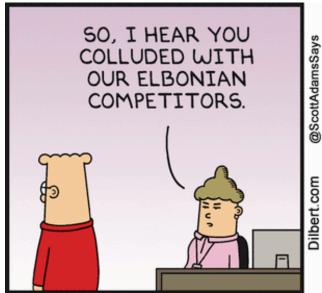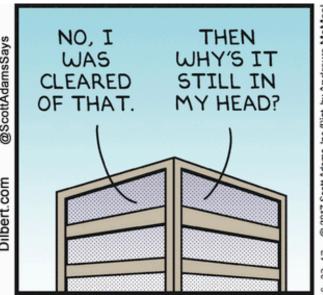# Three Theorems On Fake News

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On Fake News

An Analogy

A system ⟷ A human being

Legitimate access ⟷ Correct news

A masquerading intruder ⟷ Fake news

Intrusion detection ⟷ Ability to verify news

Success: Intrusion denied ⟷ Success: fake news discarded

Th1: As systems vary from totally exposed to highly resilient, so humans vary from simpleton status to fairly sophisticated

The Problem

- Like systems, human beings are complex and vary greatly in how they can detect fake news based on:
  - Cultural bias
  - Experience
  - Breadth of knowledge
- Like intrusion attacks, fake news also vary greatly in how they affect different human beings
  - Two equivalently sophisticated humans may respond differently to different fake news items

Th2: A human being can be a simpleton toward some type of news while being sophisticated against another

The Role of Trust

- Trust is a cornerstone of *every* human transaction

- The presence of a trusted entity is the basis of every resilience protocol: e.g. stable storage, safe depository, physically secure vault, etc.

- The crisis of fake news: Journalists are reporters lost the trust of the audience when moved from mere transporters of news to influencers/entertainers/biased analysts

Th3: Without creating a trustworthy entity to vet and relay news reliably, a solution is not possible

Herein lies the path to a solution: How to create a universally trusted entity for this purpose: BBC, Cronkite, …

Difficult!!