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Mysteries of Causality

Evidence for Time Reversal

n negotiating the mundane activities of daily life, common sense is reasonably effective. But when faced with understanding the fabric of reality itself, common sense regularly fails. For example, science has learned that matter, energy, space, and time are not the separate entities suggested by common sense, but rather deeply direction than the other. In this sense, what we usually think of as "causality" is more realistically viewed as a highly complex, entangled set of relationships. While common-sense causality is an oversimplification,

correlation, one with a higher probability link in one

most social, behavioral, and neuroscientists regard such arguments as mere philosophical quibbles. They would argue that common-sense causality adequately explains all aspects

intertwined relationships. We've learned that light has no definite existence when no one is looking, at least not as we understand existence in common-sense terms.

But perhaps one of the most self-evident concepts surprisingly questioned by modern science is causality. Cause and effect, the underlying scheme by which we understand "how things work," has

generated more disquiet among scientists and philosophers than is commonly known.

In spite of questions about the fundamental nature of causality, cause-and-effect sequences certainly seem to be adequate for understanding experiences at the human scale. For example, we might expect that hitting a nail with a hammer provides proof-positive of a force-like, unambiguous causal event at the macro scale. You hit the nail with the hammer and it moves—end of argument. But what if the nail was stuck in a steel bar that just happened to look like wood? Or if the nail was close to its melting temperature, or if the hammer was made out of foam rubber, or . . .

We soon realize that any example proposed as an irrefutable case of "absolute" causality can easily be qualified. And as soon as we start adding conditionals, we are forced to redefine causation as a special form of asymmetric

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of human experience. While it is clear that commonsense causality is a useful heuristic tool, it does not seem to provide an adequate explanation for all human experiences. Why? Because substantial anecdotal and experimental evidence indicates that we can also experience time-reversed effects.

Of course, one expects a chorus of vigorous objections to any suggestion of time-reversed causality. Indeed, some philosophers, such as Anthony Flew, detest even the possibility of genuine time-reversed effects because retrocausation seems to be conceptually incoherent. Flew may be correct when it comes to caricatures of absolute, unidirectional causality. But as we've seen, absolute causality dissolves like the Cheshire Cat when examined closely. And in spite of what common sense insists, many physicists and philosophers are far less certain than Flew when it comes to the actual meaning of "causal."

S O F R E S E A R C H



'People like us,
who believe in
physics, know that
the distinction
between past,
present, and
future is only
a stubbornly
persistent illusion.'
—Albert Einstein

In fact, hundreds of publications in mainstream journals can be found that consider the implications and properties of time-reversed and time-symmetric phenomena. These include effects described by classical mechanics, general relativity, electrodynamics, and quantum mechanics—the physical fundamentals that underlie all of modern science. The time-symmetric solutions to these theories are assumed to manifest only in highly exotic domains, for example, under extremes of temperature, gravity, energy, mass, or speed, or in very short periods. As a result, retrocausality is viewed as being possible in principle, but irrelevant for all practical purposes, especially in understanding human experience.

While some exotic physical realms are clearly outside the scope of human experience, others are not. Under the right conditions, for example, we can perceive single quantum events (like a light flash caused by a single photon), and neuronal synapses rely on electron tunneling, a quantum effect that allows electrons to jump across classically "forbidden" energy zones. Ordinarily, we are completely unaware of quantum and relativistic effects, but we are nevertheless composed of the same fabric of the universe as rocks, stars, and black holes. Thus, it is conceivable that exotic time-loops, reversals, symmetries, and acausal correlations may lurk deep within us. If this were so, then how might such experiences manifest? Consciously, they may emerge as precognitions of future events. And unconsciously, perhaps, they would be experienced as intuitive hunches, gut feelings, or synchronicities. One of IONS' current research projects directly addresses the issue of causality in mind-matter interactions. Fifty years of prior laboratory experiments by researchers around the world indicate that mind and matter seem to be related in some way, but so far no direct causal mechanisms have been found. This puzzle has stalled advancements in our understanding of these effects. Our ongoing experiment uses an electronic random-number generator as the mate-

