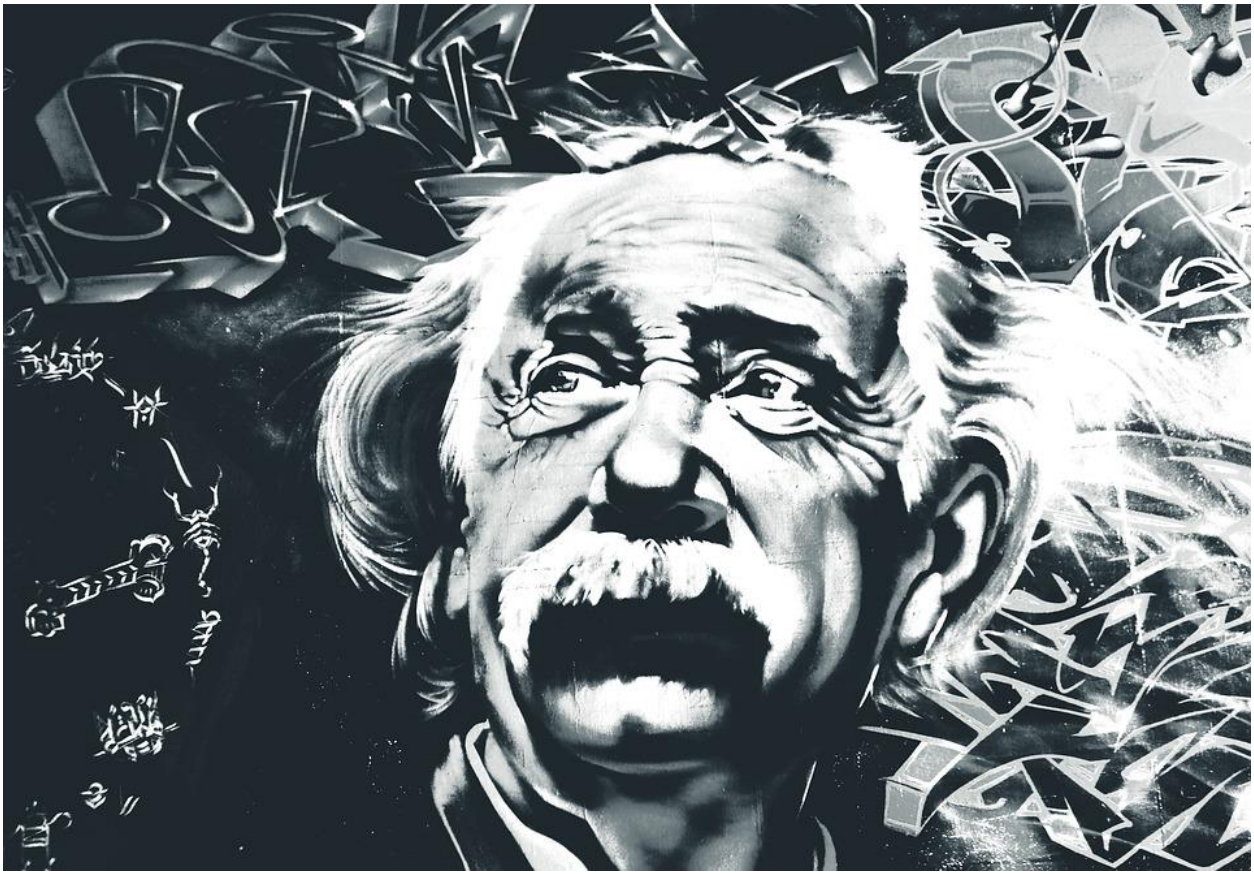
Ask A Genius: Set II

Scott Douglas Jacobsen
&
Rick Rosner



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Dedications

To three generations of women who support and tolerate me - my mom, Ruth, my wife, Carole, my daughter, Isabella.

Rick

To the love in my life.

Scott

Ask A Genius 60 – Consciousness 1

Scott Douglas Jacobsen and Rick Rosner

January 16, 2017

Scott: What about the lexical definition, in your terminology, of consciousness or the descriptive unavoidability of consciousness?

Rick: Let's start with what I think or what we think consciousness is, which is the broadband, real-time sharing of mutually understood information among specialist sub-systems in an information processing system with each sub-system having the same approximate information under consideration.

That is, a bunch of sensory information is flowing into a system. At the same time, the system is generating a lot of processed information from the sensory information coming into and from the analytic information streaming out of each of the specialist sub-systems with each of the specialist sub-systems having the same approximate mass of external and internal information under consideration.

That is, look at us humans with our sensory bulbs on top of our necks, we're taking in all of this information, then we're thinking about all of this information with specialist sub-systems sharpening and compressing the information in ways that are what each sub-system has been designed for (evolved for), or is best at.

Same mass of information. 300 different sub-systems. Each spewing its own information giving its own interpretation of that information. Reasonable?

Scott: Yes, but leads to a question about time. The question about time is about another information processing system, which processes 100 times faster than us. If it looked at us processing information in its real-time, our information processing would seem much more disparate.

So, could we consider our information processing node sets inside our skulls integrated sufficiently to be called "conscious"?

Rick: I've got two answers for that. At some point, in arguing for consciousness – there's an argument to be made, if it feels like consciousness to the conscious being, and if its mathematically consciousness-like based on the mathematics of consciousness that we don't have yet, then it's consciousness. That's answer one, which is a bit circular. It is consciousness according to a mathematical definition of consciousness we don't have yet.

Scott: It's qualitative, not quantitative.

Rick: Yea, but that's not good enough because you could build a computer that announces it's conscious 24/7. It could announce it, "I'm conscious. I'm hot. I don't like that. It's warm here, and cold there." It could make all sorts of conscious-sounding noise without actually being

conscious. You need the mathematical aspect of consciousness. That includes enough different specialist sub-systems contributing to the cross-chat.

Chris, a buddy of mine, and I were talking about a Go playing computer being conscious. I argued that "not very likely" because of the tasks involved in being a Go playing computer. Unless, the Go playing computer had 300 different specialist sub-systems. Each with its own angle on what it sees on the Go table, on the Go board.

Each of those sub-systems contributing to an overall really richly painted vision of the situation on the Go board. Even then, it is pretty tough to get consciousness out of that because if you're limited to the Go board, like 16x16 or 24x24, then it's limited in terms of information, so you need to self-generate all sorts of internal information about the external information.

Even so, it is pretty limited. It leads to something pretty narrow. The multiplicity of information isn't there. You could design a Go playing computer once we understand the mechanisms of consciousness that has a profound knowledge and sentiment about every situation on the Go board, but it's still a pretty crappy form of consciousness.

Scott: In a way, it's a ladder. In another way, things build up pretty quick. Things, as you note in an older analogy…

Rick: …the wheel…

Scott: …yea, the wheel. Things become more rounded as you add more sides. Things become pretty rounded once you add only a few sides.

Rick: After you get to an octagon, you could imagine a car with octagonal wheels. It is a rough ride, but it would move. 10 is good. 16 is better. Once you get to a 40-sided wheel, that's not a terrible ride. The difference in quality of ride for practical purposes between a 100-sided and a 200-sided regular polygon is negligible. Things reach approximate circularity.

The curve of approaching something reasonably defined as consciousness. It is a pretty steep curve. You don't have to do much work once you start to create something that is conscious.

Scott: I could easily see analytic programs designed to take into all accounts of the algorithms that a particular software program has, and then present a literal wheel, as a metaphor, to show how conscious a system is, to a human operator for easy interpretation.

Rick: That would be good. There are probably 20 better analogies that we don't know yet, but for right now that is a good one. I don't know whether, if I would find myself in another consciousness, I'd prefer being in a grasshopper or the Go computer. I'd probably prefer the grasshopper, but if you went to earthworm then I would prefer Go computer. Ants, I don't know.

Ants, maybe, some part of their mental sophistication, to the extent that they have any – like 10% of it, is based on the pheromone system that links ants together. That Go computer consciousness. It is a narrow space to be conscious in.

We've got a fairly rough, but workwithable, idea of what are some of the necessary ingredients and functions of consciousness. That cumbersome definition that we're talking about can be worked with to some extent.

Given that background, it can take us to a sentence-based, sloppy proof of the necessity of consciousness being – my buddy Chris calls it - an epiphenomenon, meaning - I'd go with epiphenomenon - something you get that goes along with the things you need. It is not needed, but arises as the result of a certain type of information processing.

Scott: It is an emotional and cognitive spandrel. Like your bellybutton, it's almost just kind of there.

Rick: Yea, but I would argue it is more than almost just there. In fact, my buddy Chris, who I keep bringing up because I just had a many hours-long conversation with him about this stuff, brings up the example of the appendix. It has been for more than 100 years the stereotypical not-needed organ in the body. It doesn't do anything, like men's nipples.

Now, it turns out that the appendix may be a place for good bacteria to hang out, if you happen to wipe out the good bacteria in your intestines. A crazy amount of the cells in your body are bacteria. If they become out of whack, it makes digesting problematic and your appendix might just be a reference library to keep things in track if something bad happens to your intestinal bacteria.

Within your awareness, you could describe, which would take a gazillion sentences per second in a given moment, things in your awareness with sentences. You could summarize the knowledge in your moment-to-moment awareness with a 1,000 sentences a second. It would describe the room you're in, which is mostly visual information. So, visual awareness described by sentences. Also, things in your imagination.

Feel information, how each part of your body feels, emotional information, taste information, and sensory information in general described in hundreds of sentences. Sentences to describe things in imagination after saying, "Tetrahedron." You then have an image of a tetrahedron in your head. Same with "elephant." Then you think of an elephant and have a representation of an elephant, and how you feel about your situation at the time, and how you feel about yourself and your body itself feels.

Say you're limited to a 1,000 sentences per second, which isn't unreasonable, somebody like a Marcel Proust of the Computer Age could write 1,000 sentences to describe, not all-encompassing descriptions, but a pretty decent summarization of your awareness. Some of those sentences, as we've just listed, are sentences associated with being conscious.

I would argue the feel of consciousness is itself consciousness, and is this global busybodiness of every sub-system being roughly aware of what every other sub-system is doing and being aware of this massive gob of information they share. This massive information, broadband crosstalk - at

least in evolved organisms whose job it is to survive long to reproduce and raise offspring and, thus, has a self-interest.

You can imagine a conscious entity. Engineered entities without this self-interest. However, almost all conscious entities are interested in perpetuating itself, in perpetuating the species. So, you have all of this self-monitoring stuff that is, sentences that are, indicative of human consciousness, creature consciousness.

That is, they reflect your emotions about your situation. At its most basic level, your chances to live and reproduce. You have a bunch of trivial concerns, which, if you trace them back, they are traceable back to something survival-related. You have all of these sentences. It needs to be refined as an argument.

However, you have these sentences strongly indicative and reflective of consciousness. Both the mathematical form of consciousness, which is this shared gossip or information held in common, and the human form of consciousness that we are more comfortable talking about, e.g. how we feel, emotions and such.

You have these descriptive sentences that describe external sensory information, e.g. score in a football game, whether a light is green or red. Some sentences describe internal information. Some sentences indicate consciousness, which are basically the same as one another. They are based on information held in your consciousness or in your brain.

You have sentences. All of the sentences descriptive of the information in your brain are by definition reflective of the information in your brain. They are coming from the same thing. They come from your mental agglomeration of information. They are not qualitatively different from any other descriptive sentence that describes the contents of your awareness.

From there, you can describe the sentences that reflect consciousness as valid and unavoidable as the sentences that are more apparently concrete because they describe definite sensory information. There's a sloppy proof there.

Ask A Genius 61 – Consciousness 2

Scott Douglas Jacobsen and Rick Rosner

January 17, 2017

Scott: Let's continue on consciousness.

Rick: I think a nice half-definition of consciousness is the feeling of shared information. As conscious beings, we know what it is like to experience consciousness, but it is hard to characterize. But you can compactly label it, the feeling of shared information.

Every part of your brain sharing information with every other part of your brain. There's, experientially, a certain informational flavor. It feels like something, being conscious feels like being conscious. That feeling is based on massive information-sharing within your awareness.

Every other part of your brain is gossiping about everything going on in the reality you're thinking about from moment to moment. I was thinking about other examples of consciousness that further characterize different aspects of consciousness.

People like to argue, strongly, that it is not consciousness unless there is self-awareness. That, unless you're aware of yourself as an entity, then you're not conscious. Does a dog know it's a dog? Does a lizard know it is a lizard?

But that whole thing is a little off base. To be conscious, there has to be a mass of information. A stream of information that is being shared among specialist sub-systems. In living creatures, a lot of that information pertains to the status of the creature itself.

In living creatures, self-consciousness is itself a big part of consciousness. You can argue it doesn't have to be. I argue that. With the Go machine, it can be a Go machine without experiencing itself as a Go machine.

Another example, a conscious, sophisticated security system that uses a number of different sensors and heuristics to evaluate the security situation, moment-to-moment, in a set of warehouses. The cameras consist of temperature and pressure, and visual, sensors and analytic programs that examines and evaluates people in the warehouses.

It has a bunch of sensors and tools to examine the situations in the warehouses. It doesn't have to experience itself as a security system. It could simply experience the situation in the warehouse security system. It might have some self-evaluative machinery such as seeing if it is having power problems or various malfunctions like the loss of a camera.

Even in an engineered system like that, you would expect a degree of self-consciousness because it makes sense for a machine that would do its job well, but you could design a machine without any of that and have it conscious only of the doings in the warehouse.

Similarly, you could have some kind of Peeping Tom or security setup that watches a bunch of people in an apartment house. Say the apartment house consists of 24 units and 40 people, and

somebody has wired all of the units to a system that observes everybody as they go about their lives in the apartment house, the system may take in visual information, auditory information, and could take in smells, and feelings such as the pressure as people walk around that trigger pressure sensors.

It could have analytic tools to understand what is happening in the lives of the people in the apartment house. It could even have sentiments about what is going on in the lives of the people in the apartment house based on it being programmed to have humanistic sentiments about people and to be happy when things are going well for people, and not so well when things aren't going so well.

This thing is watching people and is conscious of the people in the apartment house, but doesn't have to be conscious of itself as an observing system. Eventually, you would think it would discover itself and its limitations as a monitor, but it doesn't have to have that.

In fact, you could design something specifically without self-awareness and conscious of the people in the apartment house, and not conscious of itself. But it is not conscious because it doesn't have self-consciousness.

It is highly aware and gossiping with itself about the goings on in the apartment house with what we could consider a weird lack of self-consciousness, which we would consider similar to somebody who has had a stroke and lost an aspect of awareness that we consider pretty essential to being a conscious being.

There are plenty of examples of people who have had a stroke and lose the idea of left. Every idea about left for them is gone. You ask somebody who is missing left to draw a clock. They draw the right half of the clock, or they cram all twelve numbers onto the right side of a dial. It is a half-clock with all of the numbers.

You ask them if there is anything weird about this. They say, "No." They are not conscious of the lack of left because that went with left in general. If you read Oliver Sacks, there are numerous cases of people who have lost large segments of what we would consider a normal identity and who can still function in many other ways, and are still conscious.

Even though, a huge portion of their consciousness has been cut out of them because of the stroke. As long as you have shared information, if you take somebody and cut away their auditory awareness and their taste, smell, and feeling awareness, then left them with visual awareness, then you could still work with them and present them information visually and still see that they are obviously conscious beings, even though 4 out of their 5 senses and the awareness of that sensory information has been cut away from them.

