

On complexity, specialisation, and simplicity

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One of my friends said to me, “Poojan, there should be a single sentence which defined what you do and what you can offer to the world”. As an example, he told of Andrej Karpathy, who uses “I like to train large scale deep neural nets” or something of that sort. This strikes me as particularly reductionist. Why must I be reduced down to a single sentence?

Obviously, this can be done for specific situations. For example, in the context of participating in a band, I am defined by the fact that I am a percussionist. In the context of food, I am defined by liking it very much. In the context of the mathematical toolkit for a theoretical computer scientist, I like concentration inequalities. But no single sentence defines me. Indeed, I can act as completely different personalities in different contexts. He said to me that you can only do one thing correctly, not two. His view was that to do something truly impactful, you must become a highly concentrated entity. I am strictly against this. My purpose exists for my fulfilment, not the other way around.

There are various analogies which I notice. First, this obsession with specialisation has accompanied humanity throughout its evolution. We have unmistakably become increasingly specialised with time. As the amount of knowledge possessed by us grows, the physical limits of what a normal human brain can handle start to show. A pre-modern human who was a hunter gatherer would have had no problem in remembering everything that they required for survival. As humanity transitioned to being an agrarian society, the number of tasks which had to be done increased. Now came the division of labour, where people focused on a particular task. This marks a stark transition from survival depending on how “complete” you were to how “specialised” you were. I wonder if society in its modern form is possible were it to be made up of “complete” people. Or better put, would it be so complex? It seems that complexity always goes hand in hand with specialisation. Consider evolutionary biology. A unicellular organism is complete in itself, it can perform all the actions necessary for its survival. But it is not complex. Complexity comes only when various cells come together and get differentiated into specialised cells. Such hierarchical specialisation eventually leads to the human.

I wonder whether my cells have any yearning to be complete in themselves, and not be a mere part of the whole. On the contrary, I also wonder whether to be complete, must I be simple as well?