

CSE 097 - Penn State University - Spring 2006

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Lecture 9: Computer Ethics II - March 14 & March 16, 2006

Cognitive Reflection Test

1. A bat and a ball cost \$1.10 in total. The bat costs \$1 more than the ball. How much does the ball cost?
2. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?
3. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

Evaluating Risk

1. Would you rather receive \$3400 this month, or \$3800 next month?
2. Which would you prefer: (a) \$500 for sure, or (b) a gamble with a 15% chance of \$1 million and an 85% chance of nothing
3. getting \$100 for sure or a 75% chance of getting \$200
4. losing \$100 for sure or a 75% chance of losing \$200

Casuistry

- Casuistry - traceable to the Romans.
- start with clearly acceptable case
- makes slight changes
- until we reach unacceptable case

Case X

- Tom had been named the department manager of a large new chemical process unit which was in the design stage.
- Tom's responsibilities included forming the process unit staff, looking over the designers' shoulders to assure the plant was designed to be safe, operable and maintainable, and then starting the plant after construction.
- During his previous experience Tom had noticed that a new type of valve and valve operator could often be used in place of more common gate valves and their operators.

Casuistry

- In every case the new valve was less expensive and often gave a tighter shutoff than the gate valve.
- Tom convinced the project designer to add even more of these valves and operators to the design.
- This improved safety, because more flows could be shut off more quickly in an emergency.

Scenario 1

After a large number of valves had been specified and purchased, the salesman came by and introduced himself, giving Tom a plastic pen worth about five dollars.

Should Tom accept the pen?

Scenario 2

After a large number of valves had been specified and purchased, Jim, the salesman, invited Tom to play golf with him at the local country club.

Tom was an avid golfer and had wanted to play golf at the country club for some time, because it was the best course in town.

Should Tom accept the invitation?

Scenario 3

After a large number of valves had been specified and purchased, Jim offered to sponsor Tom for membership in the local country club.

Tom was an avid golfer and had wanted to be a member of the club for some time, but he had not been able to find a sponsor.

Should Tom accept the sponsorship?

Scenario 4

- After a large number of valves had been specified and purchased, Jim invited Tom to a seminar on valves to be held in South America.
- There would also be opportunities for fishing and other types of recreation.
- Tom's company would have to pay for transportation, but Jim's company would cover all of the expenses in South America.
- Tom was sure his manager would authorize the trip if asked, but some of the other managers in the firm believed such trips violate proper ethical and professional standards.

Should Tom accept the invitation?

Scenario 5

- After a large number of valves had been specified and purchased, Jim invited Tom on a very nice fishing trip to South America.
- Jim's company would cover all the expenses.
- Tom was sure that his manager would authorize the trip if asked, but some of the other managers in the firm believed such trips violate proper ethical and professional standards.

Should Tom accept the invitation?

Scenario 6

Before Tom's decision to recommend any type of valve, Jim approached Tom and offered him a very nice fishing trip to South America in exchange for using his influence to get the valve sold by Jim's company specified by the designers.

Jim's valves are the safest and least expensive.

What should Tom do?

Scenario 7

- Before Tom's decision to recommend any type of valve, Jim approached Tom and offered him a very nice fishing trip to South America in exchange for using his influence to get the valve sold by Jim's company specified by the designers.
- Jim's valves are more costly and not as safe.
- After the valves were purchased, the salesman invited Tom on the fishing trip to South America.

Should Tom accept the invitation?

Actual

- After a large number of valves had been specified and purchased, the salesman of the valves visited Tom and invited him on a very nice fishing trip to South America.
- Tom had not known the salesman, Jim, prior to the visit.
- He also had no direct purchasing responsibilities; he had just wanted the valves for increased safety in the new process unit.

Should Tom accept the invitation?

