

**ZEIDE’S LOGIC, AND CONCLUSION,  
“Falsification without verification (*and hence  
induction*) cannot exist”,  
are invalid**

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Professor Zeide decries Popper’s view (Zeide 2010) of science...the view that science must be based on falsification rather than verification: scientific theories can be decidedly falsified, but never inductively verified : e.g. one negative instance (a black swan) is sufficient to reject a hypothesis (that all swans are white), while no number of white swans can prove it.

Professor Zeide says “To Popper (1983), science has no certainty, no rational reliability, no validity, no authority”. Zeide clearly prefers the positive concepts of “certainty, rationality, reliability, validity and authority”, to the negative concept of falsification. In everyday human affairs, and particular in relation to human characteristics, I think we would all agree with this preference for the positive characteristics listed than the falsification relied on by a “doubting Thomas”. Perhaps the list of positive characteristics, so desirable in everyday life, have led Professor Zeide to misinterpret Popper’s falsification view of the scientific method.

I had thought that all modern scientists regarded their theories as only “the best so far”, and that empirical evidence may at some future date refute the theory and require the development of a better theory which also explains the new evidence as well as the old. This is a philosophy most certainly adopted by most forest modellers, since the incantation, “no model is perfectly correct, but some models are a better approximation than others”, is frequently quoted.

Consider Galileo/Newton’s theory of relative velocities in inertial frames of reference (those travelling relative to each other at constant velocity). This theory was falsified by the observation that the speed of light was constant in all inertial frames of reference, and Einstein’s Special theory of Relativity was developed to encompass this new empirical fact. It is clear that Einstein’s theory is rich in its structure and its predictions, (all of which have been verified), and that the new theory is a substantial positive improvement over the previous theory. The fact that the Galileo/Newton theory was falsified has not impoverished science, it has enriched it.

Professor Zeide seems to confuse the use of verification with acceptance of the validity of the inductive step. A failed falsification attempt is a verification

instance. Though such verification might increase our confidence in the theory, it does not prove the theory, or even contribute to such a proof. Such proof by evidence is of course impossible, only verification (or falsification) are possible.

Professor Zeide essentially claims that Popper’s sole reliance on falsification (which he calls “getting rid of induction”) relies in its centre on verification, and hence on induction! Professor Zeide commits the logical misinterpretation error of “referring to different theory-referents”, both in relation to “induction”, and “verification”.

Professor Zeide says:

*“Suppose that after seeing many white swans we happened to observe a dark-colored bird. To ascertain that it is a black swan and not a grey goose, we would have to compare one feature of the bird after another with the description in an identification manual. This process is clearly inductive: it goes from particular features to a general conclusion about the bird.”*

But we see here that the general inductive conclusion from observing many instances of swans which are white is “all swans are white”. The inductive conclusion is about the **whole conceptual population** of swans, which is potentially infinite. Professor Zeide compares this inductive move (from particular cases to a general statement about **all** swans) to the move from the results of the examination of a finite sequence of features of a particular bird to a firm conclusion about the colour of that particular bird. This is not necessarily an inductive step.

If a black swan were defined to be one on which all feathers were black, then an induction would have occurred if **half** of the feathers of the bird were examined and found to be black, and the general statement “all feathers on this bird are black” were then made (and hence the conclusion “this bird is black” reached). But according to this definition, certain determination of the color of the particular swan is possible merely by checking the color of **all** feathers on the particular bird. This is not the verification of induction.

Professor Zeide’s logic, and conclusion, “Falsification without verification (*and hence induction*) cannot exist”, are invalid.

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## REFERENCES

Zeide, B. 2010. Using strong inference to falsify differential equation models of sugar maple height growth—Discussion. MCFNS 2(1):12–14.