

Indeed our modern study of causality takes us straight to the same answer. We find both philosophers and modern physicists informing us that a "wider and richer" scheme of causality is needed -- a "synthesis or integration of causal factors" which "can be analyzed with the help of logic; but cannot be *reduced* to logical terms."²⁸ In a word, they are *pre-logical*; and it seems they are the same set of irreducible attributes we find at the foundation of our mathematics and the needs-fulfilling operations of our minds. Nature's causality seems to be best described as a kind of synergetic superposition of these attributes integrated by the same invariant we find at the core of Love.

And what would be the hallmark of this causality that even a physicist could not miss? Our answer is that Love operates only by *Persuasion*. In fact, here we encounter the one word which completely encapsules the new Supercausality in language that the most advanced physicist -- as well as the child -- can grasp: Persuasion.

There is mounting evidence that Nature does indeed operate by just such Persuasion. Our foremost clue is that Persuasion can only operate by interactive communication of information. Physics now recognizes that all the known forces are "mediated" by "messenger particles." We can call it force, but it is essentially interactive communications at work -- just as Persuasion requires. And it is not coincidence that Einstein redefined our understanding of gravity as exerting "its authority not with force but with persuasion" -- the persuasion of the most efficient paths laid out by communicative fields in space and time.²⁹

Persuasion offers itself to more than individual forces such as gravity; it seems to apply to how such forces operate in the Universe as a whole. It suggests a general direction, a guiding, without dictatorial control. Yet, nothing can escape its influence. Thus Persuasion explains why one or more of the matrix of causal factors must somehow embody an "*irreversible* productivity"; a "generative order," a "creative predisposition" or developmental thrust in Reality's operations.³⁰

But scientists also have a valid point about regression and reversibility. Any scientific logical foundation must not only account for Nature's creative advances but also allow for both regression and for the reversibility we find in our current mathematical laws of physics. Technically these equations work going forward or backward in time -- although most of Reality seems to go in only one direction.

Again, the accommodation offered by a persuasive causality is remarkable. But rather than label it persuasive causality, let us give it a more scientific footing that gives some indication of its superimposed elements and the invariant at its core. I offer the new term *delective causality* -- *delective* taken from the Latin words for "highly pleasing" and "to allure." You will get the idea every time you go past a delicatessen when you are hungry. Delective causality even sounds better than "deterministic causality," "indeterministic causality" or "no causality" at all. It allows all the "alluring" irreducible attributes we have been discussing to be accommodated under one concept whose central thesis is Persuasion.

Persuasion is actually an old idea whose time has come, even to the halls of Science where it should be welcome. It is intriguing to find physicists themselves acknowledging the mild

error in the long-standing tradition of holding causation to be a one-way concept, which tends to ignore the interaction of the effect back toward the cause. This interactive, interrelated feature of Nature's processes is a fact of physics that we must recognize. Viewing causality as a one-way process is only an *approximation* of a much more subtly interconnected, two-way, or actually all-way operation by which Reality is in constant interactive communication.

Our old concepts of causation typically considered cause to be a matter of exerting external forces on substance that was internally inert; composed of tiny dead billiard balls. Prevailing definitions of causality still retain much of this internal deadness of the Newtonian era. But it is only a useful approximation, one which runs out in both quantum theory and in life. A more "adequate picture is provided," as one physicist explains, "by a *synthesis of self-determination and [external] determination*, in which external causes are conceived as unchainers of inner processes rather than as agents molding a passive lump of clay..."³¹ In order for such "unchaining" communication to occur, information must appeal to common elements of internal structure, common "inbuilt patterns of response"³² -- the "needs" or "attribute" structure of the participants, whether humans, dogs, trees, rocks, or electrons.

We also find something else occurring in Reality's two-way, interactive, more "participatory" causality. As physicist Mario Bunge explains: "room is made for the *may* at the expense of the *must*; novelty is seen to be possible."³³ The language of *may* is, of course, the language of Persuasion. And as to novelty, there is a certain intrinsic freedom of response, an inherent self-determination, in a "dipolar" causality that relies upon communication of information. Indeed we have a freedom beginning at physics' foundation that seems strangely reflective of a truth that will set us free in the most fundamental manner suggested by Jesus. Freedom is no longer tacked on at the end. Yet this Freedom is not without guidance. Although delective causality offers a freedom which allows novelty, diversity, reversibility, error, pain, and regression, the persuasive invariant at its core is always present.

