

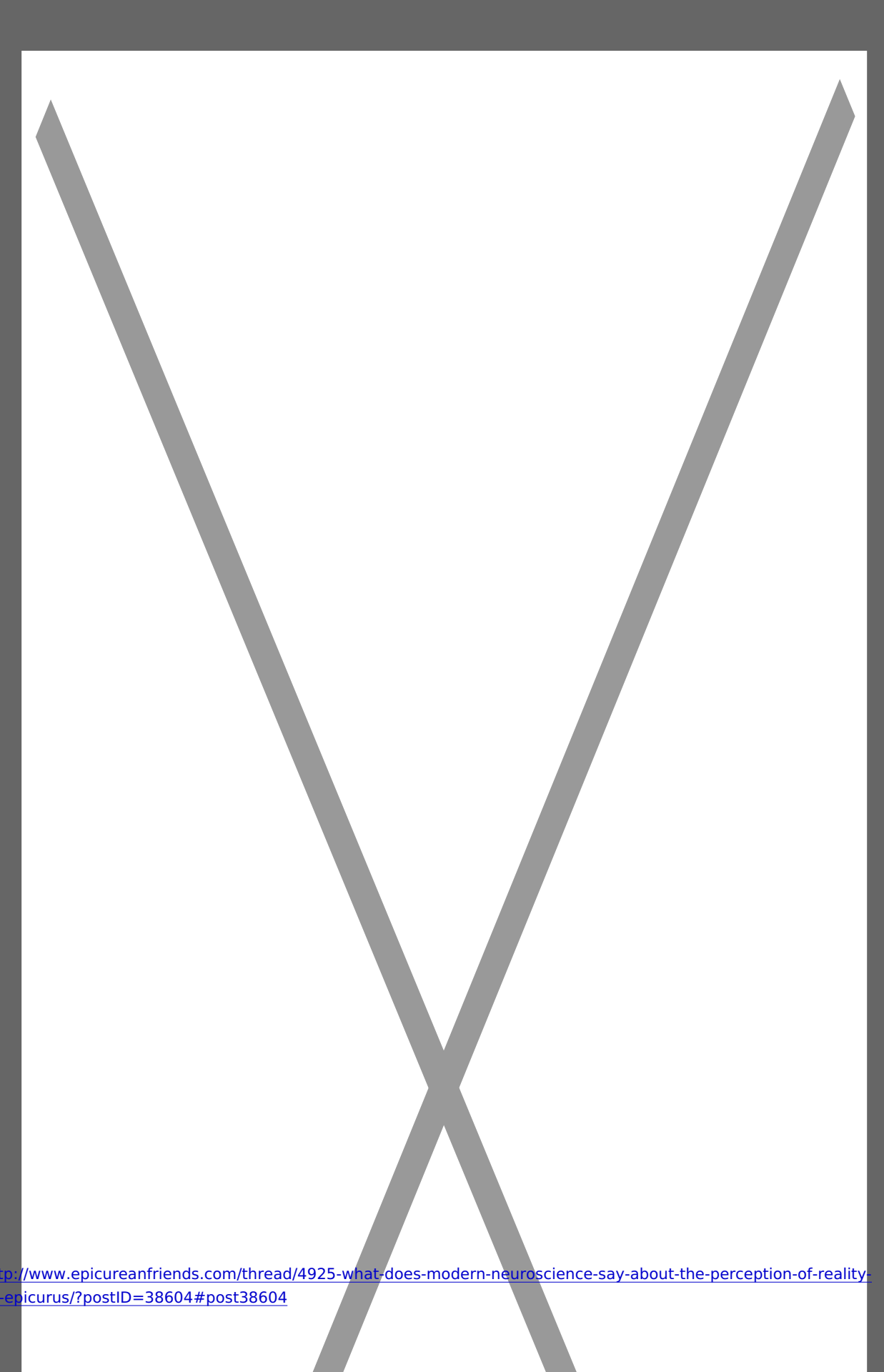
What does modern neuroscience say about the perception of reality vs Epicurus?

Post by “Kalosyni” of January 27, 2026 at 10:47 AM

The topic of whether or not we can accurately perceive reality is very important, especially if some people may be more prone to errors of perception. And it does seem that modern neuroscience has made great advancements in understanding compared to the time of Epicurus. We've likely already talked about this in other threads, but I think it is a worthwhile topic to continue.

Here is a good article I found:

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[The Neuroscience of Reality](#)

Reality is constructed by the brain, and no two brains are exactly alike

www.scientificamerican.com

Quote

The central idea of predictive perception is that the brain is attempting to figure out what is out there in the world (or in here, in the body) by continually making and updating best guesses about the causes of its sensory inputs. It forms these best guesses by combining prior expectations or “beliefs” about the world, together with incoming sensory data, in a way that takes into account how reliable the sensory signals are. Scientists usually conceive of this process as a form of Bayesian inference, a framework that specifies how to update beliefs or best guesses with new data when both are laden with uncertainty.

In theories of predictive perception, the brain approximates this kind of Bayesian inference by continually generating predictions about sensory signals and comparing these predictions with the sensory signals that arrive at the eyes and the ears (and the nose and the fingertips and all the other sensory surfaces on the outside and inside of the body). The differences between predicted and actual sensory signals give rise to so-called prediction errors, which are used by the brain to update its predictions, readying it for the next round of sensory inputs. By striving to minimize sensory--prediction errors everywhere and all the time, the brain implements approximate Bayesian inference, and the resulting Bayesian best guess is what we perceive.

Quote

To understand how dramatically this perspective shifts our intuitions about the neurological basis of perception, it is helpful to think in terms of bottom-up and top-down directions of signal flow in the brain. If we assume that perception is a direct window onto an external reality, then it is natural to think that the content of perception is carried by bottom-up signals—those that flow from the sensory surfaces inward. Top-down signals might contextualize or finesse what is perceived, but nothing more. Call this the “how things seem” view because it seems as if the world is revealing itself to us directly through our senses.

The prediction machine scenario is very different. Here the heavy lifting of perception is performed by the top-down signals that convey perceptual predictions, with the bottom-up sensory flow serving only to calibrate these predictions, keeping them yoked, in some appropriate way, to their causes in the world. In this view, our perceptions come from the inside out just as much as, if not more than, from the outside in. Rather than being a passive registration of an external objective reality, perception emerges as a process of active construction—a controlled hallucination, as it has come to be known.