

Homework 2

Read Chapters 1 and 2 in your Philosophy of Science textbook. You may also want to review the lecture notes from the first three lectures.

Philosophers and Scientists

In scientific papers, popular science articles and op-eds you will often see references to famous historic scientists and philosophers. The writer may want to display cultural education or be part of an age-old intellectual discourse. Now, you should do this with comments (of one sentence) on three items from the news flow. Each comment should reference a historic person mentioned in this course. The news items are:

- Programming should be taught in school, says report.
- Evolution is just a theory, says senator.
- We live in a digital multiuniverse, says Max Tegmark.

Example:

A comment on the news item “Ten years from now most cars are predicted to be driverless.” might be “Capitalism is still alive and kicking though Marx predicted its demise a hundred and fifty years ago and the predicted demise of car driving will probably fail as miserably.”

What is truth?

The purpose of science is to arrive at true statements, but what does that mean? The question is a difficult one. One would like to have a definition of truth that may be used to test all types of statements. But there seems to be no universally accepted definition, despite millennia of philosophy and science. Here are four statements, P1-P4. In what sense are they true?

P1 The car keys are on the kitchen table.

P2 Every differentiable function is continuous.

P3 Johan Glans is a blast.

P4 One should stick to the truth.

The following are four notions of truth that have occurred in philosophical discussions:

- **Correspondence truth** If P corresponds to reality, then P is true. P1 is true because the keys are actually on the kitchen table.
- **Coherence truth** if P is logically linked to other true statements then P is true. P2 is true since it follows from previous definitions and theorems.
- **Intuitive truth** If I have a strong internal conviction about P then P is true for me. P3 is true because I think Johan Glans is a blast.
- **Pragmatic truth** If believing in P results in good consequences then P is true. P4 is true because everyone benefits from people telling the truth.

What kind of truth concept matches each of the following statements best?

1. The program statement `while (true) {}` gives an infinite loop.
2. Mergesort has complexity $n \log n$.
3. Microsoft suffers losses in the consumer market.
4. Comments make it easier to modify programs.
5. Agile development provides greater job satisfaction.
6. P is a strict subset of NP.
7. Spotify, Skype and MySQL are Swedish programs.
8. This statement is true!
9. This statement is false!

For each statement: say which of the four notions of truth you choose and why.

Handing in your solution

Please save your solution as a pdf file and hand it in on the peergrade page. Do not write your name in the pdf file.

Peer grading

You will be asked to review the homework of three other students. Your own solution will also be checked in this way.

Your teacher will read your submission and report the result in rapp.