This is a causality that can accommodate mind as well as matter, essentially linking the two. The causal nexus of the mind can only be termed one that operates by a kind of interactive influencing of energy-matter, by Persuasion. Thus mind is no longer separated from matter; nor from physics, but intimately linked to both, as Penrose suggests.

Surely the evidence mounts that we have found the Supercausality that modern Science is missing. Delective causality offers us a *relational* Reality in which there are probably no transactions of Nature on any scale which do not have their interactive information components. This means that even the remotest ultimate entities of energy-matter must somehow retain an "internal" capability of handling the attributes of delective causality, however subtly, with the invariant at its core. Many physicists have already concluded that Reality essentially has an informational basis; and not a few have suggested a "mental component" therein.³⁴ We are simply giving such thinking a firmer shape, yet not so firm as Einstein might have wished. Persuasion is not veiled determinism.

Persuasion must always retain at least an *element* of Spontaneity Chance. But an *element* is not the same as a *foundation*. We see that communication of information must always embody such an element of Spontaneity-Chance in the response if not in the information itself. This alone would account for the statistical nature of all the laws of physics in general; but this is not *pure* Chance operating any more than it can be a matter of *pure* Necessity. It is possible that current quantum theory has already reached this threshold where Spontaneity-Chance of self-determination cannot be further penetrated, where Nature's freedom of choice, as physicist Bohr once referred to it, is protected. It is also possible that more subtle information interactions are going on beneath the quantum blanket, and may eventually be made known. Either way, delective causality is the more explanatory solution. And either way, Einstein ends up being more right than wrong; that is, "Chance" cannot be the logical foundation of physics, but only an element thereof.

Delective causality also explains why, in quantum physics, the individual observer seems to play such a vital role, so vital, that many physicists suggest Reality is observer-created, and nothing but ethereal waves of potential until we look at it. Delective causality tells us, on the other hand, that it is not so much an observer-created Reality as an observer-*related* Reality we are involved with. It is extremely provocative in this regard that Einstein's principle of Relativity is not a law of physics, it is a law *about* the laws of physics. Einstein's fundamental breakthrough holds that the laws of nature will appear the same to each individual observer. He held that this was the result of the inherent *rationality* of the universe and our harmony within it; and for physicists it remains among the most fundamental tests for "truthfulness" of any proposed "laws." But Einstein's Relativity is kind of passive; all it does is ask the observer for the time and space, so to speak; whereas quantum theory holds that reality itself becomes actively malleable to the individual observer. We can now see, I suggest, that the rationality of Nature which relates to "truthfulness" and the malleability of Nature which relates to "usefulness" are inextricably linked. "Usefulness" has no meaning except being "serviceable to our needs." Thus the malleability of Reality that we seem to encounter in quantum theory is only a further excavation of the "user-friendly" universe which Einstein's Relativity first detected -- an excavation no wise complete, for we have only clipped the peak of the Intent To Please the individual which apparently pervades even the physics of the universe.

Science is, of course, more than physics. Our solution must account for the inherent *Becoming* in Reality, its incessant self-organization which the current laws of physics do not address.

This problem of emergent order, running all the way up through evolution of life and humanity, seems destined to require delective causality, a causal process with a developmental thrust toward not only the more complex, which allows richer autonomous relationships, but toward that which is capable of being most pleased in the process. Humanity thus becomes the emergent product of Reality's delective causal equation, and is no longer quite so "accidental." As Einstein's fundamental principle would require, our solution must be capable

of such massive accommodation, including humanity and our mind itself as part of Universe, and all that we do, are, and can become. A scientific logical foundation could do no less.

We can also close the long-standing gap between biological and cultural evolution. We simply take survival of the fittest and augment it with "flourishing of the pleasingest" -- thus spanning all our needs from biological survival to the highest cultural expressions with the same invariant: the core of Love. Natural selection itself needs just such an interactive, persuasive broker, one that can accommodate not only survival, but the purposeful, judgment-forming operations of our minds -- evolution's true missing link. Evolution theory needs this motivational integrator, a striving that involves a little more than raw survival of our selfish, little genes for a few seconds of universe time. And there is no greater motivator bridging reproduction, survival, and the creative social-cultural order, than the striving to be pleased; "to be loved." Surely, we cannot much longer ignore our actual experience and attribute the progressive nature of biological and cultural evolution to some blind interplay of Chance and Necessity which just accidentally happens to evade entropy's law of decay and waste.

