

Pull the Card and then Drop it on the Floor



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A Child Runs in front of the Cars



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Never have a Meeting with the Boss on Monday Mornings

Week 47	
21 Monday	22 Tuesday
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	

X

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A Haircut or an Important Meeting?

Week 47	
21 Monday	22 Tuesday
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	

~~HAIR~~ BOSS

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Electronic Shackle



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Breathalyzer Lock



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Distortion of communication

NT used by several people. Lines corrupted when downloaded from the Internet:

The lines that were corrupted were of the form
#define one 1 /* foo menu */
#define two 2 /* bar baz */
What was transferred to this machine only was:
#define one 1 /* foo me */
fine two 2 /* bar baz */

Too Long Wait Time for the Lifts

- Technician: Faster lifts will cost \$\$\$.
- Economist: The saved time is not worth the cost.
- Administrator: Reorganize so that people do not have to move between floors.
- Psychologist:

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Too Long Wait Time for the Lifts

- Technician: Faster lifts will cost \$\$\$.
- Economist: The saved time is not worth the cost.
- Administrator: Reorganize so that people do not have to move between floors.
- Psychologist: Install mirrors in the Halls.

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Traditional examples

Invasion of privacy or unbalanced power/influence structure?

Computer records about an individual: John pays a bill for a hotel room for himself and his wife in Barcelona at the same time as his wife pays her hairdresser at home in Sweden.

Government agencies compare the income which an individual has specified in his income tax return with the income he has specified to the insurance company (which in Sweden is government-run for basic health insurance for everyone).

An employer checks when an employee comes and goes, how long he stays in the toilet, how much time it takes to perform various work tasks, which phone calls he makes, etc., etc.

People are forced, by a computer, to perform tasks in the way planned by the designers of the software. This may not be how they like to do it, it may also reduce their possibilities to find better ways of performing tasks, and to be able to handle unusual situations which the software was not planned for.

Traditional methods of handling these problems

Swedish data act: Regulation of “invasion of privacy”



Anyone registering personal information must have a permission, this permission must specify what you register, how you use this information, to whom you give it. Special strict controls of moving information between data bases, moving information outside of Sweden, registering information about religion, political opinions, illnesses, sexual behaviour, etc.



Strict compliance with this act would make almost all use of the Internet illegal. Example: Sending an e-mail message, especially if you mention someone else's name in the text of the message. “Dear mother. John is own with the flu!”

1978

A computer message service was totally forbidden by the Swedish Data Inspectorate.

1979

The same service was allowed, provided no messages discussing politics and religions were allowed.

1992

An author was forbidden from using a computer to write his book. Decision overturned on appeal by the government.

Problems with computer control of human activities

Can a computer decide what is right and wrong?

There are very often exceptions which the computer does not understand. We cannot teach the computer to understand all exceptions.



Traditional methods of handling these problems

Trade unions require: Employee influence on software development

Good, but does not solve the whole problem. Even with employee influence, software may be designed to control people, restrict their opportunities to do things in better ways, restrict their possibilities of coping with unusual cases not planned for in the software.

Also a risk, even with employee influence, that the computers are designed either for novice users (too restrictive for experienced users) or for experienced users (too difficult for novice users).

Standard software (word processors, spread sheets, etc.) may be better than custom-made software, because in order to sell such software, they have to be designed to be easy to use for beginners, flexible for experienced users and extensible for handling new and unforeseen uses.

Humans and computers

Humans may be better at

- Understanding new or different problems and handling them adequately
- Evolving new and better ways of handling tasks
- Making associations, seeing similarities, creating

Computers may be better at

- Handling tasks they were programmed to handle and which can be adequately described in a program
- Routine processing of large amounts of data

Example: Deciding on a suitable date for a face-to-face meeting

- Who are able to come at alternate dates?
- Are all equally important?
- Can another meeting be moved?
- “John is not at his best on Monday mornings”

Laws, Rules and Regulations

- ✓ A tool for control and power
- ✓ A tool for communication

Rules are based on a model of the system they are used for

This model is always incomplete, because it is not possible for any activity to include all variations and special cases.

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How People Handle this Problem

User representatives:

We know what is right and wrong. We will not let the computer allow what we know is wrong.

Result: Users cannot adapt to the nuances of real life.

Technical developers:

Just insert a new software feature!

Result: A complex system, with lots of features, like a christmas tree. Those who know the sacred books can get what they want. Those who do not know become helpless.

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Summary

- The successes of human society is based on the flexibility of humans and their willingness to adapt their activities to different circumstances.
- Humans are most happy and productive if they can influence their living environment and contribute to solving problems together.
- Laws and regulation are a form of communication between humans. They are in reality only guidelines, people have to adapt to varying circumstances and interpret and apply the rules with understanding and human compassion. If everyone had to adhere 100 % to all laws and regulations, human societies would not work any more.
- This is usually no problem when the laws and regulations are written on paper. But if the laws and regulations are programmed into computers, so that the computers control

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what is allowed and not allowed, serious problems will often occur. In the best case, people will only be unhappy and unproductive, in the worst case, major catastrophs can occur.

- Computer software must be designed to allow flexibility and human choice. Laws and regulations should be interpreted by humans, not by machines.
- Making the software more complex, to include in it more different special handling of special circumstances, will often only make it worse. Instead of complex software, software should be flexible and open-ended.
- There is a human tendency when designing software to want to include in it “proper procedure” and “experience how things should be done”. This tendency can easily produce unusable or unsuitable software.
- Possible exception: Certain security rules, where enforcement is needed to overcome human weaknesses.