Actual

- Engineering codes clearly state that accepting bribes is unethical and unprofessional, but Tom's action cannot be fairly characterized as accepting a bribe.
- We might give a working definition of bribery as remuneration for the performance of an act that is inconsistent with the nature of the work one has been hired to do.
- If Tom took the trip, it would not be in remuneration for something inconsistent with his obligations to his employer.
- Furthermore, the offer was made after Tom's recommendations concerning the valves and (we shall assume) without any prior knowledge and expectation of the gift.

Case Study: Software Developer

- A software professional was assigned the task of developing software to control a particular unit in a large system.
- Preliminary analysis indicated that the work was well within the state of the art, and no difficulties were anticipated with the immediate task.
- To function properly, or to function at all, however, the software to be developed required inputs from other units in the system.
- Someone gave the professional an article by an eminent software specialist that convinced him that the inputs could not be trusted.
- Thus neither the software he was designing nor the unit his company was providing could correctly accomplish the task.
- The professional showed the article to his supervisor and explained its significance.

Case Study: Software Developer

- The supervisor's response was, "That's not our problem; let's just be sure that our part of the system functions properly."
- The software professional continued to work on the project.
- **Ethical Issues?**

Case Study: Computer Hacker

- Without malicious intent, a computer hacker was scanning telephone numbers with his microcomputer and identifying those numbers that responded with a computer tone.
- He accessed one of these computers, using a telephone number that he acquired.
- Without entering any identification, he received a response welcoming him to an expensive and exclusive financial advisory service offered by a large bank.
- He was offered free of charge a sample use of some of the services if he would give his name and address.
- He provided someone else's name and address and used the free promotional services.
- This stimulated his interest in the services that bank charged for and gave him sufficient knowledge of access protocol to attempt to use the services without authorization.

Case Study: Computer Hacker

- He gained access to and examined the menus of services offered and instructions for use.
- However, he did not use the services.
- By examining the logging audit file and checking with the impersonated customer, bank officials identified the computer hacker and claimed that he had used their services without authorization.
- **Ethical Issues?**

Case Study: Programmer

- An enterprising programmer using publicly available information stored in a variety of places or available by purchase from the Department of Motor Vehicles, mail order firms, and other sources to compile "profiles" of people (shopping habits, likely income level, whether the family was likely to have children, etc.).
- He sold the profiles to companies interested in marketing specialized products to niche markets.
- Some of his profiles were inaccurate, and the families received a large volume of unsolicited, irrelevant mail and telephone solicitations.
- They did not know why this increase in their junk mail and calls had occurred and found it annoying and bothersome.
- Other profiles were accurate, and families benefited from receiving the sales materials.

Case Study: Information Security Manager

- The information security manager in a large company was also the access control administrator of a large electronic mail system operated for company business among its employees.
- The security manager routinely monitored the contents of electronic correspondence among employees.
- He discovered that a number of employees were using the system for personal purposes; the correspondence included love letters, disagreements between married partners, plans for homosexual relationships, and a football betting pool.

Case Study: Information Security Manager

- The security manager routinely informed the human resources department director and the corporate security officer about these communications and gave them printed listings of them. In some cases, managers punished employees on the basis of the content of the electronic mail messages.
- Employees objected to the monitoring of their electronic mail, claiming that they had the same right of privacy as they had using the company's telephone system or internal paper interoffice mail system.
- **Ethical Issues?**

Computer Ethics & the Law

- CFAA-Computer Fraud and Abuse Act - 1986
- Electronic Communications Privacy Act - 1986
- CDA-Communications Decency Act - 1996
- COPA - Child Online Protection Act - 1998
- Digital Millennium Copyright Act - 1998
- SAFE - Safety and Freedom through Encryption Act (1999-2005)

CFAA

CFAA-Computer Fraud and Abuse Act - 1986

- It is a felony to commit unauthorized access to a Federal computer system with the intent to steal or commit fraud or inflict malicious damage.
- It is a misdemeanor to traffic in passwords.
- enforced by Secret Service or other authorized federal agency

