Ask A Genius 33 - Informational Cosmology 9

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Scott: How would you estimate the information in the universe?

Rick: There are various estimates. You could look at the average density in the universe. Some people have estimate that the number of particles, basically hydrogen atoms or protons, in the universe is around 10^{80} (plus neutrons).

You could look at 10^{80}th in other ways such as the ratio of the diameter of a proton to the diameter of the universe is 10^{40}. Those ratios, even if I got it wrong, are some measure of information in the universe. It takes a lot of information to specify this much space where a proton is only 10^{40} as big as the universe – where a proton is so well-defined it is only one 10^{40} the size of the universe.

In IC, galaxies are some kind of information. They have specific informational roles, either as information processors or as a concept cluster that expresses an idea or the name for an object in the mind of the universe. You have 10^{22}nd of these things, whatever they are in terms of information.

If 10^{22}nd stars, If 10^{11}th galaxies, then galaxies might be the concept clusters. It doesn't seem unreasonable that we're living inside of an information space of a system that has 10^{11}th

components on a galaxy-size scale with each of those galaxies considered as a concept cluster – maybe being a word in the informational consciousness that is inherent to the universe.

But if you want to do a similar analysis on us, people and their information spaces have vocabularies of between 10,000 and 25,000 words. Maybe, each word or most words are associated with little concept clusters in our information spaces.

There's a word for most of the things that we think about. You can argue that there are things that we have senses of, which we don't express in word unless we make it explicit. We have the ability to take things is perspective, like when something is in front of something else.

I am looking at a plant in front of bricks in front of a box of DVDs. I have this whole deal where I can tell because my brain has trained to tell. I understand without thinking about it much at all – on top of, in front of. I understand when I am in a room that is roughly cubicle and how the various corners work.

There are some right-angles in what I am viewing, but there are many more angles that don't look like right-angles to me. But I know because I stored them. So, I can walk without falling over, so does a 2-year-old. I don't need to put all the thoughts of walking into words. A 2-year-old definitely couldn't.

A lot of people would have a lot of trouble of putting the dynamics of walking into words. There are a lot of things we don't need or have words for. But it makes sense and is reasonable to think that the number of concept clusters in our brain is on the order of 100,000.

If you have a memory, it is not necessarily encapsulated a lot. If you use that memory a lot, like first memory, my first memory is being in my basement looking at Raggedy Ann and Andy curtains probably in 1962. I can put it into words because I've accessed that memory a lot.

When you access it a lot, it is easy to put a word tag on it. Most tags are not tagged with a when. It is triggered when some associations are popped up. Now, you can characterize that time a put up a big goober in the vista cruiser I was driving.

If you live to 100, you live 36,500 days. In the future, people will have brain buddies that record every single moment, so you can remember what you were doing on ay given hour on any given day. If you were to pull up a brain buddy on somebody 100 years old and with a functioning brain, you could cue them up for every adult day of their life.

You say, "Remember when you were, remember when," They say, "Oh yea, they were wear that dress with brass buttons." You're able to pull up memories when enough cues from that memory are cued.

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