Metaphors of the Mind (Part I)

By Sam Vaknin, Ph.D.

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The brain (and, by implication, the Mind) has been compared to the latest technological innovation in every generation. The computer metaphor is now in vogue. Computer hardware metaphors were replaced by software metaphors and, lately, by (neuronal) network metaphors. Such attempts to understand by comparison are common in every field of human knowledge. Architects and mathematicians have lately come up with the structural concept of "tensegrity" to explain the phenomenon of life. The tendency of humans to see patterns and structures everywhere (even where there are none) is well documented and probably has its survival value added.

Another trend is to discount these metaphors as erroneous, irrelevant, or deceptively misleading. Yet, these metaphors are generated by the same Mind that is to be described by them. The entities or processes to which the brain is compared are also "brain−children", the results of "brain−storming", conceived by "minds". What is a computer, a software application, a communications network if not a (material) representation of cerebral events?

In other words, a necessary and sufficient connection must exist between ANYTHING created by humans and the minds of humans. Even a gas pump must have a "mind−correlate". It is also conceivable that representations of the "non−human" parts of the Universe exist in our minds, whether a−priori (not deriving from experience) or a−posteriori (dependent upon experience). This "correlation", "emulation", "simulation", "representation" (in short : close connection) between the "excretions", "output", "spin−offs", "products" of the human mind and the human mind itself − is a key to understanding it.

This claim is an instance of a much broader category of claims: that we can learn about the artist by his art, about a creator by his creation, and generally: about the origin by any of its derivatives, inheritors, successors, products and similes.

This general contention is especially strong when the origin and the product share the same nature. If the origin is human (father) and the product is human (child) − there is an enormous amount of data to be safely and certainly derived from the product and these data will surely apply to the origin. The closer the origin and the product − the more we can learn about the origin. The computer is a "thinking machine" (however limited, simulated, recursive and mechanical). Similarly, the brain is a "thinking machine" (admittedly much more agile, versatile, non−linear, maybe even qualitatively different). Whatever the disparity between the two (and there is bound to be a large one), they must be closely related to one another. This close relatedness is by virtue of two facts: (1) They are both "thinking machines" and, much more important: (2) the latter is the product of the former. Thus, the computer metaphor is unusually strong. Should an organic computer come to be, the metaphor will strengthen. Should a quantum computer be realized − some aspects of the metaphor will, undoubtedly, be enhanced.

By the way, the converse hypothesis is not necessarily true: that by knowing the origin we can anticipate the products. There are too many free variables here. The existence of a product "collapses"

our set of probabilities and increases our knowledge − to use Bohr's metaphor.

The origin exists as a "wave function": a series of potentialities with attached probabilities, the potentials being the logically and physically possible products.

But what can be learned about the origin by a crude comparison to the product? Mostly traits and attributes related to structure and to function. These are easily observable. Is this sufficient? Can we learn anything about the "true nature" of the origin? The answer is negative. It is negative in general: we can not aspire or hope to know anything about the "true nature" of anything. This is the realm of metaphysics, not of physics. Quantum Mechanics provides an astonishingly accurate description of micro−processes and of the Universe without saying anything meaningful about both. Modern physics strives to predict rightly − rather to expound upon this or that worldview. It describes − it does not explain. Where interpretations are offered (e.g., the Copenhagen interpretation of Quantum Mechanics) they run into insurmountable obstacles and philosophical snags. Thus, modern science is metaphorical and uses a myriad of metaphors (particles and waves, to mention but two prominent ones). Metaphors have proven themselves to be useful scientific tools in the "thinking scientist's" kit.

Moreover, a metaphor can develop and its development closely traces the developmental phases of the origin. Take the computer software metaphor as an example:

At the dawn of computing the composition of software applications was serial, in machine language and with strict separation of data (called: "structures") and instruction code (called: "functions" or "procedures"). This was really a "biological" phase akin to the development of the embryonic brain (mind). The machine language closely matched the physical wiring of the hardware. In the case of biology, the instructions (DNA) are also insulated from the data (amino acids and other life substances). Databases were handled on a "listing" basis ("flat file"), were serial and had no intrinsic relationship to each other (an alphabetic order is an extrinsic order, imposed from the outside and existing only in the mind of the "imposer"). They were in the state of a substrate, ready to be acted upon. Only when "mixed" in the computer (as the application was run) did functions operate on

structures.

This was, quite expectedly, followed by the "relational" organization of data (a primitive example of which is the spreadsheet). Data items were related to each other through mathematical formulas. This is the equivalent of the wiring of the brain, as the pregnancy progresses.

The latest evolutionary phase has been the OOPS (Object Oriented Programming Systems). Objects are modules which contain BOTH data and instructions in self contained units. The user is acquainted with the FUNCTIONS performed by these objects − but not with their STRUCTURE, INTERNAL COMMUNICATIONS AND PROCESSES. Objects, in other words, are "black boxes" (am engineering term). The programmer is unable to tell HOW the object does what it does, how does external, useful function arise from internal, hidden ones. Objects are epiphenomenal, emergent, phase transient. In short: much closer to reality as we came to describe it in modern physics.