While even Jesus tells us the Earth *will* pass away, the ultimate "New Story of Science" will have to do with something more than the waste products generated.³⁵ It will have to do with what generates them. As many others have concluded, we need a logical foundation of growth to which entropy's death, decay and waste are secondary rather than primary. This would be the growth process of what Peirce termed "evolutionary love," the main business of the universe with which we humans are intimately and eternally related -- "at one and the same impulse projecting creations into independency and drawing them into harmony."³⁶ It should not surprise us that the fundamental language of this business of Becoming bears the hallmark of the Intent-To-Please. What else would a Father have in mind for His children? Is not "all the rest" ...just details?

When Peirce sketched this solution a century ago, he said: "If thinkers will only be persuaded to lay aside their prejudices and apply themselves to studying the evidences of this doctrine, I shall be fully content to await the final decision."³⁷

As that time draws near, we are finding that all of Science, from the physical to the political, is, at its foundations, the Science of Love.

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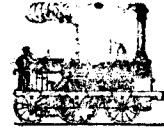
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DIAGRAM 5-1: LOVE'S CAUSES AND INTENSITIES
 Showing Love's pervasive Common Element, *The Intent to Please*;
 and Love's major Components, their Elements, and their Intensities

		E L E M E N T S	I N T E N S I T I E S
I N T E N T I O N A L P L E A S U R E	R E S P E C T	Awareness Recognition Admiration	Acceptance Regard Esteem Reverence Veneration
	C A R E	Attentiveness Listening Thanking Encouraging Praising Comforting Assisting Sharing Contributing Protecting	Courtesy Kindness Consideration Nurturing Devotion
	K I N D N E S S	<i>Processes of</i> Objectiveness Positiveness Conscientiousness Humility Patience Transposition Forgiveness Transcendence	(Instinct) Understanding Reflection
	E L E M E N T S	<i>Contents/Understandings of</i> Uniqueness of Individuality Interdependence/Cooperation Freedom of Personality to Develop Toward Perfection Integration of Good and Evil For the Good Universal/Simple Synthesis Tending Toward God	Realization Illumination Wisdom
R E S P O N S I B I L I T Y	Trust Loyalty Service	(Compulsion) (Obligation) Voluntary Obligation Commitment Dedication Consecration	

THE NEW SCIENCE OF LOVE



Love manifests only in action. (Love without works is dead).

The actions of love occur in certain clearly definable and consistent patterns, the love's action elements: Care, Respect (recognition and admiration), Knowledge (patience, humility and forgiveness), Responsibility (trust and loyalty).

Actions are the only things by which we can observe the experience of love.

There are only TEN ways we can express love; these elements can be combined or mixed:

- . Attentiveness: we can express love by paying attention to another.
- . Listening to another: conscious assimilation of all sensory data.
- . Thanking another.
- . Encouraging another: to visit, being present.
- . Praising (elogiando) another (to commend or approve).
- . Comforting another: providing contentment or security by direct touch.
- . Assisting another: lending the helping hand, to help someone.
- . Sharing with another (with some reciprocal arrangement. Lending is a form of sharing, expecting nothing in return. But sharing always allows for a reciprocal.
- . Contributing something to another: a permanent transfert with no reciprocity. The ultimate contributing is performed in secret, making reciprocity impossible.
- . Protecting another: to oppose potential or immediate threats.
- . Finally, we can express love by simply not doing anything to another, by letting them alone sometimes.
- . The zero-action element of love is "the intent-to-please".

Without the intent-to-please, love simply does not seem to occur. Jesus: "I do always those things that please the Father". This love's common element must be there, every time, all the time.

The observed presence of the action elements of Attentiveness, Listening, Thanking, etc., occurring from one person toward another, means only LOVE -so long as the intent-to-please is there also.

Each action element of love constitutes a real energy expression that has a certain SENSE, a certain DIRECTION toward someone, and an amount or MAGNITUDE of energy.

- . You can "sense" when someone's action is Listening, Thanking, etc., and whether, in the very core of the action impulse, there is an "intent-to-please".
- . You can "direct" the energy of any action at yourself, or toward another person.
- . The "magnitude" of a love action: Devotion, Consideration, Kindness, and the least magnitude of love's vectors, that of Courtesy.

With the intent-to-please, no one could misinterpret a thank-you of love for a vicious thank-you whose intent was to harm.

The most unchanging element of love is its common element, the intent-to-please.

It resides at the core of love's symmetry. It is the nature of the intent-to-please to be only persuasive; there is no coercion possible in this invariant. Its pure attraction could be said to consist of an ABSOLUTE PERSUASION TOWARD EFFICIENCY.