But any time you have massively shared information among specialist sub-systems, you still have the flavour of consciousness, which equal consciousness.

Scott: If you take the 300 sub-systems, the number you threw out earlier. There has to be a sussing out of contradictions among the mutually shared information. So, you have

mutually shared sets of information that are taking different angles on a particular *gestalt*. There are going to be contradictions in perspectives.

If you get 300 people in a room and ask them to debate, they are going to have different perspectives. Some are going to be contradictory. So the question is "how does that get sussed out?"

Rick: There's an F. Scott Fitzgerald quote: "The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function." It is being able to handle contradictions. You can have differing opinions among the specialist sub-systems in consciousness, in your head.

They can continue to disagree and sometimes you get interesting results behaviourally. I went to Marshalls about getting new curtains for our bedroom window because we live in LA. The old ones turn brown from pollution, probably like our lungs from living here.

I was in Marshalls standing in front of a bunch of curtains. There are probably 3 or 4 good choices of curtains, or contenders for the curtains that I will buy. So, I am standing in front of them. I know I can't just pick the one I like at any given moment until I have spent a full 5 minutes developing the full implications of these stupid curtains until I make my choice.

I stand there. I process, "I don't like the pattern. The horizontal might make the other pattern bad." It was an old-school, 60s, oval pattern overlaid over a horizontal striping, which annoyed me. It was like "just lose the 60s pattern and give me the modern one."

But they couldn't. So, I had to look at color and analyze things. I have various sub-systems – I would think – that are aesthetic, evaluative systems running. I was aware of the various considerations.

I had to let all of the arguments build. I had to build an imaginary picture of the curtains hanging in the room, even though I got it wrong. The curtains are not blackout. They are somewhat see-through. They are teal. They have a new color with the light coming through blue-ishly.

The color when things are different than the older beige ones when the curtains are closed. It's fine, but it didn't enter my imaginary picture of what the curtains would look like in my internal picture.

I had to let the internal part of my mind yammer. At some point, I had to come to the point of thinking, "These are the curtains I am choosing." I have to buy them then. Even though I am saying, "I am choosing." It doesn't mean I am in agreement with myself.

It means that after all of the arguments play out. I decided that, I - the construction function of myself, it is time to go with what I want to go with right now, with the strongest candidate right now.

But the I construct that decides on the curtain, which takes all of the other yammering sub-system Is and makes a choice that is not 100% ideal, but is the best I could do at the time. The curtains are fine. The curtains don't exactly represent a unitary choice or a consensus.

Because the curtains aren't ideal, I have an awareness of the other possible curtains. Each curtains' pluses and minuses. My different specialist sub-systems are giving different scores to different aspects.

Although, I'm sure they've calmed down about it because they've been informed of my choice, see the curtains in the room, are aware of how they work and look, and the curtains are less of an issue then when I was actively considering which curtains to buy.

But there are all sorts of contradictions going on and disagreements going on in only 3 or 4 different patterns of curtains under consideration. So, that stuff goes on all of the time. That is what consciousness is for.

If a decision was easy, we wouldn't need to throw it into consciousness. I put my left foot down. What foot do I put down next? It's a simple choice. Unless, you've got a weird thing, like OCD. My OCD will be on the verge between concrete and grass.

It will be like "which foot has to cross this border?!" Then that Fs up my walking. "Okay, the right one! But you just put your right one down. Now, you're going to have to hop!" OCD makes an unconscious choice conscious.

We were talking about consciousness being an epiphenomenon. I don't think so. It is in that it shares information, but you have these consciousness-gone-wild-aspects – where consciousness begins doing jobs too well.

You have OCD as too much vigilance. It messes with things that should be unconscious. Similarly, turrets might be a vigilance thing, where your brain forces a tick to make you imagine or say the worst possible thing.

There are various little disorders of consciousness, large and small, where the business of consciousness produces the division of labor between conscious and unconscious tasks, which become a little messed up.

Consciousness serves as the central arena to hash out complicated ambiguous, contradictory information and situations because if it were simple, something you're not entirely consciously aware of, then it would've been taken care of.

Ask A Genius 62 – Space

Scott Douglas Jacobsen and Rick Rosner

January 18, 2017

Scott: We were talking about a conversation you had a while ago about space. Someone asked you about space. We've talked about space. Space as an emergent property of the interactions of matter in the universe. When the person asked you about space, they asked, "What is it, and what is it expanding into?" in essence. What are some false assumptions behind that?

Rick: There are reasonable assumptions behind that. The traditional perspective of the Big Bang, to be visualized easily is the 2-dimensional surface on a 3-dimensional balloon. As the balloon is blown up, the entire balloon expands. Looking at the balloon, though it is a 2-dimensional surface, it is in 3-dimensional space.

So, it is reasonable to ask, "What is our universe, if our universe can be imagined as a 3-dimensional curved surface, embedded in?" The natural answer is that there is a 4-dimensional space that contains it. The real answer is the universe contains itself. It defines itself. It is, as you said, an emergent property of the arrangement of the universe, the relationships of information.

It is more efficiently or effectively visualized being a spatial relationship. In fact, that is such an effective visualization that we live our lives in what we consider 3-dimensional space. It works from the arrangement of information. It works so well spatially that we live in actual space. It does not mean that there is anything outside of this space.

In the same, or not quite the same, way as if you're a dungeon master in *Dungeons & Dragons*, you build your play area. You could imagine realms beyond the play area, but you don't need them in your world, I guess. It is a space that exists abstractly without needing a further space to be embedded in.

Similarly, as we've been talking about consciousness, if the information within an information-sharing system can be efficiently arranged spatially, that space defined by the information doesn't really need external space for it to be embedded in. The space is an abstract-ish space.

If there's enough information, and if it's an efficient enough arrangement, the space can be seen as something that is a functioning kind of thing. An emergent property of the arrangement of information that is helpful in seeing how the information within the space interacts, but it doesn't need a further space beyond the space that defines itself.

All through human history there is the saying that "no man is an island," but we do almost all of our computation, all of our sensory and mental computation, within our head and the computation and sensation external to us are very threadbare, slender, and weak compared to the mass of information processing that goes on within our individual awarenesses.

But in the future, as those tendrils and threads and communication and links to external computation are strengthened, and we become further and further embedded in what will be a

worldwide computational sphere, then it becomes reasonable to imagine connected information spaces.

Say in science fiction, 120 years from now, people who are really into each other can do a literal marriage of the minds, where they can super-link their thoughts, so that they are actually sharing thoughts via some wireless dealy. I guess a literal jacking into each other via the year 2140 version of HDMI cable, or one partner wants to or is forced to abandon his or her body due to age has his/her thoughts/thinking/mental hardware literally embedded in the other person's head.

In each of these cases, where you have two minds super-linked, you could imagine that these two information spaces would have to expand into each other. But again, as long as those two people form their own island of two super-linked people, which they would because everybody is super-linked, except the technological Amish.

The information space describing their two minds is sufficient unto itself and doesn't require a further abstract space for their linked mind-space to be embedded in. Until, they open a bunch of links into other links and people. In which case, you have expansions into linked other information spaces, which kind of looks like Big Bangy physics.

If you merge two mind-spaces, it looks like a bunch of stuff looks like to you like the early universe. A whole bunch of early stuff becomes visible and ages along with your mental universe, so that it eases into older and older parts of the universe because the active center of consciousness is the information in your head that at least for the moment it is being processed is the oldest information, the information with the longest history, in your head.

The older or less relevant the information is, the more it is at the more distant, apparently younger, outskirts because the further away from the center you're looking then the younger the universe you're seeing.

Scott: The original assumption of space was an infinite void that things expand into. You're describing an information-based definition of space, where space is derivative of relationships developed through information processing. Time develops through that too. Time is changes in space states. Spaces with linked pasts and implied futures, right?

Rick: Yes, my buddy, Chris, talks about Liebnizian monads. Liebniz lived 3 centuries before information theory. A bunch of people have wrestled with atomic theories of existence, which is "what is the smallest little unit of stuff that could exist from which everything else could be built up from?" You either need an atomic theory with the smallest unit or some theory that says there is no smallest thing and that it is just an infinite ladder of things being built up from tinier and tinier particles and elements, or some other theory.

But those are your two big choices. Liebniz was trying to come up with the simplest building units. He came up with this monad deal, which I don't fully know is in terms of information. It is possible to imagine a universe made up of monads with monads being the simplest possible thing. A connection between one thing and another thing. It is the basic tinker toy. There's nothing simpler that does anything.

Scott: In other words, you have a unit, A, or a monad, A, a unit, B, and the relationship between them, C, but that's without information theory.

Rick: Basically, anything less than that is a tinker toy that is connected to nothing but itself, and you cannot build a universe that is made of stuff connected to nothing. So, you have a universe built on these one-on-one connections that you can start to catalogue in efficient ways, in ways that make sense of them, spatially and temporally.

So, you can argue that space and time originate from efficient and effective cataloguing of, not exactly random but not exactly not random, sets of monad-type connections. You start with your simplest building blocks, and then you classify via relationship, then the classifications naturally lead to spatial divisions and structures and temporal structure.

If you have some minimization principle, which is you want to arrange things so that things in your emerging space and time where the connections are minimized spatially, you're setting up a space where overall you're at a minimum. That if you total up the lengths of the connections of the monads, then you've got some kind of minimization going on.

For time, there's some other minimization or maximization principle, but the cataloguing with minimization or maximization naturally leads to a space arising. For instance, say that your real-world equivalent of monad-type relationships are photons, which are handshakes between two different points in space and time connected by this photon.

If you want to minimize the total paths of all photons in your universe, maybe, you would arrange stuff in stars and galaxies because in a star a photon travels, the average photon, about a millimetre before it runs into something. You've got massive fusion and masses around. You've got a zillion short-range photons coming into and out of existence.

Each of those photons considered as a monad is a little, teeny monad. Only the rare monad makes it off the surface of the Sun to travel light years across the universe. You want to minimize the number of super-long monad connections, which are these super long-distance photons, statistically, versus all of these short-range monads or photons where a photon is not able to travel more than the thickness of a piece of paper, or something which has got to be super small.

Most of the matter in the universe is in stars or in other gravitationally agglomerated collections of huge amounts of matter. Stars are further agglomerated into galaxies. Even if a photon manages to escape a star, if it is close to the center of the galaxy, its odds of running into something else before it makes it out of the galaxy are high.

Everything is agglomerated, which serves to make the universe more efficient in terms of minimizing the size of monads or connections, photon-mediated connections.

Scott: If you take Liebnizian monads, and if you take information theory to kind of give a number to it, and if you take the 10^85th or 10^80th particles in the universe…

Rick: …yea, the number I'm used to taking is 10^80, which is from 100 years ago…

Scott: …if you take that as the base number, and the base number of interactions without factorizations or higher-order combinatorial interactions, what would be the processing level of the universe? Only base-level amounts of processing.

Rick: There have to be, I think, many more photons than other massive particles, I guess. Maybe not, because each atom, each link between an electron and a nucleus, represents the emission of one or more photons. If you imagine that atoms, if you imagine the electron and the nucleus as initially being not linked, and then the electron becoming linked to that nucleus via emitting electromagnetic energy in the form of a photon, that, maybe not a one-to-one, relationship between the number electrons and the number of photons.

You've got background radiation consisting of like a zillion photons. Take $10^{\wedge}80^{th}$ or $10^{\wedge}85^{th}$, to be fair, that is the number of active relationships mediated by current monads in the universe, say. So, that $10^{\wedge}85^{th}$, say that is correct within 10 orders of magnitude, that's some, I assume, measure of the information-processing capacity of the universe from moment-to-moment.

But you have to discuss the differences between moments. That there's the moment that is instantaneous, which is a slice through the universe, through the world line of the universe. How many monads does that slice intersect? Then there's the idea of a moment of the universe being, if the universe is thought of as a thinking thing, then a thought takes a certain amount of time and that time for a thought takes many tens of billions of years.

In that case, you're then encompassing a huge multiple more of monads that took part in the computation of that moment. An instantaneous moment intercepts much fewer number of monads than are contained in a 20-billion-year slice of the universe's timeline. Obviously, the universe, if a thought takes 20-billion-years for the universe think, will flesh out something much more complicated than the information contained in an instantaneous slice of the universe, which can be the thinking about the painting as you're watching it.

Your eyes are only designed to see half-a-dozen inches with any degree of detail. Your eyes run out of detail pretty fast. They've done studies, where they trace people's eyes as they look at the painting. It looks like a squiggle. It covers most of the painting. You develop an image of the painting over a second or two. Your built-up image of the painting interacts with your consciousness, then you have thoughts about the painting.

That is understood or contained, for a moment, in your awareness, which was well built up over a second or two. Where the instantaneous slice of the physics of your brain would contain much less information than the information contained your entire thought, which might take 2 or 3 seconds of squiggling around the painting, then having reactions to it, ditto for the universe.

The information capacity, the instantaneous information processing capacity of the universe might be way, way small compared to the effective, practical information processing in the universe because your information processes are able to stack up instantaneous processing to

develop more complicated processing, more complicated thoughts in a tacit way mediated by long-distance photons tacitly sharing information with the universe as they traverse billions of light years with the information they contain being lost from the photon across billions of years and being encoded into the universe tacitly by reshaping the space of the universe.

Somebody, it might've been Bohm, who wrote a book called *The Implicate Universe*. Last time I looked at it was 30 years ago, but when I think about implicate, it implies, to me, that the universe does a lot of its business by implication, by indirect communication, via the structure of information within it.

That the universe acts as if it understands the information it contains via the physical structure of this abstract space that becomes more abstract in practical terms because of its precision and scope, and the sheer amount of information that defines that space, but with most information being understood or processable by the universe via tacit quantum Schrödinger-catty-type processes that don't necessarily involve the direct communication of information from one single point to another.

You have a bunch of different monads communicating from one point in space and time to another point in space and time, but that interaction affects the space around the interaction, so the universe understands that interaction as having happened without having directly communicated with the interaction via further particle exchange. Rather through a gravitational and spatial general relativistic slight reshaping of space, and encoding of information in space.

Ask A Genius 63 – The News

Scott Douglas Jacobsen and Rick Rosner

January 19, 2017

Scott: News has changed, even in the last few decades, drastically. What are some miserable aspects of the public relations industry?

Rick: The news isn't exactly the public relations industry. The news wrestles with the same issues individual people do and groups of people do, which is how to present information in ways that don't make people stupider or don't introduce further bias, and how do you make a bunch of money doing it.

News used to be, for the major networks from the 40s until the 80s or 90s, a public service that was semi-mandated by the government. The government says, "We're going to give you the broadcast airwaves for really cheap." Radio companies turning into TV companies: NBC, CBS, ABC, Dumont.

Dumont was a network created by TV manufacturing companies to help sell TVs. It was gone by the 60s. These networks get the channels for cheap because they are expected to perform the public service of keeping the public informed via news. Maybe, some other stuff, but that tended to go away.

Nobody cared if the news made money. You threw on a 30-minute or 15-minute show around dinner time to tell people the news. It didn't matter whether it made money or not. Then you have the coming of the, without knowing the total history, morning news shows. They are news plus 3 hours of happy chat, fashion.