Communication can be established among these black boxes − but it is not the communication (its speed or efficacy) that determine the overall efficiency of the system. It is the hierarchical and at the same time fuzzy organization of the objects which does the trick. Objects are organized in classes which define their (actualized and potential) properties. The object's behaviour (what it does and to what it is allowed to react) is defined by its very belonging to the class. Moreover, a principle of "inheritance" is in operation: objects can be organized in new (sub) classes, inherit all the definitions

and characteristics of the original class plus new properties which distinguish it from its origin. In a way, these newly emergent classes are the products and the classes that they derived from are the origin. This process so closely resembles natural phenomena that it lends additional credibility to the metaphor.

Thus, classes can be used as building blocks. Their permutations define the set of all soluble problems. It can be proven that Turing Machines are a private instance of a general, much stronger, class theory (back to the Principia Mathematica). The integration of hardware (computer, brain) and software (computer applications, mind) is done through "framework applications" which adjust the two elements structurally and functionally. An equivalent must be found in the brain (a priori categories, a collective unconscious?).

We use the term evolution because one phase replaces another. Relational databases cannot be integrated with object oriented ones, for instance. To run Java applets, a "virtual machine" needs to be embedded in the operating system. These phases closely resemble the development of the brain−mind couplet.

When is a metaphor a good metaphor? When it teaches us something about the origin that could not have been gleaned without it. That it must possess some structural and functional resemblance we have already established. But this is not enough. This is merely the "quantitative, observational" aspect of the metaphor. There is also a qualitative one: it must be instructive, revealing, insightful, aesthetic, parsimonious − in short, it must establish a theory and the resulting hypotheses. A metaphor is a theory which is the result of given logical and aesthetic rules. It must be subjected to the rigorous testing demanded by science before it can be judged to be a reliable one.

If the software metaphor is correct, the brain must contain the following features:

Parity checks through back propagation of signals − the electrochemical signal in a neurone must move back (to its origin) and forward, simultaneously in order to establish a feedback parity loop

The neurone cannot be a binary (two state) machine (a quantum computer will be a multi−state one, for instance). It must have many levels of excitement (representation of information). The threshold ("all or nothing" firing") hypothesis must be wrong

Redundancy must be evident in all the aspects and dimensions of the brain and its activities: the hardware (different centres will perform similar tasks), communications (information transfer channels will be replicated and the same information will be simultaneously transferred over more than one as a basis for comparison), retrieval (data excitation will happen in a few spots at the same time) and usage of obtained data (through working, "upper" memory).

The basic concept of the working of the brain must be the comparison of "representation elements" to "models of the world". Thus, a coherent picture is obtained which allows for predictions and for manipulation of the environment in effective, result producing ways.

Many of the functions solved by the brain must be recursive. To a large extent, we could even half expect to find that we can reduce all the activities of the brain to computational, mechanically solvable, recursive functions. Should this happen, the brain will come to be regarded as a Turing Machine and the wildest dreams of Artificial Intelligence will come true. Until such time, however, a strong recursive streak should be evident in the operations of this magnificent contraption inside our heads.

The brain must be a learning, self organizing, entity.

Only if these six requirement are cumulatively met − can we say that the software metaphor is a strong one. Otherwise, we should be forced to neglect it in favour of a stronger one.

The brain is a paranoiac machine governed by Murphy's Laws. It assumes the worst, prepares for it and takes no chances. Precariously balanced, materially delicate, in charge of life itself it can − and does − take no chances.

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His web site:

Frequently asked questions regarding narcissism:

Narcissistic Personality Disorder on Suite101:

"Activate Buying Frenzies With Your Sale Letters Using 4 Types Of Sales Metaphors"

By Mike Jezek

Imagine you creating sales letters full of life and persuasion,
and harnessing that persuasion power to create more sales
for your business. Sounds good doesn't it?
Well in this intriguing article you're going to get a briefing
on how to create metaphors that boost your persuasion power
in your sales messages. As you know, a metaphor, in a nutshell,
is simply a word picture. Essentially it helps to
carry your point across in another angle that your audience
may be able to better understand. Following is a brief discussion
of 4 metaphors you can use immediately:

Physical Action Metaphors. −− Use physical words or phrases
to paint word pictures depicting a physical action.

Example: "You don't build any cash value with term insurance."

Or... "You're burning up money every year with term insurance."

Or... "Avoid the sting of the IRS's whip by... "

Other Sales Metaphors. −− This metaphor lowers sales resistance
by reminding prospects that buying your product is just like buying
a product they are already familiar with.

Example: "Buying this software is just like buying a video game
for your son."

Or... "As you place your purchase for this video course,
it's no different than buying a series of exercise videos."

Competition Metaphors. −− This sales metaphor is used to
gently demonstrate your superiority over your competitors.

Example: "They said that about us? Well, I guess everyone wants to
take a shot at the fastest gun in the West.
Everyone wants to challenge the top dog, even if they're only
a little puppy, right?"

Or... "Our software is the Cadillac of accounting software
in this industry, compared to that of our competitors."

Familiarity Metaphors. −− Here's a metaphor to further

build a feeling of security and trust in your prospects.
Simply match experiences or items that your prospects are sure
to be familiar with to your sales presentation.

Example: "Many people first started out with this same software
you've been using, but... "

Or... "I'm sure you're familiar with the Secretary of Defense,
Donald Rumsfeld. Well our accounting firm does his tax work."
"Many of your fellow graduates from Texas A&M are signing up today!"

Of course there are other types of metaphors we can discuss here,
but there's only room for so many in this article.
Using metaphors will immediately put life into your sales materials,
and open up the potential for not only higher response but higher profits.
Try them, you may be blown away by the results!

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