

Re: Epistemology 201: The Science of Science

Source: <http://sci.tech-archive.net/Archive/sci.physics/2005-02/9123.html>

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Lester Zick wrote:

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> *Actually not, Bob, as per Pioneer 10/11 anomaly.*

The anomaly can be explained in a number of ways. It, by itself, is not a falsification, any more than the anomalous motion of Neptune was a falsification. The question is still open.

For instance

<http://www.technovelgy.com/ct/Science-Fiction-News.asp?NewsNum=270>

Some space scientists are calling for a deep-space mission to try to understand this behavior – called the Pioneer anomaly. Mundane reasons for this effect have been brought forward; it could be due to leakage of gaseous fuel from the thrusters, for example. However, some scientists wonder if the Pioneer anomaly may be due to some previously unknown forces that are only noticed outside the solar system.

The question is not resolved until possible "normal" explanations for the deceleration have been investigated and eliminated. The question of a fuel leak could be easily determined by sending another probe. If it decelerates in an unaccountable way, perhaps there are bodies far out that account for the deceleration. Perhaps not. On the other hand if the next problem behaves "normally", i.e. as predicted by the theory, we can assume safely that something peculiar and specific happened to the first Pioneer problem

Until these investigations are complete one cannot conclude definitively that the theory is in error (although it very well might be).

The anomalous precessions of the perihellia of Mercury and Venus have been consistently observed over a period of many years, by many different people using many different instruments. So the anomalous

motion of Mercury and Venus are not due to an observational glitch. Furthermore no additional bodies have been found near the sun which can account for the anomalous motion. Couple that with a theory that predicts the motions spang on with no additional assumptions and you very reasonably conclude that Newton's law is wrong.

Bob Kolker