These 3-hour blocks make a lot of money, then you have the coming of CNN. The first 24-hour news channel, which is designed to make money. Money starts becoming more and more of an important thing in presenting the news. Now, most news on TV is profit driven, which creates a bunch of bad habits in addition to the bad trends caused by people not being able to figure out what is the right way to try to inform people.

That doesn't F- up the country. The news media performed particularly badly during the 2016 election. Part of it, and as with many aspects of the election, is the news channel's own greed and incompetence, or just the need to keep existing as business entities. Another part of it was there was everyone trying to manipulate the news for their own purposes.

So, the image that popped into my head, which is probably sexist and probably not accurate, is a drunk girl at a fraternity party. People are trying to mess with her. She is doing herself no favors, though it's blaming the victim by being drunk and dressing in party clothes. There are lots of things that are conducive to bad things going on.

Then CNN may be the most guilty party in the election of 2012 among the major news networks. Fox is going to consistently be an evil doer. It is going to consistently misbehave towards the conservative side and then present a biased and manipulative view, but everybody knows that. If

you come to Fox for a fair presentation of the news, then you're stupid or just wanting to give yourself over to manipulation.

Some overage of the news is biased to the liberal side, such as Rachel Maddow who is super well informed. She is biased towards the liberal perspective, but knows more than most people on TV news. She doesn't hide her liberalism, and tries to get the information out. As opposed to a Hannity, not that I could watch a Hannity, who would present a bunch of manipulative conservative, craven arguments.

But then you have CNN, which is said to lean liberal, but then has a bunch of bad habits that let it get played by Trump and everything associated with Trump. The bad habits often used to be good habits, but through confusion and inability to see a better way of doing things have become exploitable. The idea of journalistic neutrality has been totally exploited by assholes mostly on the conservative side with these dumb interpretations of journalistic neutrality.

For example, if there's an argument, then you need to give another argument, but one argument is clearly better. Like climate change, a huge and growing amount of evidence for climate change with the people who know about it best being convinced about it. 98+% of scientists, and those willing to look at the evidence, believe it is happening.

That there is at least a super high likelihood that climate change is happening. There are really good solid arguments for climate change, but then you have people with a political agenda advancing deceptive and money-driven bullshit arguments. CNN throws up a panel with people on both sides.

To somebody who's not paying attention, who's stupid, or willing to be manipulated, it seems like climate change is a toss-up. So, principle one that is exploitable and terrible is if there is an argument on one side then you put another one on the other side. Another is false equivalence. If one side is doing stuff and you're covering it negatively then you better, to be equivalent, better find stuff on the other side.

It was disastrous for the democrats and frickin' Hillary, who did some small-scale stupid stuff by using her private server, which is still debateable if this actually did harm. Probably not, she used a government server for some of her stuff. It may have been as hackable as her private server. There's really no evidence of any great or dire harm that occurred because she used a private server.

But this becomes evidence of bad judgment, malfeasance, and bringing down America. It gets magnified by the principle of 'if Donald Trump is doing bad stuff then Hillary Clinton has to have her stuff looked at too.' Also, because Wikileaks steadily feeds hacked information to the DNC every day, there's a steady drum beat of 'Hillary did bad stuff' for the last 2 months of the election, even though Trump is much more of an asshole than fucking Hillary is.

But people in the news media cannot effectively argue for this. There is a certain, with CNN being the worst of the channels, aspect of 'could not be bothered' with better ways of covering

the election. Also, there's time pressure. There wasn't any time to consider information from the election. Also, people weren't fully cognizant of the damage being done by the bad coverage.

It pisses me off because we see the same Trump people, same spokespeople, like the cute blond lady. They continue to spread Trump arguments, terrible bullshitty arguments, and the panel mode encourages confusion, intentional confusion, and bullshit. Even after this terrible election, CNN continued to do this stuff because people continue to be attracted to it.

They continue to pull, for them, good numbers because they focus-grouped and found that panels and town halls worked, like with Paul Ryan. CNN continues to facilitate bullshit. Without effectively calling it bullshit, without putting it into news context, it is legitimized. If you're going to list the CNN things that are bullshit, the panels, the town halls, putting the clock up to always count down to something, the refusal to authoritatively contextualize goodness and badness.

It's hard and, you can argue, it is not the job of a news channel to judge good or bad, but it kind of becomes their job whereby not judging good or bad you allow bad to flourish. You have to guide people if you're facilitating people thinking bullshit stuff.

Ask A Genius 64 – Conversation on Genius (1)

Scott Douglas Jacobsen, Rick Rosner, and Marco Ripà

January 20, 2017

Scott: What is genius, Marco?

Marco: First of all, I think Rick is a genius, obviously. The general definition is not so easy to understand. I think we can give two different answers. An extraordinary intellectual or analytic power, or IQ. If we set IQ as a standard, we can say that we can improve IQ through training. For example, we have developed a dynamic test. You can try it over and over and increase your skills in that field. That's my personal opinion, just my two cents.

Rick: I agree with Marco, also a genius, except I think there's more than two definitions. The first one being extreme skills at mental tasks. Also, IQ is tricky because a lot of things go into IQ, but a lot of things go into other forms of genius too. But there's the way genius is used to describe people who changed or helped out human progress by coming up with things that other people may not have been able to come up with, or by coming up with those things before anyone else.

People have said, "If Albert Einstein had been hit by a bus, somebody else would've come up with General Relativity. He was the first one to it. He found both forms of relativity. He didn't even get the Nobel Prize for Relativity." He got the Nobel, for among other things, the atomic theory of matter. He had this one year, where he wrote 4 or 5 papers. Each of which changed the world of physics in a different fairly profound way. So, when you use genius in that way, it refers to a very limited number of people who changed humanity's path.

Marco: Somebody who gives a contribution to mankind and develops a given field. You can use your IQ to do something in real life, but this is so strict as a definition. You can do something good with or without a very high IQ. I know that Feynman said he didn't have a high IQ.

Rick: There's a thing on Twitter called a "humblebrag," where you're bragging without bragging. I think Feynman loved to say he didn't have a high IQ, but at the same time was fantastically smart. He might have messed up one IQ test in 4th grade or something.

Marco: I agree with Rick's opinion. Genius's have to give some kind of contribution to mankind. Something important. If you have the potential, if you care to develop it in a concrete way, you have to be lucky, have to have a good team, have to be in the right place in the right moment, or time.

(Laugh)

The most important thing is to do something good with your applications and objectives.

Rick: I agree with Marco. Not only do you have to be lucky in terms of your era or your personal situation, you also have to be lucky in terms of having other aspects of your personality that reinforce genius rather than waste it. I have both. I go off on crazy tangents.

(Laugh)

That waste a lot of time. For a while, I was a genius of catching fake IDs presented by people trying to break into bars, which doesn't save mankind. But it probably helped some people from getting into drunk driving accidents.

Marco: Perseverance and stamina, it is very important.

(Laugh)

Scott: That leads to a question. What traits does genius on the negative side exacerbate and on the virtue side enhance?

Rick: There are stereotypes associated with genius. All you have to do is turn on CBS. Currently, every show on CBS has a genius character. They are often presented as socially dysfunctional, quirky. If they are part of a forensic team on a CBS murder solving show, then they might be goth.

(Laugh)

Though I know plenty of smart people who have super good social skills. Although, possibly with them, the genius doesn't stand out because they function smoothly in society. The framework is Aspergery. High-functioning autism meshes with the stereotypic genius, but I live in LA where the entertainment industry has a huge number of people with the opposite of Asperger's.

Their social skills are too good, and makes them horrible in the opposite way of Asperger's.

Marco: I have Asperger's.

(Laugh)

I don't know if you know this. I am an Asperger.

Rick: I didn't know that.

Scott: I did.

Rick: I am too old. I am 56 years old. I grew up before the term was in widespread use. If I was 20 years younger, people would have looked at me as a kid and said, "Yea, Asperger's."

Scott: You've done jokes about Sheldon (Cooper) in some of your videos, Marco.

Marco: Yes, my YouTube channel. Asperger's, also, is a continuum. There isn't a given number to say, "You are Asperger. You are not Asperger. You are normal."

(Laugh)

(Laugh)

It is important to find one of you. So, you can become a negative genius. People can start to point out everything you do, and your strange way of thinking. That's my point of view.

Rick: I agree. In junior high, it is terrible for everybody, but the flavor of how it was bad for me. I got a certain amount of crap from people for being a little brainy, nerdy-like. The kind of crap somebody 20 years younger would get for being Aspergery. One of the things I thought was "Dang, I wish I lived in Europe." In American schools, athletic skills are highly prized. In Europe, it seemed there was a little less emphasis on being a jock. I thought if I lived in Europe I could be the way I am and maybe still get a girlfriend. But I don't know.

Scott: Is that reflective of your experience in Europe, Marco?

Marco: My best answer to this problem was when I started to practice karate about 15 years ago. In that period, I was really sad, and upset, and so on.

(Laugh)

But it helped me to find a reason to fight in real life, not only during matches and so on. But this is my experience.

Rick: I did the same thing, not with karate, but with lifting weights. When I got big enough, I started working in bars, as I said, checking IDs, where I got to meet people, and occasionally somebody would punch me.

(Laugh)

(Laugh)

But I didn't know karate. So, I would just get punched.

(Laugh)

(Laugh)

Ask A Genius 65 – Conversation on Genius (2)

Scott Douglas Jacobsen, Rick Rosner, and Marco Ripà

January 21, 2017

Scott: What were other aspects of being proactive?

Marco: I used to do a lot of weight lift training, but I stopped lifting weights. Karate is a good sport, a good way to fight.

Rick: I think we both did kind of the same thing. We realized being smart isn't the main thing, and you have to come to terms with the world and other people. There are two aspects. One in terms of modern implications, where there are more ways to connect with people than ever before, and more intimately with people via social media, I feel as if it is probably tougher to be socially isolated. I would hope that to some extent social media have reduced the stigmatization that any person with weird traits might feel. I know social media might contribute to bullying, but, on average, across the whole spectrum of kids it has led to less isolation and less teasing.

Marco: The world is changing really fast. My experience was in the late millennium, but I think Rick's experience was associated with a different era. Not the 2.0 era, social media, YouTube, Facebook, which are networks that connect people around the world and let you start a conversation with someone who you think is closer to your ideas. Also, social networks have an algorithm that let you see only what is relative to your interests, point of view. If you're into politics and of a given party, you'll find more posts within the bubble. I am Italian, but my English is really bad at times. I try to explain.

(Laugh)

Rick: It's really good.

Scott: Your English is fine.

Rick: Being a typical American, I know zero Italian.

Marco: English, you have to learn it on your own or practice on Skype.

Rick: In addition to social media, and the whole sphere of external computation, it means that genius will become less exceptional as everybody is made smarter by technology.

Scott: Is that apparent, though?

Rick: Well, no, because it looks like technology makes everybody stupider because they walk around in traffic and drives while on their phones, and everybody is distracted.

(Laugh)

At some point, it makes people smarter. There are ways, like the navigation aid and others, that are external computation. All of the sudden, you've become a navigation genius, you know all of the shortcuts, because of the device in your hand. There will be a bunch of devices that help people function better, smarter, based on external computation instead of doing everything in your head. I would rather live now as myself rather than 100 years ago as a king because all of the tech that we have means that we're rich informationally. We're only going to keep getting more so.

Scott: If we take the discussion about what genius is around the examples like Feynman with the humblebrag nature, as well as the Hollywood representation of things, as well as the social isolation and outright bullying in prior generations for those that are of exceptional intelligence, and that exceptional intelligence is becoming less exceptional, where does that leave the genius in terms of its definition now and into the future? Is that the proper term if it is becoming less rare and less exceptional, except in relation to prior definitions?

Marco: I think the results come with knowledge. You have to be good at knowledge searching in Google, not only knowing it by yourself and trying to develop something good, something new. Genius as a definition is relative to your era, your period. Now, as I said before, the world is changing so fast that you can't make a comparison between a genius in the late 20th century and a genius now. It depends on the field too. As far as I know, the last genius that had general knowledge of his field was Enrico Fermi. Now, you have to specialize your interests, applications, in a very specific topic and try to make the research towards achieving something new, something good, which can let that topic also be something started by other people.

Rick: I agree. The idea of genius and IQ have always been subject to misuse and misunderstanding since Galton. Galton, like 120 years or 150 years ago, came out with a book called *Genetic Studies of Genius* or something. It can't be genetic because he was before genetics. He was the guy who brought genius into the modern era, in the 19th century.

Genius and IQ have been used for bad things, in the 1930s for eugenic policies, which led to horrible immigration policies in the US. It led to people being sent back to Germany and killed based on IQ test scores. I remember growing up in the 60s. Kids got their IQs tested all of the time. There were a bunch of kids being told that their kids were geniuses, because they were told so in parent-teacher conferences. It is subject to all sorts of mischaracterization. Although, in terms of how actual genius functions, I agree with Marco that it is changing. I think that it is changing in the direction of collaboration.

If you think of the science of 100 years ago, and you have individual pioneers like Planck and Einstein and Dirac and de Broglie, everybody coming up with their own little additions to relativity and Quantum Mechanics, chunk-by-chunk and great person-by-great person. Now, you have science being pushed forward by CERN, which is the combined efforts of more than 10,000 scientists, and is more than 20km in diameter.

You see it in other endeavors, like Judd Apatow. He is one of the most successful comedy movie producers in America. He makes his comedy by doing table reads by inviting 20 funny friends to

read scripts with each of the 20 pitching in jokes at every point in the script. So, our technology and other factors mean that genius endeavors are less individual than they used to be, in some instances.

Marco: You have to develop social skills too, to try to work in a team rather than working by yourself without others. You have to focus on your part of the project. You can build a bigger project rather than working alone and trying to find sources on Google, and so on. My personal experience with dynamic IQ tests. I developed the first spatial dynamic IQ test. I developed the algorithm, but the implementation process was a joint issue, matter. I find also another high-IQ person that is good with software and computers. We are working as a team. We have achieved this great goal for me. It is a dream come true, but working together - not only by myself. We are 50-50 now. My friend is an expert in the field that I can't access myself...

(Laugh)

...working on Java and on these languages that I can't do by myself, at that level.

Rick: I've had some of my greatest working experiences working with other people. I've worked with you, Scott, for years now. It has been productive.

Scott: Right.

(Laugh)

Rick: When I had a writing partner for writing comedy on TV, he actually wasn't that great for me in terms of making my social skills better because he had great social skills and took over the social stuff and would say, "He's the weirdo." It was good for him to be socially smooth, but it was bad for me to be characterized as the weirdo.

But as part of a writing team on TV shows, that is an awesome collaborative experience. That's how TV shows are done. That's the model for a lot of shows, a lot of good shows, which is the writers' room where everybody shares their experience to share dialogue and jokes.

Marco: Television is the best for social skill development. You have to show something to others, to a wide number of people. You have to be smart and what can be good, or not, for others.

(Laugh)

Ask A Genius 66 – Conversation on Genius (3)

Scott Douglas Jacobsen, Rick Rosner, and Marco Ripà

January 22, 2017

Scott: Maybe, there's a strong positive that might come from this greater collaboration or the need for greater collaboration among the high ability set because it is too hard, as in the Enrico Fermi example you gave, Marco, to know or do everything alone. There have been examples like the Unabomber. A very anti-social person. This greater need for collaboration might work against those antisocial tendencies more. Does that seem reasonable?

