Is Karl Popper's Falsification Theory Falsifiable?

This was prepared by me, Roger Golden Brown. Find this here, along with lots of other material related to the ongoing Global Coup here on my website.

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In light of the current mainstream chant to "trust the science" and the accusations that skepticism of the "settled science" is conspiracy theory, I thought Karl Popper's ideas about scientific theory deserves looking at. Following are two comments from a thread on the Quora website, Is Karl Popper's Falsification Theory Falsifiable? giving their take on it.

Ted Wrigley commented:

First, scientific theories are neither true nor false. A theory might be a good model or a bad model; it might be effective and useful, or not; but a theory never rises to the level of 'true' or falls to the level of 'false'. There is always room for doubt, because our knowledge is always incomplete.

'Falsifiability' is an idea developed by Karl Popper, a philosopher and logician who thought about science, back in the 1940s or '50s. Popper was trying to distinguish proper reasoning — which was implicitly identified with scientific/logical reasoning — from other less proper forms of reasoning. Put in its simplest terms, Popper decided that we could not trust a theory unless there was a clear and objective way to test it and potentially prove it false. In Popper's mind, a scientific theory was a logical proposition about the material world. In logic we start with propositions and do proofs, manipulating the symbols and truth values to see whether we have made mistakes in reasoning or created internal contradictions. In that same sense, Popper thought we should take scientific propositions — theories — and manipulate them analytically to discover mistakes and contradictions. If a theory was constructed or defended in a way that made it impossible even to *look for* mistakes or contradictions, it was not 'falsifiable,' and thus should not be considered a valid theory.

Falsifiability doesn't mean that a theory *will be* falsified; it merely suggests that a theory must be testable, and expose itself to being falsified. Those theories that survive our repeated, ongoing efforts to falsify them are good, sound theories. In colloquial terms, if we hit a theory with a hammer and it doesn't break, it's a solid theory.

Granting that Popper has a useful insight, falsifiability never really survived philosophical examination. The problem is that human beings — scientists or otherwise — simply do not think in these negative terms. When we propose a theory, we want that theory to be accepted, we do not want an endless cycle of critical attacks. Popper's theory captured an aspect of proper reasoning, but it completely missed broader elements of human cognition and behavior. In practice, most scientists, and most people, do not take falsification as a call to abandon flawed theories; instead, they take falsification as a call to fix flawed theories and make them stronger.

We ought to respect Popper's main concern. He was trying to find a means to deal with a certain kind of bad reasoning, where an idea is held up in the face of contradictory evidence simply because people refuse to look at the evidence in question. That is a pervasive problem. But what Popper and many of those who follow his philosophy fail to understand is that falsifiability cannot be used as a general category for distinguishing good theories from bad. It is merely a concern we should keep in mind when we approach a theory so that we can avoid logical traps.

Tom McFarlane commented:

Popper's falsifiability is a criterion to demarcate science from non-science. It means that a scientific theory must make at least one prediction that can be contradicted by an empirical observation. In that way, there can be meaningful progress of scientific knowledge by eliminating theories that are either 1) demonstrably contradicted by an observation or 2) are not even capable of being contradicted by any observation at all. In short, valid scientific theories must be falsifiable but not yet falsified.

There are subtleties to falsificationism, however. One significant subtle point is that the contradiction of a theory by an observation does not necessarily imply that the error rests in the theory. Instead, the error could rest in a mistaken observation, a mistaken auxiliary theory upon which the observation is based, or an error in the deduction of the prediction from the theory. Moreover, even if there is no error in the observation, it may be that the error rests only with a minor assumption of the theory instead of one of its primary foundational principles. These complicating factors in the application of falsificationism are acknowledged, at least implicitly, by practicing scientists who do not hastily discard an established and well-tested scientific theory the moment a single observation is reported that is inconsistent with the theory. Instead, they closely examine the observation for errors and attempt to replicate it. Only if it holds up to scrutiny and replication do they entertain discarding or changing the theory to accommodate the observation.

So, although falsificationism requires that any proposed theory be falsifiable, in practice it does not mean that a theory is always discarded as false as soon as a single contradictory observation is made. Its implementation is more nuanced than that.

Also, even falsified theories can remain useful as approximate scientific theories. Classical mechanics is one example of that. It remains valid within certain limits despite the fact that it has been falsified when applied beyond those limits. And since it is still falsifiable within that limited domain, it is still a scientific theory.