From an anecdotal perspective, there is little doubt that such experiences exist. Time-reversed phenomena like precognitive dreams have been reported throughout

history and across all cultures. Of course, anecdotes often have prosaic psychological explanations such as coincidence, misperception, elaborations, distortions, and wishfulfillment, so we must turn to controlled laboratory tests to see whether retrocausal phenomena are what they appear to be. A review of the cumulative laboratory data supports the theory that time-reversals do occur at the human scale, both consciously and unconsciously, and that these phenomena may be more pervasive in human experience than previously thought.

'Lab experiments indicate that mind and matter are

related, but no causal mechanisms exist.'

rial "target" of mental intention. We are studying whether mind-matter interaction effects may be better modeled as forwards-in-time causal effects, or as acausal, timeless, or perhaps retrocausal phenomena. A pilot study indicated that some mind-matter interaction effects, such as those observed using random-number generators, are better explained as effects "happening" backwards in time rather than any forwards-time mechanism. Data collected in this new experiment will be used to compare and test these theoretical possibilities.

Action at a Distance

nother provocative and challenging mystery in science involves action at a distance. Here our work on distant healing suggests that causality may not be limited to its physical properties. Today new developments in this fascinating area are leading to a new set of questions. Can one learn to direct one's intention at a distance? What are the common features of healing practitioners who claim to heal at a distance?

Many spiritual practitioners maintain that anyone can be a healer—all that is required is a compassionate heart. In this sense, anyone who prays for healing for another is a distanthealing practitioner. At the other end of the spectrum, some traditions believe that only certain people have the "gift" of healing, that this capacity is bestowed by God or divine grace, and is not available to all. A more nuanced perspective is that most people have inherent healing capacities, but that training and practice are required to bring them to fruition. A recent IONS study interviewing healers from a variety of the world's traditions has helped to enumerate the following components of healing:

SET INTENTION—Bringing one's awareness, with purpose and a sense of efficacy, toward a healing response in the distant person.

FOCUS ATTENTION—Cultivating a state of concentration and non-distractibility that may be described as "sustained attention." In the context of healing, this involves a focused mind in the act of intending.

CULTIVATE LOVE AND COMPASSION—Thought to be an inherently human quality, compassion refers to an

individual's experience of selfless love and care for another's suffering. Various traditions teach practices to increase one's sense of love and care for the recipient, to experience "self" as extending beyond the individual, and to have a sense of connection to others.

SUSPEND DISBELIEF—Belief or confidence in the method has historically been associated with the ability to both give and receive distant healing. While belief may be possible for some, an open mind that suspends disbelief may be an easier ability to achieve for many.

Based on these common characteristics, we are creating educational programs to aid people in their own inquiry and development. A new course on compassionate intention will explore the science and the practice of distant healing as it relates to any healing interaction. This is being offered through the Integrative Healing Certification Program at the Institute for Health and Healing at California Pacific Medical Center, in partnership with IONS.

A conference on the philosophy, science, practice, and social implications of distant healing will be held on the IONS Campus in California from November 14-16, 2003. Speakers include researchers from leading medical centers, reporting on the latest developments in research on distant healing, healers who will describe and demonstrate their methods, and spiritual teachers who are interested in bringing these principles into daily practice. Larry Dossey, MD, well known for his writings on prayer and healing, is the keynote speaker.

In addition, a new web-based program has recently been launched on the IONS website. Short excerpts of video interviews with healers and scientists provide insights from the world's traditions. Eric Vormanns, a healer from Ghana, for example, speaks of his training in Africa, and how he has developed his approach to etheric healing. Alan Wallace, PhD, offers insights from Tibetan Buddhism, while Swami Veda describes his spiritual practice and its relevance for understanding mind. A comprehensive database is available, as well as articles on specific experiments, current news reports, and a new series of on-line games that focus on intuitive diagnosis and intentional healing. For more information, visit the new program area under Research at www.noetic.org.

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