# When a hypothesis is neither true nor false

I wrote this in response to a [discussion](#) on Dave Farber's IP List.

Perhaps the problem is that logic and the idea of hierarchical meaning are overplayed in the West to the point that we treat the world as an unambiguous jigsaw in which the parts all fit neatly into a whole that can be solved. This is one of the issues I raised in my recent note to this list about big data and, of course, it is at the heart of our accepting the idea that what we communicate (human sense) fits within Shannon's pipes (information theory framing). Where Mathematics Comes From by Lakoff and Núñez gets the metaphors that are behind our creation of mathematics.

The Most Powerful Idea in the World: A Story of Steam, Industry, and Invention by William Rosen addresses the question of why the steam engine (and locomotive) was invented in England and not China and other places and why the Greeks had wonderful discovers but did not build on them. One part of this is the idea of patents which made ideas into property that one can, to use a modern word, monetize.

We need to remember that logic is a technique and doesn't give us the one true answer in a world of undefined contexts. I'm reminded of the efforts to prove programs correct – what does it mean for a program to be "correct"? You might prove the equivalence of two formal representations but you can't prove they do want the developers and users "want". This gets back to comments I made in the past about the need to "check back with reality" in order to catch "errors" in experiments. I put the word errors in quotes to emphasize that the internal logic may be perfectly correct but context might be wrong.

I'm also reminded of this as I try to learn Chinese casually on my own using [RosettaStone](#) along with Google and Bing translate. Because I'm trying to translate sentences out context the translations are often strikingly at odds with their meaning in the lessons. This problem is also acute for translating classic documents that influence cultures because the meaning is, in a sense circular as the traditions are the meaning.

PS: John Day's comments reminded me to look for a book I'd read in draft from when it was lying around at MIT in the 1970's. I think it was Chinese science; explorations of an ancient tradition. It was a while ago but what struck me was the story of how the 2000 years ago the flourishing practice of mathematic proof was basically outlawed by a bureaucracy that saw it as a threat. I've ordered a copy and will see if my memory is correct.