Marco: I think being alone is a problem for everybody. If you're alone, as I said before, it is a big problem for everybody, including geniuses and regular people. On YouTube, you have to deal with different creators, not only people who go to YouTube to watch a video. We are doing a lot of angles and live-streaming, also to talk about YouTube itself or to speak about something that hasn't occurred on the platform. This is quite new for me, but I find this interesting with this period. We are working on a YouTube Italia, not only in YouTube. It is a little box, and it's fine with me. It is my true work.

(Laugh)

I can't speak for television or others, but, for me, these angles and live-streaming are a good way to skip these additional problems as a creator on the platform, not only in real life.

Scott: Any thoughts, Rick?

Rick: In terms of the interactions among people, when I grew up in the 60s and 70s, it was assumed everybody was okay, and was pretty much well-served by things as they were, schools for instance. Everybody in my experience went to public school, and was assumed to be able to get a decent education and would be fine. People might have different roles in the school like jocks and nerds, and stoners, but everyone would pretty much turn out okay.

Now, I think that there's been certain aspects - like 80s high school movies deconstructed how schools work socially - with a certain deeper deconstruction and analysis of how people interact as part of the tech revolution, where you don't get things like Cortana or Siri without somebody trying to figure out how human interactions go on. I think we're served better by analysis of how people work well together and communicate with each other. I have done this on a personal level, where I have worked in a lot of bars or used to work in a bunch of bars.

I noticed that bars are good. They used to work as a place for people to meet people who couldn't normally easily meet people because bars make it hard for people to communicate in general. They are noisy. They are dark. Everybody's drunk. It makes it easier for everybody to think you're more attractive than you are. So, working in bars, I would analyze how effective my interactions were. Usually, it wasn't that great because A) I'm me and B) we're in bar, but the whole breaking down of social interactions to make them better is helpful.

I could bring it back to genius because, eventually, this deconstruction and reconstruction of how people work and apps based on how people and thinking work means that we're all being glued together into a more, I hope, smarter set of interactions that make better use of people and make people, or give people the potential to be happier.

Scott: Any thoughts on that, Marco?

(Laugh)

Marco: I have no experience in a bar, but my mother owns a little shop. So, I have tried to relate to people through the little shop. Also, my point about YouTube is a lot of people are giving feedback and so on, but those people are very young, usually. My channel is about this, mathematics, and logics, and so on. It is not so accessible to younger people and boys, but the standard is young student, pupil. It's good to analyze which kind of people go to a given video and analyze their way of thinking. I know this issue. Also, you have a lot of analytics.

You can try to construct the ranking or the set of parameters that you want to analyze. You can find with a given video if it is good for a set of girls or boys, or a given culture. It helps you to develop a strategy. If you wanted to increase your views on a given topic, you can use a given set of targets to try to increase the watching time of a video that is also important to pick above other videos or names in your channel. It is interesting.

(Laugh)

You can find out a lot about people's interests and way of thinking, in a way. It is not as big of a platform, but it allows you to understand a lot of things about people.

Rick: I agree. I use Twitter analytics in the same way. You are able to analyze the performance of each tweet minute-by-minute. For instance, I have driven a lot of people away by looking at my stuff by making too many jokes about Trump.

Scott: People did vote for him.

(Laugh)

Marco: It is a topic on YouTube.

(Laugh)

Trump is the mirror of people's way of thinking in the more general way. The result was a shock for the rest of the world, for Europe, but not for myself. I think this period is going to finish this era of compromises. People are trying to see black-or-white now. Not only trying to look forward to a given house, to be sure about the future, to risk, to find something new. They are upset. They are also concerned about the future, but they want to try a different way to try and approach this future.

Rick: To some extent, I think people are - we were talking about collaboration - given a huge amount of power via social media. That makes some people less collaborative or less wanting to make sacrifices. If you look back at WWII, every country pulled together and made sacrifices to fight in that war, crazy huge sacrifices with rationing and people putting their lives on the line. Now, it's 70 years later in America. You have Trump who represents himself as an individualist, as an individual success, versus a candidate whose slogan was "stronger together."

One of Trump's promises is to dismantle Obamacare, which is a huge cooperative structure where people are able to get insurance because everybody gets insurance together. A lot of the people behind Trump or behind Brexit, or behind some of these nationalistic movements, are representing individualistic forces like "I need to take care of myself. I don't need to look after other people. And I will be successful in doing that." One of the things that gives people the idea that they are strong individually is how much social reinforcement you get from social media.

Everybody's got this feed in their hand, where it's your friends telling you you're great and news stories agreeing with you if you're in your information bubble for as many hours of the day as you want to get this information. There was a study that just came out and said 1 out of 5 teenagers will wake up in the middle of the night to check social media. It is super attractive, this reinforcement. I remember 30 years ago when the *Rambo* movies came out. There were a lot of American men, including myself, who were strutting and thinking and feeling like we're Rambo. I think social media gives you that feeling of "I'm strong and know what I'm doing" – to some extent.

Scott: Does that make people more exploitable if they aren't banding together?

Rick: Then you get into the conservative think tanks, in America, for the last 30 or 40 years. They have studied how to move people, politically.

Scott: Like the Cato Institute, for instance.

Rick: Yes, they know how to label and brand things. Conservatives in America are much better at coming up with names for things. They came up with "Death Panels" for Obamacare and the "Death Tax" for the Estate Tax. The tax on inheritance - calling it the Death Tax makes it sound like you're being taxed for passing away and it's not fair. It sounds really negative. Pro-choice as opposed to anti-abortion. Conservatives are much better at doing that stuff, and much better at doing it.

I remember in 6th grade. They taught us how to resist TV advertising. They taught us 8 or 10 ways that TV advertising works. I think most people at this point have become pretty resistant to TV ads. They have been around long enough for us to figure our what they're about and to feel cynical about anything pitched on TV. New media, we're not as resistant to it. We fall for, now, the big topic of fake news. It takes a while for people to learn how to resist new forms of information, and, with the world moving as fast as it does now, there will always be new forms of information.

We can expect people to be manipulated either on purpose or by accident for the near future.

Ask A Genius 67 – Conversation on Genius (4)

Scott Douglas Jacobsen, Rick Rosner, and Marco Ripà

January 23, 2017

Scott: What else about social media?

Marco: It is not so easy to change your mind through ads on social media as well. I remember a poll on Facebook. It said about 80% of people don't change their minds watching a post, on social media. It is not so easy. Then in Italy, our referendum, yes or no, a constitutional referendum was a bit like Trump's victory in the USA. Our prime minister here, it wasn't an easy referendum. Now, we have a different prime minister, in Italy.

Rick: You guys couldn't get out from under Berlusconi for years. He's Trump, basically.

Marco: We've had three different prime ministers who weren't chosen by the people. The Italian president, of the Italian Republic, nominates the prime minister. Three different prime ministers who were against the people's will. This is quite sad in my opinion. Now, we have the fourth prime minister who wasn't chosen by the people.

Rick: Is he any good?

Marco: I think the world is changing a little bit in Europe too. Trump, it is an important step for Europe as well. Italy looks at the West and then also the USA. It is important to manipulate Italian minds too. This is true.

Scott: Is the system as sophisticated as in the United States, though?

Marco: People fear everything. They are afraid of change. But if they see something is changing in the rest of the world, they will take this upon themselves and will try to do the same things if they think something is wrong. They have to have courage to do this. They have to understand the rest of the world has something changing right now.

Rick: The US, we tend to ignore the rest of the world. The pipeline of information about the rest of the world flowing through our news is much narrower than I think in European countries.

Marco: With Trump, on the chair, we have suffered a kind of rebound.

Rick: Backlash.

Marco: Yes.

Rick: Maybe, the principle is that the way society and technology is changing. Genius is becoming more and more embedded in social structures that share more and more information including people who are purportedly geniuses.

Scott: We've identified some geniuses, identified some definitions, identified some possible issues that might arise with it. Also, some positive trends that might come with it, such as more collaboration with it. It leads to the next step. What can people do to sift effectively through this deluge of information, this pouring down of information, that is picking up pace – and new forms of information, not just more information?

Marco: Every topic is more complex if we compared it to the past. You need to work in a team to develop something greater compared to the past. It is not so easy to do something great alone. That's the problem. The point, in my opinion, is that genius is someone who develops something, but to develop something new needs a team. Now, it is too difficult to do something new alone without help. You need to focus on a specific topic while somebody else focuses on another part of it. Another specific part of it. Then you need to put it together to strike something great.

Scott: Rick?

Rick: The barrage of information, available information, perhaps, changes what kinds of genius will be most effective in the world. Paul Cooijmans has three principles of genius. One is associative width, which is the number of analogies you can come up with to tackle a problem.

Scott: Associative width or associative horizon?

Rick: Associative width or horizon, or something, how that will work will change since everyone has almost all of human information via our devices if you know how to use it, how to access it. One of the tasks that affects genius now as compared to 100 years ago is, instead of information-getting, information-shifting. Einstein built big imaginary structures. He did *gedankenexperiments*, thought experiments, that led to a lot of his great discoveries. He built them in his own imagination. Now, 100 years later, there are all of the worlds you could possibly want by clicking around.

It remains to be seen if the geniuses of our era will be geniuses of synthesization, of sifting and combining all of these huge masses of information together in genius ways. Everybody has their own foibles and dysfunctions around information. My mom, for instance, is a borderline hoarder. Newspapers come in, mail comes in, and she thinks she'll get through it all. It accumulates because she never gets through it all. But she's barely online. For someone barely online, they will be even more snowed under by the continuous flows of massive amounts of information.

Marco: In my opinion, he had a big way, a different way, of thinking about the world, the universe, and its role, but he couldn't win the Nobel Prize. He couldn't win the theory with matrices. Some different pieces of the puzzle that, in the past, other people developed. He found a lot of different tools that helped to create the theory, relativity theory. There is a mathematical presentation that he couldn't skip - to present the theory at conferences to get the achievements for the goal he was able to reach.

You can theorize, steal something from the past, and use it by yourself. Now, this isn't possible. You have to do everything real-time with other people by staying connected and trying to proceed step-by-step together. That period, you can do a thing. This is my result, and somebody

will use my achievement to do something new. Now, it is different. If you tackle a problem or topic, you need to stay with others to do it at the same time.

Rick: Where, in the past, there were fewer people marching forward in any field, but even Einstein needed his buddies that he would meet in the café to move things forward. For relativity, one of his friends said, "You have to look at this," which was Matrix Theory or something. But if you're in a popular field, you're marching with 100s and possibly 1,000s of different people in different directions. One strategy for being a genius is to find a field that has fewer people in it, or to invent a field of your own.

So, you can find the stuff that is findable and aren't competing at an Easter Egg hunt with at least 300 other people. Each in the same field. Each field has its easily found, and more difficult-to-find, results. One aspect of genius, historically, was having a different experiential background, which led to different thoughts. Darwin went on a 5-year, around-the-world voyage and sees a bunch of different geographies and creatures. Does he come up with the theory of evolution without doing that? Probably not, he certainly doesn't come up with the 100s and maybe 1,000s of examples that he spent the next 20 years laying out without having this experience that nobody else had.

Marco: In our dynamic test, there was something similar. I came up with the idea in 2011. Then I talked about this idea in 2012, but then it took about 5 years to develop the real test.

(Laugh)

Also, I needed other people to accomplish this goal. I asked them to help me with my algorithm. I said, "This is the algorithm. You have to translate these instructions in a program." We tried to see if something doesn't work, and it didn't work. We came up with a different. Finally, we have achieved the algorithm. It is online. It wasn't as easy as I thought in 2012. It was very difficult to reach a dynamic online test without any flaws or without any colleague. Also, you can develop a collegial relationship between two different figures in the instruction field. You can't distinguish with your eyes.

You have 3x3 square matrices. But given the chance, you can find two solutions that are the same figure using your eyes. If the computer ever presents two different strings of letters and numbers, you have to delay at least one of them to have a unique option for every different figure in the option field. This isn't easy to predict before. You have to try to write the program and then generate a lot of different tests, and see if something doesn't work.

Ask A Genius 68 – Conversation on Genius (5)

Scott Douglas Jacobsen, Rick Rosner, and Marco Ripà

January 24, 2017

Scott: What about the far future of intelligence testing? Not simply the verbal, mathematical, and spatial ones, or the culture fair/non-verbal ones, but things using advanced technology such as brain scans, and then you can give a rough estimate, the person takes the test and they get a rough estimate akin to those taken from pencil-and-paper tests.

Marco: I prefer non-verbal tests rather than verbal because the verbal tests are not so G_f (Fluid Intelligence), using Spearman's definition.

Scott: Right, right.

Marco: However, you can mix the items on the test for a more accurate score. In my opinion, the best test, for verbal, is the WAIS-IV. It is the most complete test. It is the best test, even though it is not G_f loaded. You are not measuring pure IQ. You are measuring IQ as a potential and concrete skills. It is the best test to predict scholastic achievements, good work, and so on. Different tools for different measures.

Scott: Rick, you had something to say.

Rick: One problem with tests now is they are time consuming. IQ tests were initially designed to be fairly blunt instruments to see if kids need extra help in school. The first IQ scale went from 1-5. 1 and 2, you need help because you're not mentally gifted. 3, you're fine. 4 and 5, you need extra help because you might be mentally gifted. Then the Americans took over and put it on a 100-point mean scale. There is a question if you need to make a difference between an IQ of 138 and 162. According to the 1-5 scale, there's not an effective difference between those IQs because those kids, the 138 IQ kid and the 162 IQ kid, are going to be bored in class and will need extra stuff.

But if you want to differentiate between 148 and 178. Somebody is going to have to sit down and take a long test or a tough test. That means, you miss people because a lot of people are like "That's not my thing. I'm just going to do my stuff. I don't care whether to know my IQ. I seem to have done okay in school. I haven't had trouble in any of the classes I ever took. So, I am okay knowing I have this level of effective smartness. I don't need to take an IQ test, and spend many hours practicing and taking IQ tests."

Another problem with the history of IQ tests is they are external. You measure somebody's thinking product. That's not how we measure how good computers are. We look at their guts, their circuitry, and how they're arranged. We come up with, more or less, exact numbers on the number of computations per second. In the future, as we figure out how to look inside brains better, and in the medium and far future, our brains will become more linked to external measures of computation. The measures of thinking will be these power numbers based on what's actually going on in the brain-machine combination.

IQ tests are behavioristic. In the 1930s, there was behaviorism. Scientists looked at brains. They thought, "It is too hard right now. Let's measure or analyze the output." It's like IQ tests. In the future, we'll have a better understanding of the mechanics of brains and computing. We'll have power numbers.

Marco: We have focused on only the development of the dynamic IQ test. It is the same thing as Raven's Matrices. Each time, you have a different test using different parameters with a different set of solutions related to the matrices. However, the norm is stable. It is stable from test-to-test. We can develop a very large number of tests. It is about 100 billion different tests using a set of ~2,500 different figures for every cell of the matrices. You can get a very large number of different tests.

Rick: What Marco is doing important, for a number of reasons, it is hard for people to cheat because everybody gets a different test.

Marco: You can cheat on this test because every time you will see a different test, and the order of the items will be partially mixed, but it is not so easy to explain.

(Laugh)

Rick: It means people can't share answers. You will get different problems the person before you. Like the tests in the past, like the Mega Test, it only had 48 answers. As the Internet came along, those answers became available to people who could search them.

Marco: Every test has a matrix. Every cell of the matrix can be ~2,500. If you combine the basic shapes, square, equilateral triangle, and circle, combining two of these figures, you can create about ~2,500.

