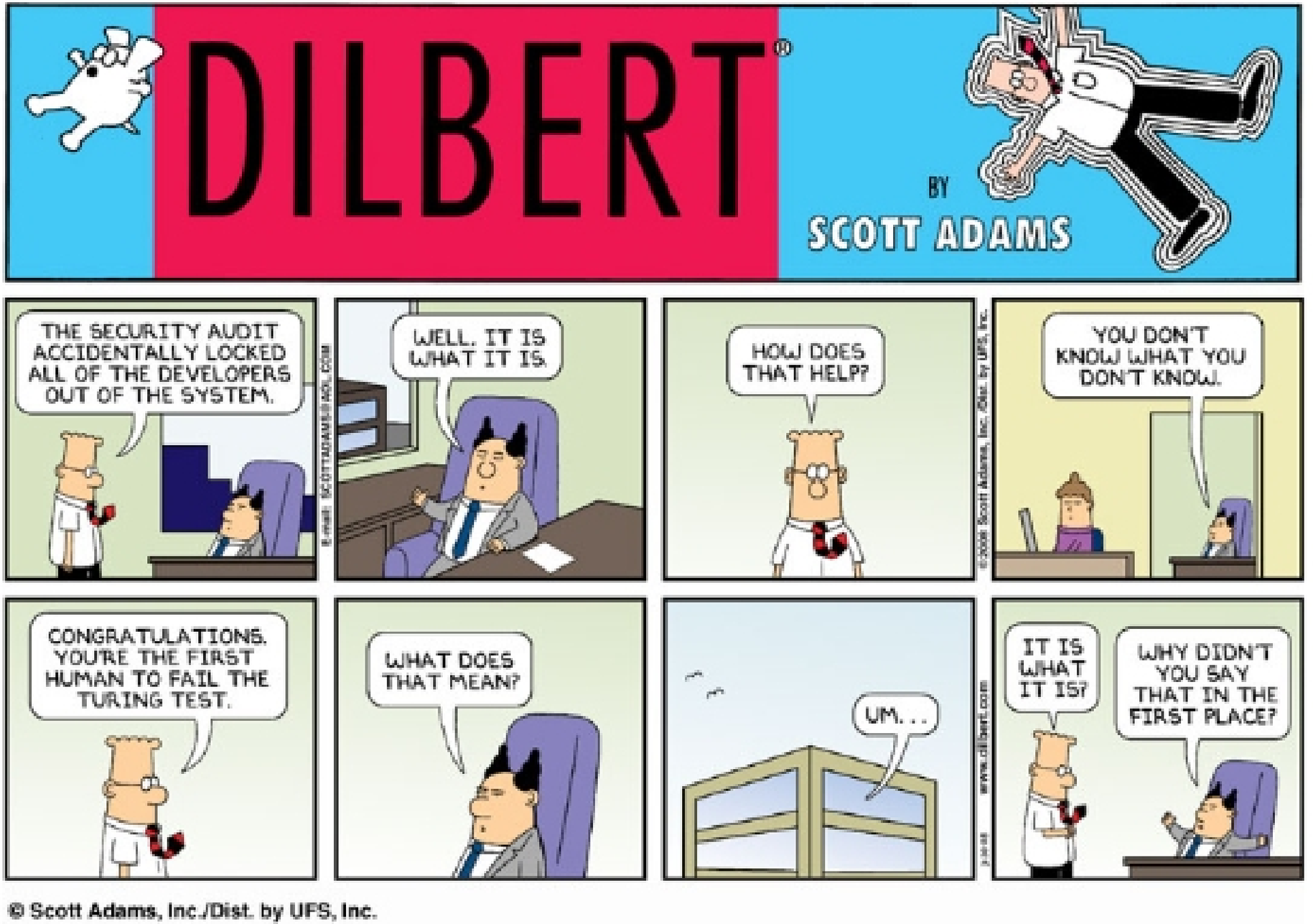
Class 19: Undecidability in Theory and Practice



cs302: Theory of Computation

University of Virginia Computer Science

David Evans

http://www.cs.virginia.edu/evans

Menu

- PS5, Problem 5
- Erudite Discussion on Undecidability
- Busy Beaver Problem

PS5, Problem 5

Consider a one-tape Turing Machine that is identical to a regular Turing machine except the input may not be overwritten. That is, the symbol in any square that is non-blank in the initial configuration must never change. Otherwise, the machine may read and write to the rest of the tape with no constraints (beyond those that apply to a regular Turing Machine).

a. What is the set of languages that can be recognized by an unmodifiable-input TM?
b. Is $HALT_{UTM}$ decidable?