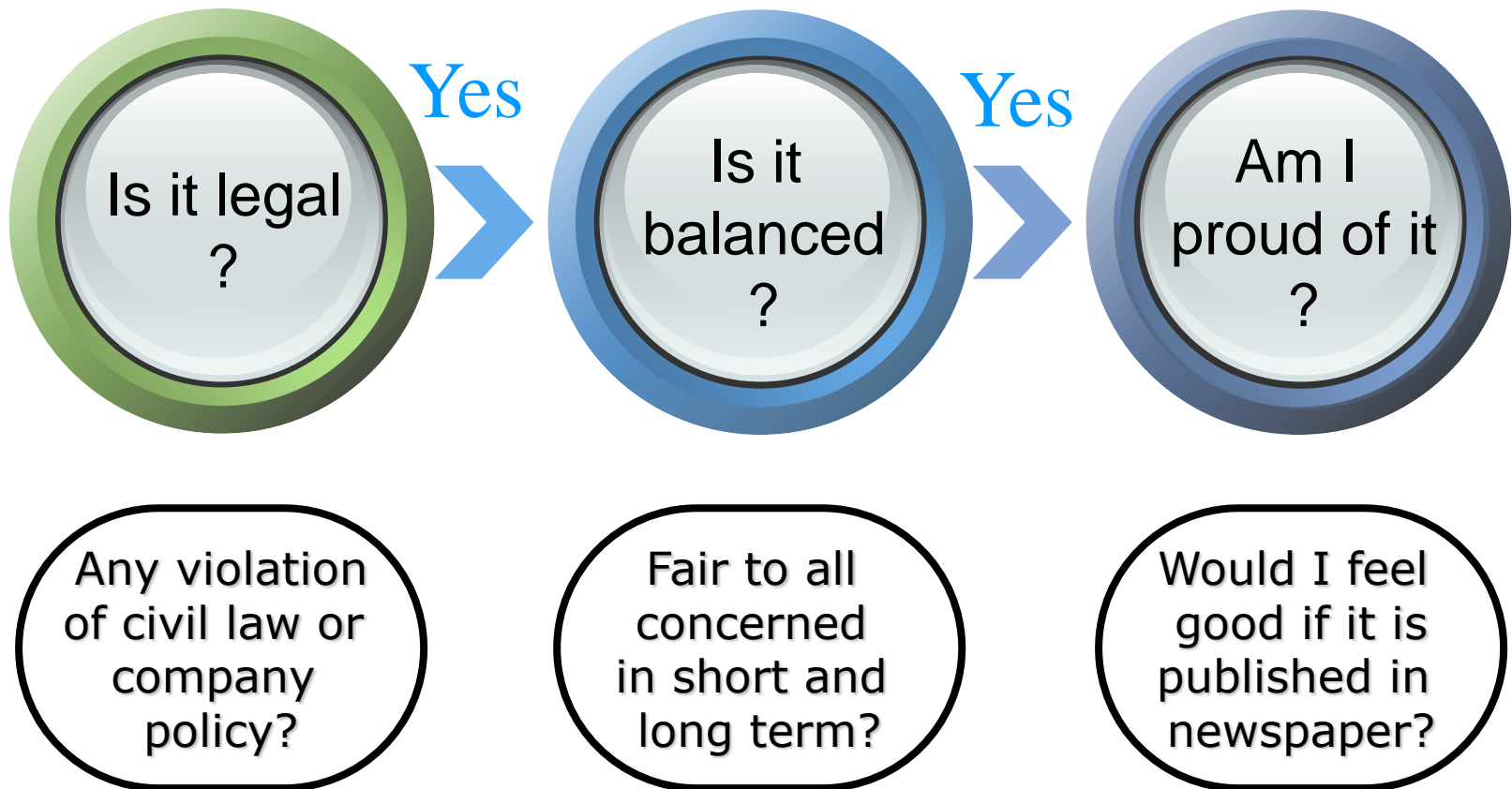
What are Engineering Ethics?

Engineering ethics

❖ deal with what is good, what is bad, and what are moral duties and obligations

❖ are a set of moral principles and behavioral standards that everyone is expected to follow.

❖ define code of conduct that all engineers are expected to follow.

General Ethical Code in Engineering

❖ Duty and rights ethics take precedence over utilitarian ethics and virtue ethics

❖ A balanced approach is necessary

Check Questions in Engineering Ethics

Is it legal ?

Yes

Is it balanced ?

Yes

Am I proud of it ?

Any violation of civil law or company policy?

Fair to all concerned in short and long term?

Would I feel good if it is published in newspaper?

IEEE Code of Ethics

1. To accept responsibility in making engineering decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment;

2. To avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;

3. To be honest and realistic in stating claims or estimates based on available data;

4. To reject bribery in all its forms;

5. To improve the understanding of technology, its appropriate application, and potential consequences;

9/19/2017

IEEE Code of Ethics

http://www.ieee.org/portal/pages/iportals/aboutus/ethics/code.html

6. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations;

7. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;

8. to treat fairly all persons regardless of such factors as race, religion, gender, disability, age, or national origin;

9. to avoid injuring others, their property, reputation, or employment by false or malicious action;

10. to assist colleagues and co-workers in their professional development and to support them in following this code of ethics

9/19/2017