Rick: That's nice, and elegant. Another reason the technology you're developing is important is because you can tailor the tests to people's abilities. In America, for example, the SAT is somewhat tailored to the test-taker's previous performance on the test. If you get some right, the SAT gives you harder problems. If you get some right, some wrong, you get some harder and some easier problems. If you get some wrong, you get easier problems. Somebody bright doesn't have to work through 80 problems and get 78 of them right to get a result. Instead, that person might get to work through a representative sample of the easy problems, then move on to harder problems, so that in a test window you can get a more personally tailored test and a more accurate representation of that person's abilities – and not make them do a bunch of busywork. You can tailor to somebody who is not so good, too.

Marco: My problem is the norm. It would be harder to norm the test that way. It would be interesting to create a test that made the difficulty in the middle part of the test based on your result in the first part of the test.

Rick: The purpose of IQ tests should be to give you results that can be used in things you can do in the rest of life, as with every tests. "You're good here. You're not so good here. You might

think of doing this or this. You might think of exploring these areas of endeavour that seem to mesh well with your skill and interest set."

Marco: I can't spoil our goal...Our main goal is to use our test to create a test that you can use to see if your IQ or abilities in that field are increasing or not, or if they are dropping below a certain standard. So, it can be used to help you. It can be used to see if a young boy, for example, has abilities and so on. Also, the test is cheat-free. You cannot cheat in a dynamic test, especially if you take a dynamic test and are supervised.

If there is somebody watching you taking the test without your computer with you, you can't cheat on this test. I can imagine in the future somebody can develop a program that will solve and recognize the figures. It will solve the matrices. A computer could help in this way. It would be hard to create this program. It is possible. If you take the test, and if it is supervised, it is possible to cheat. But this is online, you could take the test using a computer. But if somebody watching you take the test on this computer, it is fine.

Rick: There is a growing industry of practice games and drugs that claim to help people become smarter. There's a lot of, I think, competence anxiety in the world today because, among other things, automation is removing work areas that don't require much in the way of thinking skills. The world itself keeps becoming faster, more complicated, and people want to be able to keep up. It used to be said that things like the SAT, IQ, and intelligence were a lone number. Also, it stayed the same throughout life and couldn't change it.

Now, the philosophy is that with practice, good nutrition, and supplementation could help people become smarter. Your test, Marco, by providing a baseline where people can take the test over, and over, and it has the same set of norms. People can see if there is any sort of improvement going on. Now, it is improvement on the test, but is it improvement in general or on general intelligence? For every test or task on the test, there's probably some analysis to be done: Is this an improvement in specific skills or is this an improvement in general skills?

Marco: For improvement, in the specific abilities, it will be high, by definition, if we put it in comparison with the improvement in general cognitive abilities of the person, but this improvement wouldn't be so high. So, if the test is different every time, you can take about 10, or a standard deviation, of improvement from the initial standard. Another issue, I think, is we need to adopt tests to be sure somebody isn't cheating, taking drugs, for the test. It is strange. If you're talking about IQ tests, I arrange the test, then okay. If you're using the test in school to monitor the drop in abilities under a given standard, time-by-time. Also, you can use the same test. For example, every 6 months, you can use the same test to see if a male of about 80-years-old is losing their ability to solve a given item. If so, they might have Alzheimer's.

Rick: Also, it can be used for fun. People might use it over and over again to see if they can improve.

Marco: It is an addicting game. Some people have written about 10 tests. Somebody bought 10 tests at a time. I don't know if he ever expressed a big improvement.

Ask A Genius 69 – Conversation on Genius (6)

Scott Douglas Jacobsen, Rick Rosner, and Marco Ripà

January 25, 2017

Scott: What are other aspects of the dynamic IQ test?

Rick: There's also the positive reinforcement. Somebody takes this test over and over and gradually, perhaps, improves. Another aspect of the Cooijmans model of genius is conscientiousness. Where if somebody takes your test over and over again, gets a little better, a little better, and a littler better, on average over time, it may translate into more persistence in other areas of their lives. "If I can do this, then I can do other stuff." They have shown positive benefits from video games. People who work through incredibly challenging video games, where an average video game should take 60 hours to work through.

Marco: Take Tetris*, for example, you can improve your* Tetris *abilities playing* Tetris*. I don't know if my test is the same as this. I don't know because I haven't played* Tetris *and kept track to say, "You're improving taking 10 tests" - say a standard deviation after 50 tests, I can't say this. If you improve a standard deviation after 100 tests, it would, in my opinion, be a problem. If you improve a standard deviation taking 3 tests. It would be quite strange and not so good to use them in order to identify very high IQ people. Obviously, Rick, you can take the test for free, if you're interested.*

(Laugh)

Rick: I could take the test, but there's always the chance that I'll mess it up and ruin my reputation.

Marco: The ceiling is 172. Nobody has reached the top score. 2,000 people have tried the test. Nobody has achieved a perfect score.

Rick: That's an awesome number. A big problem is to get enough people to be able to norm it.

Marco: It is an online test. So, it is quite challenging to take an online test using a fake name with a made up address.

Rick Rosner: You'll know if Nick Nosner takes the test.

(Laugh)

Marco: The norm has been created using friends and so on. It is stable. More than 40 people, I have used their results. Those people, everybody has already taken a recognized test. We have about 130 zeta scores to create the norm.

Rick: That's great.

Scott: Two points, one, the main forms of genius that have been talked about are IQ based, whether Enrico Fermi, Einstein, Newton, or Richard Feynman. Those have been the names that have been coming up. As well, the tests that have been coming up have been IQ tests. What about other forms of genius, e.g. moral genius?

Rick: We haven't talked about creative genius. My kid is working with, and looking at, historic textiles. Jane Austen, the novelist, and her family put together a quilt with 3,000 pieces. I don't know what the relevance is, exactly.

(Laugh)

But if you're Jane Austen, her genius generated a bunch of novels that are universally beloved. Even though, she didn't live to age 42. She somehow came up with these beautifully balanced works that resonate 200 years later. Of course, she and her family would create this ridiculously awesome quilt.

Anyway, with mathematical or scientific genius, there's the idea that even without the genius science will churn forward and generate the same results, but, maybe, it takes a few years longer. But with creative genius, you have to imagine if Jane Austen was hit by a trolley or a carriage. We don't know if anybody would ever replicate her work. Einstein would have been replicated by Poincaré or some other dude, or dudette. Jane Austen might be unreplicatable. In the future, I assume we'll have Jane Austen software that will generate pretty good Jane Austen novels. Anyway, we haven't talked about creative genius in fields where you're not trying to scientifically characterize reality. You're trying to do art.

(Laugh)

Marco: A couple geniuses I like, Newton for the math and Wozniak for the computer era. So, he had the creation of the Apple software and so on. The operative system that led to the development of the technology, which allowed the Skype we're using now. These geniuses, in my opinion, have contributed very much to the development of human beings.

Scott: Wozniak, Newton, and Jane Austen, any other thoughts on creative genius?

Marco: Darwin was a creative genius. In that era, evolutionary theory wasn't so close to their minds. Newton also was Catholic, if I'm not getting it wrong. He developed his theory and wrote a letter to the Pope asking why he reached that goal if it's not a problem with the religion. If the world is as to my calculations, let me assume the universe has this form, where is the error or the missing piece of the puzzle? For this reason, I choose Newton as an example of a genius.

Rick: Newton was a miserable guy. He was a mean guy. He was given away by his mom at 10. She married a new guy. Newton was given to a local person for many years. That probably didn't help his disposition or his mental health. Newton was a mess in certain ways. That leads to the area of comedy. With comedians, there is a common wisdom that you need to have a terrible early experience to give you a corroded view of humanity, and that makes for being a good comedian.

You can discuss about what you need to anneal to put potential geniuses through fire of miserable experience to come out with hardened genius on the other side. Probably not. Or with actors, if you look at the early lives of actors, their families moved around a lot. Like Tom Hanks, he went to like a dozen different schools. Actors always ending up in a new school developing new friends develop these fluid actor-ish personalities.

Marco: I choose Shakespeare and Dante Alighieri. They were also great geniuses in my opinion. Shakespeare was a genius in a horizontal way. He was able to embrace human beings as they are, really are. Alighieri was transcendental experience, starting with the human limited way of being and then going up and up reaching to the sky and the gods.

They are very different. Dante was 2 centuries earlier than Shakespeare. Shakespeare learned something from Dante, but developed a very different way of writing and also a different way of analyzing the world and humanity. It was very different. It is hard to make a comparison and say which was greater, in my opinion.

Rick: I've noticed. We talked about examples of people who died early. Shakespeare didn't live that long. Jane Austen didn't live that long. Newton lived for frickin' ever. I'd say the thing that is positively correlated with genius is having at least a normal lifespan, especially in the creative endeavours – not so much in math and science – or in the arts. In the arts, it helps to live a long life.

Scott: Any concluding thoughts? We opened with Marco. We'll close with Rick. Marco, what about the overarching discussion from tests to characteristics into minutiae like lifespan?

Marco: It is really hard to create a test to measure genius – to identify and measure genius potential and so on. Genius is a combination of abilities and aspects. It is a combination of perseverance, creativity, IQ. Different aspects such as luck and the team. Depending on the topic, the field, these aspects can be more or less important. For example, in mathematics, IQ, perseverance, and knowledge, etc., would be more important rather than in philosophy or letters. Shakespeare was a genius, but was focused on feelings and emotional aspects of people – analyzing them and creating a fast way to express these thoughts.

It was like a rock song for that period. So, the genius is different from the level of field and the period. Somebody who looks forward and is a step ahead rather than the other colleagues. It is harder to have a general definition of genius. It is hard to say if Shakespeare was greater than Einstein. I don't know. I can't say anything in this way. I am too small to give a judgment on Einstein or Shakespeare.

Scott: Thank you, Marco. And Rick?

Rick: I think Genius will become more common, more replicatable, as the world becomes more and more immersed in the sphere of computation and information, which isn't a terrible thing and it will give genius the opportunity to manifest itself in more and more unusual ways and

places. It won't just belong to the, historically, the greatest geniuses, who have tended to be seen as white men – as with a lot of stuff. It has been that kind of chauvinism, which, in the future, will be more perceived across a wider spectrum of humanity. It'll be more people having a shot at it, more different types of people will have a shot at it.

Scott: Thank you both for your time.

Rick: Marco, thank you, that was fun.

Marco: Thank you too, Rick. It is an honor for me to talk with you. Very thankful to Scott, for giving me this opportunity. Thank you very much.

Rick: Thank you, Scott. I'm going to go make myself presentable for my wife.

Scott: You both have my email. Anytime.

Ask A Genius 70 – The Soul and Consciousness (1)

Scott Douglas Jacobsen and Rick Rosner

January 26, 2017

Scott: In general, what is the difference between the soul and consciousness, to you?

Rick: Before we get to me, we should get to how those terms are really nebulous and have been subject to dozens of different interpretations over the histories of their use. To me, the soul has more of a religious connotation and is some characteristic of being that may or may not be bestowed by God.

A magic extra ingredient that exists in terms of being, which transcends the body, at least according to a bunch of definitions of the soul. It is something that can exist after the body and has lived before the body, but, in modern interpretations of that including hokey things like 'going to heaven and coming back to Earth' movies, there seems to be with the soul an erasing of almost all experience.

That even when you're reincarnated according to the rules of a bunch of movies. Maybe not *Heaven Can Wait*, but other movies that have to do with heavenly reincarnation, you can start over as a, more or less, blank slate. Of course, we shouldn't necessarily trust Hollywood producers and screenwriters to have deep thoughts about the afterlife.

Scott: What about purported autobiographies by children, sometimes, and adults, other times?

Rick: I don't place a lot of weight on that stuff. Some of that stuff was big with Elizabeth Kübler-Ross. Anyway, you die and go towards the light. If you're lucky enough to almost die and then come back, you come back with stories about having seen the light. All of that stuff can tend to be explained away by neural events associated with your brain shutting down.

I don't buy that trip to heaven stuff from 6-year-olds. My view of the soul: once you remove all information from the putative soul, then it seems like you have nothing left. Now, you could argue, but I haven't heard anybody argue, that you could remove all information from the soul and still have innate biases that if somebody is lovingly gruff. If an old person, then they come back as a lovingly gruff baby. I haven't heard arguments about that. Arguments that are about the soul existing in a state without information. I don't buy that. What's left? Not anything.

Scott: Would you hold to the position of absolute finality? With the death of the body and the brain, the death of the "soul."

Rick: No, that's a separate issue. The issues I'm talking about now is if you can have a soul that moves on if you have no information that moves on. In terms of "is death the end?", there's Pascal's Wager, which says that if there's any deal you could make with possible higher beings before you die then make that deal on the off chance that they exist. I agree with that up to a reasonable point.

Then there's the idea of various forms of technical resurrection. For instance, if we exist as a *Matrix*-type simulation, which I don't think we do, then there's no reason that upon death to think that the information that you're made of in the simulation can't be remade. If we're in the *Matrix*, there's no reason that you can't be re-embodied because we're part of an information-based simulation that is being administered in some external entity.

That entity can pretty much, as long as it has the information from which we are comprised then it, can resurrect us, but I don't think that we live in the *Matrix*. We have the potential with the technology in the medium- to long-term future to engage in some *Matrix*-type hocus pocus. Where, eventually, we'll be able to codify and turn into usable information the information that exists in individual brains - be able to get in there somehow and be able to map the information, maybe even map the information to a certain reasonable extent without even sending a bunch of nanobots to crawl along your dendrites to see what neural network you have.

Eventually, we'll be able to codify and record the state of information in your head in increasingly strong ways with increasing fidelity and accuracy. Right now, we could resurrect - in fact, there's an episode of *Black Mirror* that resurrects - somebody based on the social media trace that person left in a zillion Twitter and Facebook posts that can lead to a replication of that person, at least to the extent that that person interacts with their girlfriend based on the plot of this thing.

It is not unreasonable to think this. People have tried to build Shakespeare simulators based on the plays that he left behind. Many modern people end up leaving behind almost as many words as Shakespeare, maybe even more. You can simulate people's ways of being that way. In the future, we'll take that stuff. We'll take genetic information. It will probably take some brain mapping to build simulations of people or as people get built-in bio-circuitry. That bio-circuitry will have information about the organic circuitry that it is interacting with, the organic circuitry.

There will be increasing ways to bring out more and more information about what informationally makes a person that individual person, and making increasingly accurate resurrections or simulations of those people.

Scott: How does that relate to the relationship between consciousness and the soul?

Rick: If the soul isn't anything that transcends information, if the soul is the feeling you have of being a person, a unique person alive in the world, that magic feeling I would more associate with consciousness, then the magical uniqueness that makes you you via your mental picture of the world, then the soul isn't anything that transcends information. I'd argue that the soul and consciousness are pretty much the same thing.

Scott: An emergence from the broadband processing of mutually shared information among sub-processors in a larger system.

Rick: Yes and no. Let me take back a little bit of what I said about the soul and consciousness being the same thing. Backtracking from saying consciousness and the soul are the same thing, thinking more about it, I think not. As an old guy, I have terrible toenails. When I am tending to

them, I am focusing on my horrible toenails. Nobody, or a few, people would argue that that says anything about my soul, by focusing on my toenails. Although, I could make that argument.

