IV-36   Abstraction as But-nothing-else

It is a paradox of journey into mind that we celebrate certainty when there are too many doubts, and we celebrate doubt when there are multiple certainties. These are the dreams that our conceptions of reality is made of!

We strive for certainty and arrive at it in stages as new information is assimilated. New information and data is redundant if we assume that the world is lawful. Reliable data from the past is critical for identifying patterns and for testing theory that can be useful for the future. Both for man and machine in an information rich universe the stored information had limits in terms of the capacity and resource allocation for acquisition, storage, updating, and retrieval for an application.

Need to know, access to emerging information, is critical for all spheres of decision-making where meaningful attention to specifics is required. Thinking becomes a scarce resource with the information-overload that follows from abundance - sort of spoil of the riches. Yet forethought in social interactions is important for running affairs of ones own life as well as of any organization.

Desire to break away from the facts of one sort or other requires an earnest faith in empiricism. In the realm of experience we deal with notion of relationships with the surroundings in search for caring and curing spirit in the deeper recesses of mind. Probably we all experience this natural state to emulate our desires. In such dreamlike states in search of meaning one is more likely to express and conceptualize juxtapositions. In a more overt

state of awareness we often repress incongruities and contradictions to stay in touch with imposed reality. However, in all such states of thought, dreams to scientific theories, experience is released from the observations as the perceived reality is symbolically transformed to explore the ranges of possible, probable, plausible and feasible. No matter what the path, struggle of reasoning devices is apparent in the journey of mind.

A necessary outcome of language is that all knowledge is a shared enterprise that thrives if validation relies on repetition and reproduction in different contexts. That is why we explore and validate each tool and technology through logic and philosophy articulated through word and also the outcome of practice and use. As a model for how-to-do-things, science and technology is one of the most successful forms of shared knowledge.

The initial choice was made by tool making ancestors. We have not looked back. In spite of recognized limitations, technological solutions have done far more for the social ills than any other approach conceived by humans. It is also true that many groups experience a much share of threats of technology in terms of encroachments from protracted wars and markets. For improving the human condition without exploitation it is also useful to develop suitable decision procedures to deepen understanding of knowledge and to broaden viable alternatives. Technology of shared knowledge involves experiences that develop in niches but later cut across time and space boundaries.

Knowledge of a snowflake is in all snow flakes - *just as universe resides in a grain of sand*. We wonder what lies behind the symmetries and the fractal chaos shared by snowflakes. To remove ourselves from the path of falling objects requires knowledge of the effects of all such events as well as the particular object in the real-time. Once out of danger we can contemplate on

the nature of gravity that underlies such events everywhere in the universe. Such syllogisms verging of mysticism are part of explorations of unknown and tentative, provided we do not take detour of the nonexistent.

The explanation versus the prediction line, howsoever vague it may be, separates the sciences from the ad hoc, nonexistent, contradictory and self referential constructs. Reality-based hypotheses contribute towards development and maturity of shared knowledge supported by data and emerging information. The hypothesis it self may not be mathematical but its cast in a mathematical form helps us explore the limits of our constructs. Correctness of hypotheses is judged not only by its ability to explain and rationalize the observations, but also as a forward-looking process validated by exploring the logical consequences within the bounds of reality. If the predictions come true we have a basis for validating the evidence intrinsic in the perception of the experience, observations, and also the knowledge-base for the evidence. It is critical for the development of collective knowledge about complex systems - whether it is about the potential of the human genome or any other measure of the web of life.

Room for Doubt