PLATO AND ARISTOTLE'S MISSING AXIOM OF LOGICAL THOUGHT: CREATIVITY AND PRIORITIES

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I was charged with the task of writing about something that interests me that may also be popular with the public reader. Since my childhood a fundamental concern of mine has been how to do things spontaneously and creatively, and I have long been familiar with Plato's three laws of thought. First, that nothing can become greater or lesser, either in number or magnitude, while remaining equal to itself. Second, that without addition or subtraction there is no increase or diminution of anything, but only equality. Third, that what was not before cannot be afterwards, without becoming and having become (*Plato, Theaetetus, 155).*

The original three laws of thought comprise the most basic requirements for identification and reasoning, however I now think that there is something missing. These three laws can be expanded to include comparison which must precede the original three laws. The only way we know a thing is by comparing it with other things, or with our memories of other things. How does this affect the way logic is used to analyze problems if the AHP, which is based on comparisons, were to be used instead of the logical laws of thought? The great philosopher Schopenhauer acknowledged that truth is the reference of a judgment to something outside it (we can interpret that to mean comparison) as its sufficient reason or ground.

I say the idea of relating and comparing things is a fundamental law of nature despite its regrettable absence in the three axioms of logic set down by Plato and Aristotle nearly two and a half millennia ago. Arthur Schopenhauer wrote, "Every truth is the reference of a judgment to something outside it, and the term intrinsic truth is a contradiction". An entity can be compared with other entities in relative terms in regards to which of two entities have a property more and how much more it dominates another with respect to that property.

Creativity has been formally defined in terms of the following four factors: brainstorming, synectics, morphological analysis, and prioritization and order. Brainstorming involves reaching out in the imagination for the relevant elements that influence a subject or a problem one has in mind. Synectics has to do with relating these elements; it has been defined as the joining together of different and apparently irrelevant elements. Morphological analysis is concerned with structuring these elements and their connections in a hierarchy or in a network. Finally, prioritization is about ordering the elements according to their importance.

While the physical world needs metrics to measure things scientifically, the behavioral world needs order to determine what is very important and what is not so important. This all depends on our imagination and ability to structure a decision having to do with order. In mathematics we have two important types of topology: metric topology and order

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topology. It has been relatively easier to create devices for measuring things on different scales like temperature, length, mass and time. It has not been so easy to find ways to order things with respect to many criteria. Indeed, measurement itself has subjective interpretations and it all comes down to how knowledgeable people interpret things and their measurements. We all have a brain and a mind, and therefore all knowledge about reality is captured by our brain and nervous system. Then the mind stores our eventual interpretation and memory and this changes over time as we learn more and more.

The question is, "How do we order things with our instincts and elementary nature?" The great French mathematician, Henri Lebesgue, who was concerned with questions of measure theory and measurement, wrote:

> "It would seem that the principle of economy would always require that we evaluate ratios directly and not as ratios of measurements. However, in practice, all lengths are measured in meters, all angles in degrees, etc.; that is, we employ auxiliary units and, as it seems, with only the disadvantage of having two measurements to make instead of one. Sometimes this is because of experimental difficulties or impossibilities that prevent the direct comparison of lengths or angles, but there is also another reason.
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> In geometrical problems, one needs to compare two lengths, for example, and only those two. It is quite different in practice when one encounters a hundred lengths and may expect to have to compare these lengths two at a time in all possible manners. Thus, it is a desirable and economical procedure to measure each new length. One single measurement for each length, made as precisely as possible, gives the ratio of the length in question to each other length. This explains the fact that in practice, comparisons are never, or almost never, made directly through comparisons but with a standard scale."

Lebesgue did not go far enough in examining why we have to compare. When we deal with intangible factors, which by definition have no scales of measurement, we can only arrange them by comparing them in pairs. Making comparisons is a talent we and all living things have. Not only can we indicate the preferred object, but we can also discriminate among intensities of preference. Through making comparisons using judgments, we are able, by using the AHP/ANP, to derive priorities with respect to multiple criteria and combine them to obtain an overall order of things. That is a fulfillment of the fourth requirement of creativity in thinking.