Anyway, the minutiae of moment-to-moment attention might be your consciousness, but it isn't your soul. Your soul is your deep strokes of your personality, the deep aspects of your personality and attitudes that constitute you after a lifetime of being you. In terms of some picture of information-space, say, we don't know what information-space looks like exactly, but you've got to figure that frequently used processes, nexuses, or heuristics, or subroutines that are constantly used, for instance, like words.

Whatever heuristics generate the words that pop up in your consciousness and/or pop out of your mouth, those structures in information-space are large and almost always on when you're awake. You're going to have words available to you to describe what's going on with you. There are big verbal structures. There are big visual-processing structures. Similarly, there should be large well-developed attitudinal structures, philosophical structures. Structures that pertain to your deepest personality characteristics and attitudes about the world.

Maybe, e.g. charitableness, a belief in justice, a sense of irony, a tendency to make bad jokes and puns, cynicism, giving people the benefit of the doubt, all of those things that people think of you as you if people were to eulogize you. Those things might be thought of as your basic personality characteristics. When you think of different people, like Trump, today is Trump's Inauguration Day. Trump's soul might be belief in individual enterprise, egotism, easily takes offense, tends to exploit whatever is financially exploitable in a given situation, a deep seated belief in America as a place for enterprise. If you ask a hundred people what makes Trump, you would get some basic personality traits of Trump.

Scott: Those would be vices in Trump in general as aspects of the soul as deep characteristics of the individual.

Rick: Well, vices, liberals see Trump's deepest characteristics as being a sort of a huckster, a showman, an exploiter of financial schemes, but conservatives - people have been going out on the street during the last week leading up to the inauguration and asking Trump supporters what they think - find the plain spokenness and his telling-it-like-it-is preferable. It annoys non-Trump supporters because he seems to be a bullshitter to non-Trump supporters. Trump seems to have some recognizable basic personality traits.

Ask A Genius 71 – The Soul and Consciousness (2)

Scott Douglas Jacobsen and Rick Rosner

January 27, 2017

Scott: I wanted to get something more from that. That is, the deep characteristics or the traits of an individual would be, as you define it, aspects of the soul or the soul as a whole. So, vices and virtues can be expressed through that definition.

Rick: Yes, when you look at Obama – Liberals, at least based on approval ratings, think of him as a good guy. He is less transparent, though, more enigmatic than President Trump. So, you'd have to make more guesses about Obama's deep personality traits.

Scott: What would you consider his vices and virtues?

Rick: An eagerness to or a tendency to see the goodness to people. To some people, and possibly to me, it led to him being played by the Republicans, who during the 21st century have become willing to practice politics with deep cynicism.

Scott: What about historical figures, e.g. politicians, scientists, artists, and activists?

Rick: Let's look at Einstein, he had some transparent aspects. Public figures tend to want to promote certain personality traits. They want to advertise their souls, without calling it that, as having certain characteristics. Einstein liked to publicize his, and this is not a deep characterization of Einstein, his childish carelessness about worldly behaviour. He turns to somebody at a big dinner and says, "I'm not wearing socks." Apparently, when he was younger, he decided that socks weren't worth it because socks get holes in the toes and decided if you don't have socks then you don't have that problem.

That tells you more about his soul than him telling somebody that he doesn't wear socks. One is the soul indicator. Another is the PR (public relations). But there are a bunch of quotes about Einstein's belief in an aesthetic determinant in deciding theories of the universe. That when you're trying to understand the universe, if you come upon a theory that is elegant and beautiful, then it pretty much has to be true because God doesn't work in ugly, clunky, ways.

So, the sense of the beauty in mathematical physics might be an aspect of Einstein's soul. An expectation that whatever explains the universe is going to be beautiful, simple, and elegant. Anyway, your soul can be seen as your deeper personality characteristics independent of daily trivia. A long-standing, well-established, not just specific beliefs but, rhythm behind those beliefs, which, I believe, all of those things, like daily trivia, can be seen within our information map. Beliefs can be seen in your information map teased out of it, somehow, and then even the rhythm behind your beliefs - the deep, deep themes to what you think - can probably be teased from out of your information map.

However, maybe with more difficulty, perhaps represent arrangements of information within your information map at different scales, daily trivia might be more localized in terms of the processing. In terms of the significant beliefs, they may have more complicated and larger

structures, and the themes behind your beliefs might have larger structures still, or I might be making the wrong analogy there, where the deeper and larger your beliefs then the more mental landscape it will have to encompass.

The difference between consciousness and the soul is consciousness at any moment can focus on gross toes while the soul is deep rhythms of belief. More profound principles of what makes you you. It is more profound to describe me as somebody who wants to think about the deep structure of the world, but often finds himself distracted. That is a deeper description of me rather than to describe me as somebody who picks a zit that may or may not be there and picks at his toe fungus.

(Laugh)

Scott: Derivative from the soul comes vices and virtues. They represent deeper aspects, consistent long-term aspects, of an individual's beliefs, behaviours, and thoughts.

Rick: Yes.

Scott: What can, in general, be termed vices, and what can, in general, be termed virtues within this definition because the main principles that are consistent across cultures, across time, basically amount to the Golden Rule?

Rick: Yes, I would think that most things that would come across as deeper virtues would be a love for others, which is the Golden Rule. It is that you can't practice the Golden Rule unless you have a model of what you yourself like, and then you have an idea of other people, and that they would like the same thing, at a deep level. You see that people since Trump became a political force have been looking for signs of good in Trump.

Many people find it. I watched inauguration coverage on CNBC, which is the stock market channel. On CNBC, they are talking about the good in Trump. That he will set America free. That as a self-driven businessman that he understands business. That he understands how to make America a good place to do business, so that the algorithm for finding good in Trump is from selfishness comes an understanding of the self, particularly the business self, that when bestowed upon another sets America free.

Whether or not that is how it really plays out with Trump, there's some Golden Rule there. Anytime you hear the statement that includes "with a heart of gold." Often, you hear "hooker with a heart of gold."

(Laugh)

That means somebody with a harsh mercantile, mercenary, immediate presence, and if you scratch them at all then you find a deep tenderness under the crusty exterior, and I'd say the search for goodness among people is a search to find people's better angels. Even when, they wear their worst angels on their sleeves, as Trump does. Trump supporters see the crusty exterior

as speaking truth and speaking from a less bullshit-mediated appreciation of people, regular people, than normal politicians.

Anyway, I agree with you. The deepest virtues tend to be linked to The Golden Rule, and you can link The Golden Rule to order and persistence in the world. That we're creations of a world of increasing order. Evolved beings are creations of long-term increasing order or, at least, long-term maintained order, and forces that favor that are seen as virtuous. Cthulhu, the soul destroyer, the soul sucker, is a deep expression of the violation and destruction of order.

It is a fearsome thing. Most, I'd say, horror movies involve destruction or corruption, certainly slasher movies. You take human bodies and the minds and personalities that those bodies support, then you hack those up. That is deep unfixable destruction. It is scary. Forces of order, the maintenance of order, are seen as virtues. Forces of destruction are seen as vices. Satan is a corrupted angel. A force of good turned bad. Everything boils down. We've evolved to want to persist, to want to survive, to want to carry on our values. If not through us, then through succeeding generations and society in general. Virtues are associated with order and the passing on of beliefs, and vices are destructive.

Scott: I can envision two separate diagrams. One label, soul, that bifurcates into virtues and vices, then those divide into various things relative to The Golden Rule, and then another one would be separate, to clarify. It would be The Golden Rule like a bubble with various branches coming out of it.

Rick: Yes, I keep coming back to the election. You have different models of competing goodness. People who supported Hillary supported the idea that good is accomplished through the political establishment, through an incremental at least series of social improvements across the past 8 years, e.g. gay marriage, increasing number of people being insured. These are imperfect, but incremental steps, to a greater good. A more all-encompassing good. On the other side, that entrenched political structure is seen as highly corrupt and is needing to be overthrown by a different order. An order that supports traditional values.

It will sweep away increasing corruption as seen with the purported high costs of Obamacare, and with the creeping corrosion of anything goes in terms of sexual behavior. But it is still competing interpretations of goodness, and trying to increasing goodness in the world. And it is also associated with the persistence and increase of good. That each side sees itself as being associated with a force for gradually, if not suddenly, increasing good across history, which means that I've heard a lot of arguments that boil down to Utilitarianism. The greatest good for the greatest number.

Scott: John Stuart Mill, who followed Jeremy Bentham, considered utilitarianism following the Nazarene. They are synonyms in a way.

Rick: A Republican congressman on MSNBC argued a weird take on greatest good for the greatest number. He said instead of trying to get the most people covered by insurance. We should be trying to get the most people the best care. So, you don't count by how many people are covered. You instead devote your resources to making sure that sick people get the best care,

even if that means fewer people are covered. He was weighting a different aspect of the system in a way that I thought was bullshitty, but somehow he was saying by, in my mind, cutting a bunch of people loose that you somehow have more resources to give better treatment to the people who need it. It just seemed to be just transparent excuse-making. Who knows, we'll see how everything plays out.

Ask A Genius 72 – The Soul and Consciousness (3)

Scott Douglas Jacobsen and Rick Rosner
January 28, 2017

Scott: Is the soul a religious assumption?

Rick: Not entirely, as time goes on, we become less religious as we find explanations that don't require religion, but, even during the most religious times in history, there were still philosophers who would try to think about the soul without necessarily resorting to religion.

So, the soul is mostly seen showing up in religious contexts, but it is still an idea or set of ideas – because definitions vary – that exists outside of religious contexts. Regardless of religious context or not, the soul is the 'human spark.'

It is the thing that makes us us, which is not anything beyond the material. It is this ineffable, hard-to-define, nebulous, non-specific, magic thing that is us when all of the specifics are removed. It is the general usness of us.

Whether it is a general humanness minus the specifics of any human existence or if it's the general characteristics of somebody's personality, the soul is the least specific aspect of humanness. It is what is left when you strip away all of the information and all of the specifics.

Hair color, how rich or poor you are, how old you are, all of those should feed into what the soul is, but if you're a materialist, as I am, or an informationist, I think there's nothing once you strip the information away.

I think there are more deep aspects to personality and attitudes to the world, feelings towards the world, such as arguing Einstein's feeling for the beauty of creation, or the idea that there is a divine order found in beauty, would be closer to his soul than the business of life, of not wearing socks because he didn't like how socks got holes in them or how they were uncomfortable when your toes poke things.

Or hooking up, when he became famous as the smartest guy in the world, he would have affairs. His deep feelings about what makes a good physical law or physical theory are closer to his soul than the business of when and where he was hooking up with somebody.

Just because something is more nebulous or more ineffable, it is still characterizable via information. Once you remove all information, there's no room for a soul. I think religious people who naturally assume everybody has a soul don't spend a lot of time thinking about what a soul may or may not be.

They assume it is the human spark that makes us human as opposed to animals or rocks. That circular definition avoids the need to think specifically what a soul might be. When you get into religion, you can think of the soul as a moral underpinning - like your lungs get by living in a polluted city, where everyone is born with a pure soul.

You try to protect this innocent magic about the world, but the affairs of the world sully it. It still doesn't help in determining what a soul might be, except that it is a wish list from God or Jesus about how you might want to be. A gift from them that you honor by being good. The gift is life and thought and the feeling of being human.

But again, I don't even think religious people spend a lot of time thinking about what it is. They think that if they transgress then they are scuffing it up. This innocent thing that exists apart from some ideas, which exists independent of the world but can still be dirtied up by bad deeds in the world – by being dishonored. Since humans have souls, and animals don't, then we're different from animals.

There's one thing. I think we are more educated about the mechanics of information processing than people of the past, so we don't need to resort to the soul as a patch for any areas where we don't understand how we work. But we don't have a deep understanding of how we work, it does seem to be coming.

Thing two is since we understand how we work materially - that is, the ways thought comes from material processes in the world - then we don't need that soul to explain thought to ourselves, which means we might be more open to looking at animals, if we live closely with animals, as having similar mental processes to us, but crappier because their brains are smaller.

I look at my dog. I see my dog having similar drives. Things the dog wants. Things the dog likes. Things the dog doesn't like. The dog feeling good. The dog feeling bad. But on a much smaller scale, and on a mental landscape with less variety of emotion, it has less mental objects in it because she's a dog.

She's got a limited repertoire of likes, dislikes, emotions, because her brain could fit in a pill bottle. The dogs brain is maybe the size of two ping-pong balls taped together. She will be living in a scaled down existence compared to a human with a head that weighs 8 pounds and a brain that weights 2 or 3 pounds, but we still have a lot of mental characteristics in common that don't need to be differentiated between via the idea that I have a magic thing called a soul.

It is more based on brain size and lifespan. I think people who are pro-life – I don't think people put much thought into their positions of pro-life vs. pro-choice, but if they'd been taught about it they'd say your soul is attached to you at conception.

Otherwise, why get so upset over what happens to a tiny glob of cells that isn't anywhere near what we think of as human? One way of arguing for pro-life is the soul gets stuck to you once you're conceived. Another way of arguing is the potential is there.

Once a fetus or a human is conceived, if everything goes well for that fetus, that fetus will develop into a baby and you shouldn't deny that potential. Although, you can argue against that in a variety of ways. What about those that are stillborn?

But we're talking about the soul, not so much about anti-abortion, but the deal is that pro-choice vs. pro-life hasn't really lessened much in vehemence since *Roe v. Wade* indicates that we're going to enter into a landscape of further controversy and confusion, even when we start to have mathematical definitions of consciousness.

People are going to hold onto their attitudes about humans being special versus animals. If you think about being a meat eater, there are assumptions about specialness, or you have to live with the idea that you're killing conscious beings because you like meat.

So, you have all of those confusions, even when we have the math of consciousness pinned down. When we have the index, the consciousness index, the amount of information being exchanged consciously in a human might be assigned at a base number of 100.

In a dog, it might be 12 or 14. In a pig, it might be 20. The amount of information being processed in that animal's consciousness moment-to-moment or on average according to some index.

Further problems will arise when we have artificial but conscious information processors, AIs that process information consciously, which is broadband information sharing, real-time, among specialist sub-systems with, to some extent, value judgments and emotions being associated with the information.

One way to think of value judgments and emotion is informationally. That emotions set up a framework for thinking about the information that you're processing. Information links the being's goals and drives to the information it is receiving by evaluating the information relative to goals and drives, and feeling good if the information reflects the fulfillment of the goals and drives, or feeling bad at the thwarting of those goals and drives.

Emotions and values are the scorekeepers for information. It seems reasonable that some AIs will operate in ways that can be considered emotional. Wanting things, feeling good when they are closer to achieving goals, emotions aren't just a magical overlay to add flavor to life. They are helpful interpreters of information.

Ask A Genius 73 – The Soul and Consciousness (4)

Scott Douglas Jacobsen and Rick Rosner

January 29, 2017

Scott: As a materialist and an informationist, as defined earlier, nothing transcendent of space and time exists which could be called the soul. Rather, it is bound to the natural world. It is bound to the material world and the information processing ongoing in it.

Rick: Mostly yes, but there are little escapes from that, escape number one, which I don't believe it, but has implications for the world. Let's say we're part of a simulation *Matrix*-style, the only thing you need to take from a *Matrix*-style simulation is that it is possible to encode the information that we think, or is, encoded in our brains and have that encoding survive external to our brains, which is something you can imagine happening in the future.

