

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.

Bring a printed copy of your homework to the seminar, and be prepared to defend your opinions. (Since there is no absolute truth you may not get the same answers as your classmates...)