

A synthesis of complexity

Life implies complexity. But, can we create structures in symbiosis with the life and universe all around us? Tapan S Parikh wonders

A proposition: Humanity implies complexity. Considering the vast reaches of stars and space, the infinitudes of nothingness, vast spaces filled with small subatomic particles passing like trains in the night, we are infinitely more complex and rich. Ordered. Low-entropy. High potential energy.

That is our calling card in the universe. Otherwise, as Douglas Adams said, we live on a relatively obscure planet on a relatively obscure sun somewhere in an obscure part of a backwater galaxy. But we live on an island of tremendous richness, an Eden of Life, of incomparable complexity and order amongst the vastness of the universe.

One could go on to argue: Life implies complexity.

We should not forget where we came from. Human complexity is one of a line, many branches along the ladder of evolution. Our complexity, on a microscopic level, is no more than of the many wonderful plants, animals and fish we see all around us. Cells and mitochondria, DNA, proteins and hormones. Receptor sites. A complex interplay of the highest kind of order and efficiency.

Complexity lives all around us.

Could our purpose in life be to increase the complexity? Why not? As sentient, willful beings, endowed with the gift of life, can we not consciously choose to evolve? To decrease the entropy yet further of our already lush and ordered corner of the universe? What more noble aspiration could there be?

Hypothesis: We can do it.

I see it all around us. Cities, cars, stock exchanges. It can be done, complex systems can be created. Our efforts can lead to an increase in order, an increase in complexity and richness that often mirrors life itself. But, in general, have they?

I look at cities today. Bombay for example, where I happen to live now. A crescent moon carved out of the Arabian Sea. White and glaring amongst smoke, buildings and concrete, grime and dust. Is it more complex than what came before?

Nostalgically swaying with the Palm Trees along Marine Drive, I escape into reverie, into a shadow of another time. A rich green scattering of islands, awash with life. Growing and beating with the tides, nestled among soft green hills and relentless monsoon rain. Fishermen villages clinging to the edges, reaping life out of richness. Bombay breathed a different way then.

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Was it somehow more special then? Was it fundamentally more complex? I don't know. Bombay is certainly awash with life now, rats and people and crows and pigeons and dogs and cats and sometimes cows.

But we've lost a lot of our dear friendly plants along the way. Speaking from a pure complexity perspective, including the microscopic scale, I would be surprised if Bombay was richer in complexity now, than it was before all this. But one thing is clear. What existed before was a more self-sustaining system. More able to organically grow and live within its own means. It had the means of its own sustenance ingrained in its essence.

Proposition: Our complex creations have come at a great physical cost. These things we have created, they have not come for free. They have displaced other systems of their own richness. They have created smoke and occupied land. Monoliths of concrete and steel, displacing a patchwork green of multi-layered complexity. Were we too crude in our strivings? Too clumsy? Many religions, I believe, teach us this basic fact - to respect complexity. They may say it in different ways, but all religions teach respect for life and the universe as one of the most basic responsibilities of man. I think that responsibility is even more pertinent today.

Proposition: Computing is different.

Computing is alive with complexity. There are layers upon layers of abstraction. From microchips and resistors, to bits, to applications - all the way to chat rooms, web sites and 3-D games. A whole world of complexity lives inside small white boxes connected with wires. And now the boxes are getting smaller and the wires are going away.

Hypothesis: Computing creates eddies of complexity at low physical cost. I propose that computing allows for great leaps and bounds of complexity, the capacity for human creation, at very low physical costs. We can create worlds inside of small boxes. Those worlds live in very real ways. Usenet is a time-space continuum in and of itself. Clearly this is a remarkable increase in complexity, in order. But consequently it really displaces very little. And every year it displaces less and less.

Since the advent of micro-electronics computing technologies have gotten smaller and smaller, consume less and less energy and are increasingly powerful. This trend shows no indication of reversing. In fact we seem to be getting smaller and faster everyday.

Could computing be godsend? A sustainable and low-impact way to increase complexity, to increase the capacity for productive human creation, a way for humans to create that can carry on without being buried amongst its own trappings?

A possibly great opportunity lies ahead for the human race. If we are able to grasp it in an intelligent and holistic way. We can leave these urban misadventures behind us and try to come up again in what remains to us - the rural hinterlands.

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Conjecture: Computing should be spread to rural areas in a sustainable, organic way.

The rural, pastoral expanses remaining in the world. Like a pretty girl dancing by herself in the corner - how will we approach? What will be our first line? We have this wonderful tool with us now - computing - access to knowledge and creative facilities in a small little box. The ability to create, produce and even earn without reducing the world to dust and smoke. Can we use this tool to build up again, in a different way?

Warning: But we must tread with great caution.

We should not recreate the urban mistakes again. Without a fundamental respect for all the things that live and breathe and exist all around us - we will never be able to create things that sustain - things that stand the test of time.

In our adventures in rural computing, it is important we intervene with this feeling - with an awareness of the richness that lives all around us. Our interventions should be subtle, holistic, and contribute to the complexity of the system. They should never somehow make life less.

This feeling and respect can never be delegated. It must rise up from within the hearts of all of us. This respect must come with feeling.

Is that possible? Can we as human beings create melodies in productive creativity? Can we create structures in symbiosis with the life and universe all around us? Will our tremendous drive to produce ever know temperance? Will it ever know the gentle touch of respect and subtlety?

I truly don't know. But in my mind this could be the defining question of the 21st century. But what I do know is that I intend to be right at the front lines trying to find out. Hope to see you there too.