We'll be able to do brain scans and turn our brains into code, and reproduce those codes in some other framework and have systems that way. That process can be applied to the past less effectively, where you want to make Abraham Lincoln again.

So, you track down his genes by finding his descendants, then come up with a most probable genetic profile and use that profile to develop a model of what his brain was probably like – or you straight out clone him based on most probable genetics.

Then you try to shape his brain based on everything that Lincoln ever wrote, said, and likely experienced. You end up with something that thinks it's Lincoln, feels that it's Lincoln, and is, maybe, 80% accurate as a version of Lincoln according to some scale.

Eventually, there will be numbers you can assign to something like this. I don't know how that will work. We are, from day-to-day and month-to-month, slightly inaccurate reproductions of what we were before.

We change. We forget things. We learn new attitudes. Our brains and consciousnesses change incrementally. We're okay with that because we've evolved to be okay with that. We feel there is, and there is, continuity among ourselves.

We evolved that way. If we didn't have that, we wouldn't be able to keep up with the world. There will be means of carrying on, external to the natural processes that carry us on day-to-day, in the future.

They will start out fairly crappy, low fidelity, in the area of wild guesses, but they will get better and better. You can be a materialist and an informationist, and still see the possibility for transcendence beyond our encased consciousness in space and time inside our heads once the technology exists to pull what's in our heads and reproduce it elsewhere.

If you want, you could call certain deep structures to who we are the soul. You could have some technical resurrection based on some deep parameters. If you want to get creepy and science-

fictioney about it, say there's a revered ancestor, the grandma who lived to 88 and passes away in 2112.

To honor that grandma and by the time we're good at brain scans, we don't want to resurrect grandma, but honor her by taking the flavor of her soul, the patterns of her thought, and mold that into your gestating kid.

So, the kid comes out with a hint of grandma. As the kid comes out, they may have some of the same stubbornness, or willingness to stand up for the little guy, or a gruffness that hides a heart of gold, or a deep skepticism.

They'd be able to translate some of that stuff over. People will do all sorts of other stuff. People of the future, if they're having offspring, will make sure their offspring will have the greatest chances for success.

We tweak our offspring by trying to pass on our values. There may be genetic, brain architecture, and brain chemistry ways to do that later. The creepy people of the future will take advantage of those things. Some of those means you can circle back to this whole idea of the soul.

Scott: Does the consistency over time amount to what some would term the "human spark"? That is, a relative deep consistency over the long haul in someone's thoughts, behaviours, and general forms of information processing.

The idea of the human spark is a mistaken idea to an informationist because it is a thing to explain why we feel the way we feel as conscious beings. It gets to justify all sorts of differences being essential differences to give us dominion over the world.

We have language. We have art. We have consciousness of ourselves. We are aware of ourselves as conscious beings in the world. All of these different things have been argued to differentiate humans from animals.

Even in the 1930s with behaviorism, there was this idea that animals are collections of behaviors and reflections, and, to some extent, so are we. In the 1930s, it was fairly late to have this completely mechanistic, consciousness-denying, black box model of our experience of the world.

Which still leaves room for this superimposition of the human spark, the human spark is mostly, I think, a mistake, but you can look at mathematical ideas with regards to the ways we process information that we see as most analogous to that idea of the soul.

It would be to the deepest personality traits that are the least mutable over time. That is making excuse for the soul. We are calling these deep personality traits the soul, when it's just another form of information.

Scott: A lot of historical figures – Augustine, Aquinas, or Anselm, for examples – wrote books referencing the soul. I haven't read them in a while. They wrote many books. They mentioned the soul. When I did read them, the descriptions of the soul were akin to those

with religious or transcendental sentiments and experiences with something as simple as mass.

If someone goes to a Catholic Mass or a Gnostic Mass, they have transcendent feelings and experiences. In the Catholic case, they might be called the "Holy Ghost" or the "Holy Spirit" in terms of the frame of reference that they can conceptualize that feeling, but we have the same genetics of people a couple thousand years ago or a couple, or a few, centuries ago.

To me, that indicates a universality in what people are associating it with a lot of the time. It was associated, in more modern terms, with transcendent experiences, or just emotions and feelings that are rarer and rarefied.

So, how do we and how do people in the past justify talking about the, without a concrete definition and a technical definition of the, soul?

Rick: In olden times, there was a lot of stuff that wasn't readily explained. If you wanted an explanation, you had to go with a magical explanation or had to default to God. We live in a time where we have an explanation of just about everything including the shape of the universe.

The one area that remains hard to define in people's minds is consciousness and the soul. Looking at the things that are part of our regular experience have various levels of explanatory complicatedness, gravitation was pretty much solved by Newton in the 1600s.

The shape of the universe, at least as we understand it now for the purposes of contextualizing most observational results, has arisen in the past 100 years. Genetics has been solved in the past 100, 150, years.

Most things have been solved at least in terms of having a superficial understanding. The one thing that remains easy to understand is consciousness and the related idea of the soul. It is a holdover from the magical and God-filled times of 1,000s of years ago.

Because most of the aspects were not understandable or understood, it was relatively common place to talk about things without precise definitions of them. A further definition of the soul, imprecise, is the phenomena it describes is not easily characterized.

Not only is it hard to understand what it might be, it is hard to characterize, but you have to be able to talk about this stuff. The experience of consciousness is common to just about everyone who doesn't have some weird brain damage.

You have to be able to talk about it even if you can't exactly define it. Although, by talking about it, you're making an attempt to define it, which can often end up codifying or building in misconceptions.

Ask A Genius 74 – The Soul and Consciousness (5)

Scott Douglas Jacobsen and Rick Rosner

January 30, 2017

Scott: What are some common mistakes in attempts to define consciousness?

Rick: Every time somebody tries to pin down consciousness, they are defining it and mistakes get built in. One mistake that I might include is that you have to be aware of yourself as conscious. You have to be aware of yourself as a being in the world. That one test for consciousness is whether you can recognize yourself in the mirror.

Other mistaken necessary ingredients for consciousness can be language and toolmaking. All of which can help indicate consciousness, but don't necessarily mean consciousness. We can throw in the Arthur C. Clarke quote that is so overused it is a cliché: "Any sufficiently advanced technology is indistinguishable from magic."

That's the natural world that our ancestors lived in, full of magic or divine ingredients because other tough things were not easily able to be understood. Over the past 400 years, we've explained a lot of previously unexplained stuff, and are able to take over a lot of the functions that were previously assigned to the divine.

With some functions on the medium horizon as being able to be done technologically, that would previously be assigned to God, e.g. resurrection.

Scott: We have species chauvinism tied to the idea of the soul. On the one hand, we see animals as soulless and, therefore, as machines. On the other hand, we see people as having souls and, therefore, as something partially machine-like, but something different like spiritual machines.

Some natural mechanism transcending nature, in part. Those thoughts have been rattling around in people's heads for a long time.

Rick: Those dichotomies have been subject to contradiction, confusion, and, to some extent, not wanting to think about it. Even more so now because we have an understanding of some of the mechanics that underlie consciousness, it has always been a problem, at least for some people.

That we're friendly with some animals and slaughter other animals for meat. Sometimes, it is both. Somebody raises a 4 age cow as a project and as a cow friend, but the end of that process can be selling that cow to be turned into meat.

If you grow up on a farm, I assume that's part of being tough about farm life.

Scott: There's also the sense of essentialism there. Someone raises that cow to around four-years-old, slaughters it, then begins to use the meat. They have an attachment to the meat. There's a transfer of the essential concern and likingness of the cow when it was alive to its meat that can make one reluctant to eat it.

One can see this play out in things like overgeneralization, where people with dietary regimens, and therefore restrictions, will not eat something that is not only an animal but an animal product, e.g. dairy, or even as far as the end product simply coming from something with the face of an animal at one point.

Rick: This is an area where I think nobody has completely consistent beliefs. Everybody's a little bit confused. Hunters will say it is cool to hunt if you use the animal that you hunt. They have contempt for people who criticize them as hunters saying, "Every time you go to the store and buy a package of hamburger. You are participating in slaughter, but just don't see it. You are simply presented with a hygienically wrapped product. So, you're a baby."

The Trump kids who have gone on safaris. There are different degrees of contemptibleness of safaris in the minds of some people. One Trump kid is seen as contemptible because there is a picture of him with an elephant's tail.

For an elephant he shot, it was part of a hunt. It was probably canned and choreographed. Some of these hunts take old animals that couldn't survive in the wild, and then shoot them.

There was the dentist that shot a famous lion as part of a canned hunt. It garnered the world's contempt for a month. The more we know about the mechanics of thoughts, biology, and chemistry. The harder it is to differentiate or draw a line between humans and non-human animals in terms of us having some divine spark, or divine difference, which leads to further contradictory belief systems.

These probably won't start getting cleaner even if we live in ways that reduce slaughter. Slaughter is at crazy levels now. I am probably going to be off by billions here, but something like 40 billion chickens slaughtered in the United States every year.

It is in the order of several billion. I assume that means millions of pigs, certainly over a million cows. That's a lot of killing. Most people don't have a problem with that because "they are chickens and should be killed fast. Even if they are chickens, we don't have to see the process."

In the future, there will be less slaughter for a couple of reasons. The main one being raising meat is hugely expensive in terms of natural resources – raising a pound of meat uses up so many gallons of water. The world would run out of food if the rest of the world ate as much meat per capita as the United States does.

Scientists are working on developing artificial meat. Eventually, they will have decent product, which will mean less natural cow. Another force in the reduction of slaughtering is the uneasy feeling people have with slaughter, but, regardless of the level of slaughter, issues about slaughter are going to be not much closer to be resolved.

Whether it matters how much a chicken suffers for several reasons including that "well, yea, the chickens suffered, but we end up with nice chicken to eat." Where people don't really know how

much philosophical weight to assign to slaughter, the general feeling is you don't want to make things too difficult for meat animals.

Not just so we aren't assholes in general, but that there isn't a really easy way to keep score to how bad it is for an animal to raise it for meat and then slaughter it. Whether you get any more goodness points for a free range chicken or a farmed chicken with an amputated beak, there's a good way to keep score.

If you're an informationist, every living being, once that being is dead, all memory of suffering is eradicated, except through technological resurrection, which is kind of a long shot at this point. If suffering ultimately doesn't matter because the memory or suffering is eradicated along with the brain that holds that memory and information, then you have to evaluate life, especially human life, in terms of whether that life was able to achieve goals other than suffering or not.

There are other ways to keep score. Was the human able to reproduce? Was the human able to live a full life and pass their values onto the next generation? If you look at the Holocaust, it scores badly for suffering.

But if you take suffering out because everybody dies and the suffering is not remembered, then you have to score it other ways as to whether a culture was destroyed, whether wealth was stolen, whether the Nazis were basically a giant criminal enterprise for the transfer of wealth from the people they, or it, was killing, whether victims of the Holocaust were not able to create the next generation, whether there was cultural destruction.

Even the damage to humanity's image of itself, there are many ways to keep score. All of them, on all of those scales, you have to be really fucked up to give Nazi-ism a really good score for anything. In terms of scoring experience, there's no good way to do that, or it's tough. It is tough to do on a philosophical level because the default mechanism, which we don't really have anything better than it, is the Golden Rule.

We know how it feels when good and bad things happen to us. To exercise the Golden Rule is to understand people have those same feelings and to want to maximise their good feelings in the same way we would want them to maximise our good feelings, but still no ultimate framework.

If there is no ultimate framework for humans, then there are a lot of persuasive frameworks, but there are fewer of those for animals. We want our pets to live good lives, but many people who have looked at PETA, for instance, have had the experience of seeing some of the things they say and deciding that it goes too far.

They are just a dog or just a cat. Or PETA aside, the decision on your dog with a tumor, and it will cause $5,500 to remove the tumor and do chemo. This may buy your dog another year. It doesn't seem like an illegitimate question, especially if you're only earning $60,000 per year.

Is it worth spending 10% of your annual income to save your dog another year? It is really hard to keep score around the quality of life of animals.

Ask A Genius 75 – The Soul and Consciousness (6)

Scott Douglas Jacobsen and Rick Rosner

January 31, 2017

Scott: By the way, any disclaimers? Some see these as the two most foundational and important ideas in their lives, secular or religious, e.g. in their tacit moral system such as Peter Singer's (secular utilitarianism) or about half of the world's with Judeo-Christian-Islamic theological ethics (religious variations of the Golden Rule ethic).

Rick: I'm not super qualified to talk about the soul because I haven't done a lot of reading on various definitions or characterizations of the soul. I am assuming those characterizations.

I don't believe in the soul as a divinely bestowed spark, which transcends your biological life as some thread – some people believe in reincarnation – that goes from one person to another or one person to an animal.

Something that ties people and animals in a string that goes from life to life to life. I don't believe in that. Unless, there's a technological means of that happening.

Scott: Does this perspective make the human organism in essence biological technology?

Rick: Yes. 50 years ago, it was a fairly popular minority point of view that the body was a machine. The heart is a pump. The lungs are bellows. A sophisticated machine, that's overly reductive in a lot of ways, but particularly with regard to consciousness.

In that, it allowed people to gloss over whatever consciousness is, by saying, "You can do the same things with a bunch of IBM punch cards. If you had enough punch cards in a big Univac computer, you could pretty much do whatever it is we're doing, and so let's not think about it."

The idea of humans and animals as machines let's people dance around true complexities of organic life. At the same time, 50 years after that attitude, you could circle around to something like it by saying that human and animal life will ultimately be explainable via physical processes, biological and chemical processes, which themselves boil down to processes in physics.

I subscribe to that point of view. Although, I think consciousness is this actual thing. This emergent property associated with information-sharing among sub-systems in brains. So, we are biological technology, except technology as we think about it today doesn't have the maximal feedback – the huge number of interacting feedback systems – that biological beings have.

As evolved beings, we evolved for every possible easy informational pathway among the bodies systems to be exploited. Evolution takes advantage of anything that can easily originate. Some things that are tougher to originate too.

Things like eyes. Intelligent design people like to hold up eyes as things too complicated to come about by chance, but eyes originate a lot. I'm sure somebody who is a competent evolutionary

biologist could indicate various examples of where eyes have evolved independent of one another.

Scott: There are lots of examples. Some things have dozens of independent evolutions.

Rick: Things that have an easy pathway to come into being. Evolution finds those pathways. Spreading out to cover the pathways of possibility through random mutation and, I suspect, organisms' exploitations of behavioural niches, organisms can find off-market uses for claws and whatever other things they have.

As long as those off-market uses are hard to find for animals that aren't the smartest things in the world, once off-market uses are found, mutations that favor those uses will be themselves favored. So, you have innovating bound by their brains and bodies, often becoming locked in via genetic changes.

These favor the beings who have the mutations that work better with the off-market uses that they've found for their bodies. You have random mutations being exploitable. Also, you have organisms that don't always stick to standard behavioral repertoires and end up having quirky behaviors.

That may become more and more built-in via the organisms that are better suited to do the quirky behaviors, survival enhancing quirky behaviors. They do them better and better until they aren't quirky until they have a genetic basis in the organism.

That skirts the whole area of all of the junk DNA that can function as a library of possible other stuff or abilities that, maybe, we could have. When people think of mutations, they think of one gene going bad, then you get an organism with double the muscle.

That's one. You can search online for super muscular dogs, bulls, and people. There's a mutation that knocks out some hormone or some dang thing that blocks the expression of muscle. So, occasionally, you will see something with this mutation, e.g. a baby that looks like Superman or this dog that looks like a crazy anatomical chart of a pit bull because it allows it to grow a crazy amounts of muscle.

