Dynamic Chiropractic

PHILOSOPHY

Healing the Division of the Vision, Part II

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Editor's note: Part I of this two-part article was in the Sept. 8 issue.

Synthesis vs. Analysis

Synthesis and analysis are the perceptual counterparts to anabolism and catabolism. Where synthesis perceives wholes intact, analysis parses them into their elements and relationships. If synthesis is a story, analysis is the form and function of its grammatical parts. Faith-based fundamentalists use synthesis to make clinical judgements based on experience. Science-based intellectuals use analysis to make clinical hypotheses based on experimental models.

Historically, science has been analytic. In his book The Chiropractic Theories: Principles and Clinical Applications, Robert A. Leach writes that science "is very mechanistic and leads to reductionism; the whole is equal to the sum of its parts. This is counter to the holistic or vitalistic concept of a life force that makes the whole greater than the sum of its parts."[15] Lately, however (thanks again to computer technology and the evidence-based culture), a kind of "scientific holism" is emerging.

For centuries scientists modeled the world in the geometry of lines, planes, and solids. Then Benoit Mandelbrot proposed fractional dimensions -- the idea, for example, that a wadded-up newspaper is somewhere between solid and plane. He explored this proposition with computer graphics, and discovered a world of "fractal" shapes that cannot be analyzed into their constituent parts, but stay equally complex no matter how finely we look at them. And many aspects of nature, including the human body, turn out to have fractal shapes.[16]

Fractal shapes exist, yet they cannot be analyzed. Even their mathematical formulas reveal nothing until they pass through the iterations necessary to produce the fractal shape. Unlike typical scientific models, fractal shapes can only be appreciated as wholes. This is not, however, a drawback, nor does it make fractal geometry unscientific. As Mandelbrot himself puts it, "A formula can relate only to a small aspect of the relationship between model and reality, while the eye has enormous powers of integration and discrimination."[17] Those powers of integration and discrimination are the foundation of synthesis, which fractal geometricians use.

With fractal geometry paving the way, other aspects of science may yet adopt synthetic methodologies. And health care information technology may emerge as a case in point.

As we mentioned in the last section, health care information technology will be based on a clinical model so comprehensive that relationships between variables will not be hypothesized beforehand. "Relationships will be discovered post hoc," we said, "by exploring the information structure inherent within the data." Analysis will create the initial model, and will represent science in the usual sense. But once cases begin to accumulate, exploring the information structure inherent within the data will require a mainly synthetic process.

For example, two variables mark a point in two-dimensional space. We typically label thee points

with numbers in parentheses -- (4, 7), for instance. These numbers in parentheses are actually a kind of address.

Patients with similar "addresses" live in the same two-dimensional "neighborhood." That's a geometric way of saying that they share two attributes. If the attributes are meaningful, we may treat the "neighbors" alike, and expect them to respond in similar ways.

Now, suppose our clinical model contains 60 variables, thus giving each patient an "address" in 60-dimensional space. Compared to our two-dimensional example, this creates 58 additional opportunities to vary, so that patients who were "neighbors" in two-dimensional space probably won't be neighbors anymore.

But given enough cases, patients will form neighborhoods. That is, similar cases will begin to cluster, even in 60-dimensional space. Identifying these "neighborhoods" is what we mean by "exploring the information structure inherent within the data." The more accurately we identify the "neighborhoods," the more accurate our clinical predictions will be. And the process of identifying them, though mathematical, is more synthetic than analytic.

For example, Parker College researchers recently wrote a computer algorithm for identifying clinical "neighborhoods," and applied it to a data structure consisting of 34 spinal variables taken digitally from cervical x-rays of 47 patients. Even in this small sample, the algorithm successfully paired more than half the patients with a "nearest neighbor" who occupied the same region in multi-dimensional space. Without exception, the members if each "neighborhood" pair shared virtually identical clinical pictures. The x-rays, the clinical pictures, and a preliminary interpretation of the "neighborhoods" were provided by a collaborating faith-based fundamentalist chiropractor.