Pennsylvania 3933

Unlawful Use of Computer

A person commits the offense of unlawful use of a computer if he, whether in person, electronically or through the intentional distribution of a computer virus:

1. accesses, exceeds authorization to access, alters, damages or destroys any computer, computer system, ...
2. intentionally and without authorization accesses, alters, interferes with the operation of, damages or destroys any computer, computer system, computer network, ...
3. intentionally or knowingly and without authorization gives or publishes a password, identifying code, personal identification ...
4. intentionally or knowingly engages in a scheme or artifice, including, but not limited to, a denial of service attack, upon any computer, computer system, ...

Other Acts

Electronic Communications Privacy Act -1986

Specifies which electronic communications are private and prohibits the unauthorized access to and disclosure of private communications.

SAFE - Safety and Freedom through Encryption

Relaxed U.S. export controls on encryption, but creates a new federal crime for the use of encryption to conceal criminal conduct.

Digital Millennium Copyright Act

The act criminalizes production and dissemination of technology that can circumvent measures taken to protect copyright, not merely infringement of copyright itself, and heightens the penalties for copyright infringement on the Internet.

Ethics and Conflict of Interest

(Based on <http://www.ethics.ubc.ca/mcdonald/conflict.html> by Michael McDonald)

What is a Conflict of Interest? [2ex]

Why are such conflicts ethically significant?[2ex]

What can you do to avoid being in one?[2ex]

Conflict of Interest

Definition: a situation in which a person, such as a public official, an employee, or a professional, has a private or personal interest sufficient to appear to influence the objective exercise of his or her official duties.

Key elements:

- *private or personal interest* – by themselves, these are OK
- *an "official duty"* – these obligations are supposed to trump private or personal interests.
- *objective professional judgment* – expected by employers, clients, customers

Conflict of Interest

It is also important to avoid **apparent** and **potential** as well as **actual** conflicts of interests.

- An apparent conflict of interest is one which a reasonable person would think that the professional's judgment is likely to be compromised.
- A potential conflict of interest involves a situation that may develop into an actual conflict of interest.

Leading Examples

(from **The Responsible Public Servant** by Ken Kernaghan and John Langford)

- *Self-dealing.*
 - you work for government and use your official position to secure a contract for a private consulting company you own.
 - you use your government position to get a summer job for your daughter.
- *Accepting benefits.*
 - Bribery is one example
 - Substantial gifts are another.

Leading Examples

- *Influence peddling.* The professional solicits benefits in exchange for using her influence to unfairly advance the interests of a particular party.
- *Using your employer's property for private advantage.*
 - stealing office supplies for home use.
 - using software which is licensed to your employer for private consulting work of your own.
 - In the first case, the employer's permission eliminates the conflict; while in the second, it doesn't.

Leading Examples

- *Using confidential information.* While working for a private client, you learn that the client is planning to buy land in your region. You quickly rush out and buy the land in your wife's name.
- *Outside employment or moonlighting.*
 - setting up a business on the side that is in direct competition with your employer.

- taking on so many outside clients that you don't have the time and energy to devote to your regular employer.
- A professional employed in the public service sells private consulting services to an individual with the assurance that they will secure benefits from government: "If you use my company, I am sure that you will pass the environmental review."
- *Post-employment.* A person who resigns from public or private employment and goes into business in the same area.

Trust Test

How do you determine if you are in a conflict of interest, whether actual, apparent, or potential?

Trust Test - would relevant others trust my judgment if they knew I was in this situation?

- Trust is at the ethical heart of this issue
- Conflicts of interest involve the abuse, actual or potential, of the trust people have in professionals
- This is why conflicts of interest not only injure particular clients and employers, but they also damage the whole profession by reducing the trust people generally have in professionals.

Revealing your private interest in the matter to relevant parties lets others know what might be influencing your judgment.[2ex]

Removing yourself from decision making or advice giving if you have a private interest is another way to avoid conflicts.