

## Further Musings on What is Reality

By Cornelia Parkes, August 19, 2021

### My Experience of Superposition

I am lying in bed  
Both asleep and not asleep  
Within a dream and not in a dream  
Both aware that it is time to wake up  
And unaware of time.  
Then my mind,  
Both the observed and observer,  
Cries out, "Wake up!"  
And my superposition resolves  
To the awake sitting position.

### Review of Helgoland, Part 2

I finished reading *Helgoland: Making Sense of the Quantum Revolution* by Carlo Rovelli (Rivershead Books, 2020). The first half of the book explained to non-physicists the notions of *interference* and *superposition*. The second half expands on his quote from my musings in the July New Story News:

*"Instead of seeing the physical world as a collection of objects with definite properties, quantum theory invites us to see the physical world as a net of relations. Objects are its nodes." (p. 79)*

Anil Seth is another popular spokesperson for a new version of reality who studies the neuroscience of consciousness. For fun, [view his TED talk](#) "Your brain hallucinates your conscious reality." The idea that our perceptions are formed by projections onto the world more than by what is objectively present is not new. If we tone down the hyperbole, Seth appears to be talking about story. We are familiar with how story influences our actions in the world as Thomas Berry has said:

*It's all a question of story. We are in trouble just now because we do not have a good story. We are in between stories. The old story, the account of how we fit into it, is no longer effective. Yet we have not learned the new story.*

But Seth is saying something much deeper: that story is the **only** way we interact with the world. How I see is determined by the story I bring to the perception. So, what then is reality? How can we ever agree on what there is?

Rovelli opens the second part of *Helgoland* with the question, "Is it possible that something is real in relation to you but not in relation to me?" His claim is that quantum theory describes "the way that one part of nature manifests itself to any other single part of nature. *Objects*, entities, physical systems, do not exist in isolation. They continually act on each other. We must be able to treat any object as an *observer* when we consider the manifestation of another object to it. Objects that have no interactions are essentially non-existent and have no properties. Again, a Berry quote comes to mind:

*The world is not a collection of objects but a communion of subjects.*

In Rovelli's words, "Facts that are real with respect to an object are not necessarily so with respect to another."

The phenomenon of *entanglement* is the way that things speak to one another. For Rovelli entanglement is not a relationship between two objects: the joint properties of two objects exist only in relation to a third. Entanglement is not just about photons but is a much more general phenomenon. It happens when an interaction is considered in relation to a system external to it. There is much to ponder here.

Brian Swimme talks about how every atom in our body was forged in the stars. Rovelli takes this one step further: these atoms are entangled. Think about how each atom in your body must have interacted in some distant past with so many other atoms in the universe. Every atom in your body had to be entangled with billions of atoms throughout the galaxy. Now that's being connected with the cosmos!

I will review the third and final part of *Helgoland* next month. In that section Rovelli asks what all this means for our ideas about reality and realizes that "the conceptual novelty of the theory is not so new after all." Also in September, I plan to attend a webinar with Anil Seth in which he promises to present an exhilarating new theory about how we experience the world and the self. See [A New Science of Consciousness](#), September 9, 1:00 pm. It will be interesting!