In China, science-based intellectuals and faith-based fundamentalists collaborate in research. In one study, for example, scientists used analysis to diagnose 130 patients with essential hypertension. Traditional healers next used synthesis to sort the patients into three groups based on their patterns of "yin-yang imbalance." Then the scientists used analysis again to identify biochemical markers that differentiated the three yin-yang groups, which pointed them toward possible variations in the mechanisms of hypertension, and possible explanations for why patients may respond differently to drug therapy.[18] They did essentially the same thing in a study of heart disease.[19]

We believe the same opportunity for cross-camp collaboration exists in chiropractic.

Energy vs. Matter

As the Chinese collaboration suggests, faith-based fundamentalists typically favor energetic explanations (like yin-yang dynamics), while science-based intellectuals typically favor material explanations (like biochemical markers). In other words, faith-based fundamentalists emphasize dynamic properties of rhythm and motion, while science-based intellectuals emphasize formal properties of mechanism and structure. This distinction, more than almost any other, shows why the two approaches are complementary.

Complementarity is mainly methodological. That is, it exists when dual aspects of nature can be accessed only through mutually exclusive methodologies, such that observing one aspect necessarily hides the other.[20] This characterizes the relationship between energy and matter. To observe energetic properties like rhythm and motion, the system must freely move. To observe material properties like mechanism and structure, the system must not freely move. The two

aspects thus require mutually exclusive methodologies, and can be understood, therefore, only in opposite, though complementary, ways.

There can be no doubt that energy and matter represent dual aspects of nature. We see this system as simple as mountain stream, whose behavior depends equally on the material properties of the water and the gravitational energy released through the mountain slope.

There can also be no doubt that energy affects matter by altering its state. We see this in the difference between ice, water, and steam.

There can be no doubt again that energy in complex systems can produce states in which the material parts behave coherently, as if they were one. Systems in these coherent states are called "far from equilibrium," and they form the subject matter of nonlinear thermodynamics. Ilya Prigogine won the 1977 Nobel Prize in chemistry for developing this very point.[21] Coherent behavior occurs in living bodies, and it makes wholes greater than the sum of their parts, which Robert A. Leach, in the quote cited above from The Chiropractic Theories, identified as a "holistic or vitalistic concept."

Because science-based intellectuals use methodologies designed for material properties, they see no evidence for the energetic properties that faith-based fundamentalists see. In a recent article in the Chronicles of Higher Education, Robert L. Park, a physicist at the University of Maryland at College Park, criticizes federal funding for research on chiropractic and other non-medical therapies on this very point. Commenting particularly on a grant awarded to study "the effects of therapeutic touch on the immune system," he notes that therapeutic touch cannot be studied with normal scientific methodology, and concludes with this comment: "The therapist's hands do not touch the patient -- they smooth out the `energy field' surrounding the body. Only the therapist can detect this aura, and no one has offered any evidence of this energy."[22]

A report prepared for the National Institutes of Health notes that people in all cultures and times have developed energy-based therapies. It calls these "biofield" therapies, and lists aspects of chiropractic among its examples. But "characterization of the biofield is far from complete," the report says. Theorists hypothesize that it is "a form of bioelectricity, biomagnetism, or bioelectromagnetism," but "some researchers discount the possibility." So little is known of the biofield, in fact, that "determining its nature is paramount to its further development among the healing arts." To date, however, "No one has yet been able to detect either current flow or electromagnetic flux emanating from the hands of a practitioner," and "no generally accepted theory accounts for the phenomena of biofields."[23]

Parker College researchers recently submitted a paper to a biophysics journal documenting scientific advances in both biofield detection and biofield theory. We can say no more than this until the paper is published, but our follow-up plans include collaborative research with chiropractors who have developed energy-related therapies, all of whom probably qualify as faith-based fundamentalists. If the profession segregates itself from them, we believe it will lose a key resource in this growing area of health care research.

