

The Universe: About Theories

I define the physical universe as all that I observe and experience, which I perceive to be outside of and beyond my conscious being. Its effects and impositions invoke within me a burning curiosity, which compels me to construct theories about what it is and how it works. [PDF] [português]

The act of studying the physical universe is called science. Science reveals that the physical universe comprises phenomena which may be experienced by humans. The effects of such phenomena are conveyed to the human consciousness either directly via the 5 human senses, or indirectly by way of instruments able to transduce effects that cannot be sensed directly by humans into effects that can. There's no good reason to suppose that the physical universe be all that exists. Discontinuities and singularities, seen within the physical universe, strongly suggest that the physical universe is only part of a continuum, which extends into a hyper-reality which is fundamentally beyond the reach of human senses or any possible kind of scientific instrumentation.



My view of the physical universe is necessarily imperfect. I cannot see it as a whole from some celestial vantage point outside it. I can only view it from what must be a very disadvantageous peripheral position in space and time. My view is also hampered by the severe limitations of my 5 human senses. I have no all-seeing eye able to afford me a clear vision of the whole of reality. My view is also blurred by imperfections in my perception of what the inputs from my physical senses are telling me. Finally, my consciousness is able to perceive of and construct realms of the imagination, which are beyond reality. Such realms may, on occasions, cause my rigorous observations of the real world to be subconsciously coloured by wishful thinking.

All this means that, no matter how rigorous my observations may be, my view of the universe is necessarily subjective. The objective scientific view is an illusion. Bearing this in mind, my conscious perception of the universe seems, in its most general sense, to comprise notions of time, space, objects, motion, forces and waves. Theories are an attempt to understand the complex ways in which these basic notions relate.

Suppose we are scientists. We observe the wonders of nature. We then mentally separate what we see into *phenomena*. We speculate about what underlying mechanism is producing a particular phenomenon. In so doing, we need to make some initial assumptions. We then test our assumptions by making controlled experiments in which aspects of the phenomenon can be more rigorously observed. We thereby verify - or at least substantiate - *some* of our assumptions. We now have an embryonic *theory* about how nature produces the phenomenon we see. We create more specialized and precisely tuned experiments. The data from these allows us to put more and more flesh on the bones of our theory. Our theory thus continues to develop, expand and mature until we can finally call it *established*.

Somewhere along the way, we encode our ideas in mathematical terms. This provides us with a far more precise and efficient language in which to "discuss" our ideas. We name variables to represent the natural quantities involved. We relate these quantities with equations which represent how the different natural quantities affect or depend on each other. We may even have to invent some new mathematical notations and operations in order to be able to write down our ideas about the structure and behaviour of a new phenomenon. However, once we have done all this, we can subsequently derive - by mathematical manipulation - other consequences of what we have observed. We then construct specialized experiments to explore, test and verify these mathematically predicted consequences.

Notwithstanding, there are three fundamental problems with all this.

The first is that we cannot verify all of our most fundamental assumptions. We can only verify the consistency of what is built upon them. For example, Maxwell's equations substantiate very strongly the universal constant velocity c with which electromagnetic waves must diverge from a source. But that they also arrive at an observer at the same velocity c , independently of his speed relative to the source, is an assumption we cannot prove. This is because the velocity of light from an origin to a destination cannot be measured. We can only measure the velocity of light over a round trip. This has far-reaching implications.

The second problem is to do with mathematics. The act of codifying a theory in mathematical terms gives it an air of unquestionable validity, causing us to spend many years deriving consequential predictions with a misplaced sense of security. This is because any error in a fundamental assumption becomes propagated parasitically throughout all our mathematical derivations.

The third problem is to do with verifying our theory. A theory is really a description of the underlying mechanism that *we think* is responsible for the phenomenon we have been observing. However, it is usually possible to construct many different theoretical mechanisms that would produce exactly the same observations. So the mechanism that is *really* producing what we see could be any one of the many we have thought of, or perhaps - indeed most probably - one we haven't yet thought of. This is well evinced by how uneasily Quantum Mechanics and Einsteinian Relativity sit together as purported descriptions of nature. Yet each has an uncanny dexterity at predicting what has been later observed within its own jurisdiction.

Underlying all three of the above problems is the [fallibility of our human perception](#). Our human perception is built from our elemental experiences of being and seeing, all of which take place exclusively within the confines of the terrestrial biosphere. Consequently, anything we may try to understand about the universe beyond - from the very small to the very large - can only be perceived in terms of our terrestrial experiences. Even the most ambitious abstractions can only be expressed in terms of - or by analogy with - elemental experiences we have had as macroscopic beings living on the surface of the Earth.

We cannot directly sense or experience an electron. We can only know about its existence indirectly via consequential macroscopic experiences brought to us via scientific apparatus. So, in terms of *what* elemental terrestrial experiences can we possibly acquire a perception of an electron? Is it a super-miniature billiard ball? Is it a centre of stress within a field of force? Is it a fleeting vortex within an ætherial multi-dimensional fluid? Is it a thin atmosphere of negativity surrounding the nucleus of an atom? Is it a standing wave reflected to and fro within a quantum cavity in space-time? Is it all or none of these?

All our perceptions can be constructed only from the elements of our macroscopic terrestrial experience. These elements form the only language in which we can express or conceptualise anything. But we are trying to visualise concepts for which the language of our terrestrial experience contains no elements through which they may be adequately visualised. The language of our experience within the terrestrial biosphere is only a minuscule sub-set of the language of the universe. In our endeavour to understand the universe, we are therefore hopelessly trapped within the strongest possible manifestation of the Sapir-Whorf Hypothesis.

It is with these problems in mind that I venture to construct an alternative yet almost-equally plausible perception of the universe. It is built from an even more restricted sub-set of elemental human experiences, namely, mine. Notwithstanding, it demonstrates that there is always, necessarily, more than one way of perceiving something that is outside the jurisdiction of direct human experience.

© 06 October 2006 Robert John Morton | [NEXT](#)

©This content is free and may be reproduced unmodified in its entirety, including all headers and footers, or as “fair usage” quotations that are attributed as follows: “ - [article name] by Robert John Morton <http://robmorton.20m.com/>”