Some Practical Questions

Should the profession decide to adopt Dr. Phillips' segregation proposal, at least two practical questions will have to be addressed: (1) How will we identify the faith-based fundamentalists? (2) How will we achieve the segregation?

To identify faith-based fundamentalists, we will have to operationalize the concept. This is no trivial

matter. To identify our collaborator in the x-ray project as a faith-based fundamentalist, we asked, "Do you believe in innate and universal intelligence?" He said, "Yes," so we placed him in the faith-based fundamentalist camp. But Dr. Phillips, by implication, introduces at least ten possible defining attributes:

1. Believe in innate and universal intelligence.
2. Believes chiropractic colleges should be allowed to set an entering GPA requirement of 2.25.
3. Devalues academic performance.
4. Believes that the purpose of research is to confirm fundamental beliefs.
5. Believes research that contradicts fundamental beliefs is flawed.
6. Represents "the antithesis of what we strive to achieve as we teach our students at LACC."
7. Is dogmatic.
8. Practices spiritual healing.
9. Espouses mysticism.
10. Has self-centered interests.

Faced with such a diverse set of defining attributes (a thorough analysis will likely reveal even more), it would probably be wise to set major and minor criteria, with specific numbers of each required to qualify a given subject as a faith-based fundamentalist. The more rigorously we operationalize the concept, however, the fewer instances we are likely to find. it would be possible, for instance, to operationalize "faith-based fundamentalist" so rigorously that we find no instances at all, in which case the profession would be required to remain as it is. Care must be taken, therefore, to operationalize with no more rigor than required to achieve Dr. Phillips' objective, and with no less rigor than required to allow the profession to continue to exist.

With regard to achieving the segregation, we see only three possible strategies: (1) implement Dr. Phillips' dual-degree proposal (provided we can operationalize "faith-based fundamentalist college"); (2) arouse contempt for faith-based fundamentalists by calling them names; and (3) establish a lobbying group so powerful that it can capture the profession, and then expel all those who have been scientifically proven to be faith-based fundamentalists. We model the name-calling strategy after the FDA deputy director who called non-medical therapists "gangsters." We model the lobbying-group strategy after the AMA's conspiracy to "contain and eliminate" chiropractic.

Note, however, that we have altered the AMA strategy by recommending that the target population be identified scientifically, which requires the rigor of operationalization. Operationalizing should prevent a federal judge from ruling, as Judge Getzendanner did, that the segregating is economical rather than scientific. It may also be possible to avoid censure, however, on the basis that we are not targeting an entire profession, but merely an undesirable segment of one.

Now, having said all this, may we also say how silly it seems? We have the utmost respect for Reed Phillips and LACC, yet we have written an article almost devoid of respect. We abhor division in the profession, and we deplore labels like "faith-based fundamentalist" and "science-based intellectual," yet we have risked worsening the division by using the labels. We consider ourselves

professionals who deal in substance, not innuendo, yet we have used innuendo to make a point. We have responded to Dr. Phillips' article, in short, by giving back more of the same. Such is the pass the "division of the vision" brings us to.

Complementary perspectives cannot be reconciled in the abstract. Their mutual exclusivity precludes it. If we try to reconcile them in the abstract (or, more likely, if we try to discount one or the other in the abstract), we cannot do it with substance, for abstractions have no substance to draw on -- the concept "cow" does not give milk. And so, lacking substance, we find ourselves mired in the quicksand of disrespect, labels, and innuendo.

Complementary perspectives can be reconciled; however, in the minute particulars of actual circumstance, and this take little more (dare we label them one last time?) than "faith-based fundamentalists" and "science-based intellectuals" working side by side. Faith and intellect merge, in other words, in courtesy, charity, and good will. And through the collaboration that these qualities allow, what one grand conceptual reconciliation cannot possibly accomplish, a thousand tiny practical ones will.

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