When people think of a mutation, they think of a spot mutation like that. It generally doesn't have such great results as creating super babies or super dogs. It gives you something else like Down Syndrome. Then there are other mutations.

These can actually let larger chunks of genetics become expressed. Usually, it is with disastrous effects such as still-born things. The whole idea that there are big chunks of genes that can be moved in and out of functionality.

I'm sure that also makes evolution more complicated than we're used to normally thinking about. When people think of biology, they think of technologically smaller things. People think of biological systems as you would think of a clock.

The teeniest gears to form sub-assemblies that all come together to form the overall organism in a hierarchy with small things being built up to bigger things like organs and being used to create bigger things like the organism.

I know one guy – my buddy, Chris – who is working on a project to figure out all of the feedback loops in human biology. They're all over the place. Unlike with a clock, where everything feeds forward, the gears form in one way to form a sub-assembly and then into something like a clock, so something not very flexible.

In evolution, everything that easily originated and was helpful ended up being incorporated into humans and animals creating all sorts of complicated systems that are hard to root out. If you drew a diagram of all of the feedback systems, you'd end up with a thing that looks like a hairball or one of those maps of the Internet with the millions of curved red lines.

Or the maps of every route flown by an airline, except the airline flies to 50,000 cities rather than 300 cities. Lots of loops and arrows all over the place, which is a trans-technological thing. It is a way of doing things that goes beyond technology because technology as we build it for ourselves is pretty block-by-block and feeding forward, and not a lot of feeding back.

Although, the next era of technology and information processing will involve greater and greater amounts of feedback. The understanding of how greater and greater amounts of feedback work in practice. We'll move into the era of big, complicated, unwieldy science and understanding.

Because, right now, we like a nice equation. The most simple famous equation now is $E=mc^2$. It is simple as hell. There are processes in the world that require a dozen different feedback loops all functioning together.

With a dozen feedback loops, that's 66 handshakes among the 12 different nodes. If every different handshake is described by an equation, that's dozens of equations to describe some feedback system.

We, and our computing devices, are moving into a future where we'll be better able to understand and exploit massively complicated systems. Systems based on massive feedback, which is a different kind of technology.

Ask A Genius 76 – The Dark Side of Smarts

Scott Douglas Jacobsen and Rick Rosner

February 1, 2017

Scott: Something a little darker, unfortunately, but necessary in the context of all the things we've been talking about is smart people going awry. One drastic story, for me, was a suicide by Nathan Rockwell Haselbauer of the International High IQ Society.

In the sessions with Marco, I brought up the Unabomber, too. As well, it's not bad because smart, or bad only comes with smarts, but only an emphasis on the smart gone bad while knowing bad comes with or without smarts. Any other cases?

Rick: A couple things, one thing is IQ is not necessarily intelligence. People who single themselves out for IQ may not have a lot of other things going for them. To some extent, I have that. The need to be recognized independent of having done anything worth being recognized for.

So, you probably get a higher number of misfits in high IQ societies than the general population, which means misfitty people may be less able to handle the normal tasks of life. Stereotypically, smart people may be more lacking in social skills.

Although, that may be more stereotype than truth. The stereotype may be closer to the fact that high IQ people are more like everybody else. Another thing is brains are more alike than they are different. The range of intelligence, a super smart person is not that much smarter than an average person.

In the same way the person with the best heart or lungs does not have a heart or lungs that much better than the average person, we don't have a tallest person as 8 ft. taller than the average person. The taller people are like 20% taller than the average person.

We are pretty genetically constrained. There's not that much variation. The tasks of life exist across a range of difficulty. Some things are really difficult. A very smart person who may only be not even twice as smart as an average person, but still has to confront all of the tasks of life.

They still run afoul of washing up on the rocks of difficulty. Smartness isn't magic. There have been studies. You have to distrust studies in general about things like intelligence because so much nebulousness creeps in. You have to figure out who is intelligent and what is intelligence.

Things are messy. There seems to be an optimal level of IQ or smartness, if you want to equate them, for succeeding at life tasks. That is not at the very highest level of IQ. It is not that the smarter you are in terms of IQ then the smarter you'll be.

There's a level below the very smartest, say when you're going to do IQ – like the 140s. There you'll find the most successful people. There are things that distract smart people or that make them less effective at some life tasks like not giving a crap about being a multimillionaire, social

awkwardness, finding out that your intelligence takes you down a bunch of rabbit holes or cul-de-sacs that doesn't help you succeed in life according to normal terms.

With smart people being more like regular people than not, bad things happen to regular people. Similarly, bad things will happen to smart people. Smartness isn't a vaccination to life.

You have to distinguish between actually gone awry and – it's a nice theme for a news story - *schadenfreude* news stories. They find a genius who is weird, then go, "Look how weird and miserable this guy is, aren't you glad you're not him?" It isn't fair.

There are some semi-spectacular cases of smart people messing up or doing creepy stuff. There's a guy named Keith Raniere, who has gotten in trouble over the years for running a cult. He is a super-high IQ guy.

Some of the exploits including financial exploitation of people such as Ponzi schemes, even sexual exploitation of people. He's been accused of having followers then banging the followers.

Scott: He exploited the Bronfman sisters too.

Rick: The heiresses to the Bronfman fortune?

Scott: Yea!

Rick: Then he is smart guy. He goes for heiresses.

Scott: He got millions of dollars from them. Then he gave himself the name NXIVM.

Rick: NXIVM? I guess he did it before the antacid drug. Brains don't work that great even among people with great brains. He may believe his own bullshit. It is possible to get sucked into it. If you take an IQ test, do well on it, and it says you're one-in-a-million, some people may become grandiose as if they have special powers.

In my most deluded moments, I will tend to want to think that, then all of the stupid shit in my life will bring me back down to semi-Earth. If you look at how many times I've tweeted, like 20,000, it takes someone with a certain amount of grandiosity to pollute the online airwaves with tweets. It is filled with things I somehow think people want to hear from me.

That's 3 or 4 thick books worth of twaddle coming from my Twitter feed. It is an ego explosion. At the same time, it my strategy to get enough followers to interest a publisher in giving me a book deal.

That's me being grandiose enough to think I have something people would be interested in as a book. I can use my track record as a comedy writer to say that I'm good, but not great. Is good but not great among the comedy writers good enough?

Among NBA teams, I'd be the 7th man on the team. I'd get pulled into the game mid-game into the second quarter. I'd do okay. I might average like 8.3 points a game with 2.9 assists. I'd be fine. Does that make me a super star that's worth being listened to?

Maybe, if I find a product in making the book that is tailored enough to my supposed strengths, the book could work. Anyway, a certain amount of grandiosity there. "Here's 20 tweets a day for 3 years everybody," that's a certain amount obnoxiousness associated with that.

Scott: What are some things smart people should keep in mind to buffer against high levels of egotism, narcissism, and grandiosity?

Rick: History is always helpful. If you look at people through history, people have limited competence. Even the most competent of super smart people don't live spotless lives, Einstein had peccadilloes of various types including sexual.

Feynman was notorious for trying to put his penis in everybody. He seemed to be pretty good at it. Still, he left a certain amount of sexual chaos around him. William Shockley, a Nobel Prize winner, invented the transistor, changed our world, and crazy ass racist – just an asshole.

Including LA in the 70s, they tried to open a Nobel Prize sperm bank. If you wanted to make a baby with a Nobel Prize winner or a really smart person, you could go to the Nobel Prize sperm bank.

He was the only Nobel Prize guy to think highly enough of his sperm to donate to the bank. If you read a bunch of biographies about super smart people, super smartness is no substitute for modesty and decency. That we're all flawed creatures.

Everything that has evolved has limitations because you're only as good as evolution needs you to be plus some extra for some wiggle room. So, you take humans. You push them beyond their average abilities in any direction and you're going to find failure.

Scott: What about things we see as flaws in our nature that aren't?

Rick: Starting with we only evolved to be good enough plus a little more, the operative definition includes that we're pretty good at a lot of everyday tasks because we're the product of billions of years of evolution and have a number of resources to address everyday life.

Evolution is the boss of us. It is an absent boss. It is like Charlie from Charlie's Angels. You never see him, but can get him on the answering machine. Evolution doesn't have any goals. It is not teleological. It is sloppy. You let it go on long enough and you end up with well-adapted organisms, but organisms that are adapted to the boss's goals and not necessarily our individual goals.

As a species, we are good at reproducing. There are 7.3 billion of us. We dominate the planet to the detriment of the planet in many instances, but that doesn't mean that we as individuals get to all be as successful as we want to be.

Evolution needs everybody to be perfectly successful. Society doesn't work like that. Evolution just needs us to have more sex and make more people. Things that are flaws for individuals that lead to us not getting what we want out of life aren't so much flaws in terms of the species.

Also, there are life goals that are mutually contradictory. Financial success and being a nice person aren't perfectly correlated. I live in LA and sometimes drive through Beverly Hills, where you drive through a street that is 70 feet wide. It is a residential street, but wide as hell because it's Beverly Hills. You're flanked by multi-million dollar houses.

You can drive by them, but can figure, as I do, that there are moral compromises to those that live in those houses living in those houses. There's a saying, "Behind every great fortune, there's a great crime." It isn't 100% or even 70% true. There are plenty of nice people who succeed.

However, even if people don't succeed greatly, everybody gets dirtied up through the processes of life. So, yea, there are things that can be seen as failures in one framework, which measures success.

Somebody active in their church and lives a decent life in Bemidji, Minnesota. They go out and does a bunch of charity work, is a decent an tolerant person, and hasn't made more than $38,000 per year. That person be seen, in some frameworks, as more successful than the person with a 7- to 8-bedroom house in Beverly Hills on Roxbury Drive.

In one sense, all of us fail. If living a good, healthy, long life is the criterion for success, then we all fail because we all eventually become so unhealthy that we become dead. We are limited creatures. We are driven by drives that aren't entirely our own.

That are imposed by our evolutionary history. Even when they are our own, when we appropriate the evolutionary drives, we are still driven by arbitrary drives. There are no ultimate rules. You can attempt to derive some rules for success based on the idea that orderly structures are preferable to chaos and destruction.

But that's still having to build an entire philosophy out of not nothing, but there's no 100% solid foundation for moral judgments or judgments of success, which means citing what is a good quality or a flaw is not 100% thing.

When you look at the lives of great people, people who can serve as examples of success. We like those people to have flaws. It makes for a more interesting narrative. The people themselves, I'm sure, don't want to have to have had to struggle with their flaws, but we as society like to see great people have flaws and struggle.

Schadenfreude should not be the criterion for evaluating the success of someone's life. The idea that they might have something in their life that makes us glad that we're not them. It can serve as a moral lesson. There's a good side of *schadenfreude*.

Instead of gloating that you're not this person, that it can teach you that we're all flawed, struggle with ourselves and with sad, and bad, things in our lives, and should be tolerant of other people and ourselves.

Scott: It forms a two-dimensional spectrum too. You can infer or derive the opposite valuation just by putting it up to a mirror. If you look at an individual, like a Nelson Mandela, you can see someone living a good life.

You need merely place that to the proverbial mirror to see what would comprise, not in all but, in many respects a bad life.

Rick: Yes, but whether a good life or a bad life, with the same drives for the most part, you strip away everyone's individual quirks and even the weirdest people are responding to the same drives as everyone else, which have been hardwired into us.

Ask A Genius 77 – American Education Now

Scott Douglas Jacobsen and Rick Rosner

February 2, 2017

Scott: At the moment, there are some issues in the American educational system. What parts of it are important? What parts of it are not very important? What will be some of the public reaction to what's ongoing in the United States?

Rick: The biggest threat to American education is if Betsy DeVos becomes the Education Secretary. She is super terrible. She's helped wreck the schools in Michigan, or knock them down to the bottom third or bottom quarter of schools on average among all of the states. She favors school vouchers, private schools, and religious-based education.

She's never had anything to do with the public schools. She's never attended public schools. Same with her kids. She has never taught. She is a lady who has donated $9.5 million, not sure directly to Trump, but to creepy Right-wingy political organization stuff. She may become narrowly confirmed because there are more Republicans in the Senate than Democrats. She is a dolt. She has a horrible agenda. Public schools don't need another kick in the butt like this.

It leads to public schools being screwed, I think, informationally, because public schools were some of the most informationally rich areas you could go. America was an agricultural nation at the beginning of the 20th century. Schools were set up around the farming era. That's why schools in America were off for 3 months in the summer, so kids could help with farming in the summer.

We went from a 90% of people being employed in agriculture to now less than 2%. What that meant 200 years ago is school was information-rich, so you were more likely to love it because it is better than walking behind a cow pulling a plow. Now, schools are often the least information-rich parts of students' days because everybody has a personalized information feed going all of the time. Not feeding more in-school information, but feeding you delicious personal information such as YouTube clips, Netflix, porn, and sexting if you want it, then you have to turn off your device and sit in class for 40 more minutes and learn how to factor polynomials.

Schools have a huge handicap to overcome in terms of just holding people's attention. There are other problems with schools, at least in America, where there are plenty of great and dedicated teachers, but teaching doesn't pay that great. It is not valued as a profession. Statistically, teachers are some of the least able people on average among all of the professions that require advanced education. You have a National Teacher's Union. Teachers need protection, but the National Teacher's Union maybe protects incompetence in a lot of instances. It is hard to shake crappy teachers and administrators out of the system.

I'm sure some systems are better than others. LA schools are notorious for not getting bad people out. It is called the Dance of the Lemons. Parents can have trouble getting them out of one school. Once they are out, they are moved to a school where they are harder to get out. Maybe, it is in a school where English isn't main language and the community isn't as well-off such as a worse neighborhood. Nobody has figured out how to make education keep up with the current

structure of information. There are some other problems with education like getting into college in America right now.

It is super ridiculous, where computerized applicants encourage people to apply to 10, 12, and 16 colleges. It means that the number of apps gong to each college has doubled over the last 15 years, which means their acceptance rates have dropped by 50% because so many people are applying to every college. The spending is huge for most people that want to go to a selective college. We have immigration issues that are going to mess things up.

America has 5% of the world's population, but because we have excellent colleges and technology. It means we're able to attract the most attractive among the remaining 95% of the world. But if we're going to start making it tough for those people to come over here, then we're going to lose our technical advantage because people will find other places to use their talent.

There are some encouraging trends, but they are still kind of hokey. The whole area of online learning is at this point haphazard, where there are good online systems. I finally graduated college by testing out via a distance learning system. That, in itself, is rinky-dinky. I took GRE subject tests after studying on my own. I tested out of everything. That is not for most people. More and more people will get into online learning.

They will take more advantage of it. I don't know how it stands in the US. I don't what percentage of college students or non-college students are taking advantage of online learning opportunities. it is still in its infancy. The collegiate class of Americans continue to want to attend college in person to be in dorms and have campus life. Many people spend $60-70,000 per year to attend an elite college. Another challenge to American learning is the general slovenliness.

With online learning, it is hard to tell whether the "yeehah!" anti-elitism, anti-Trumpism right now is an anti-studying and keeping up with the rest of the world technologically with education. The image us being fat video game players who believe in angels, are skeptical about evolution and global warming, doesn't help us. To the extent that it reflects our actual attitudes, which is hard to tell, it will hinder us from being a technologically superior nation. People who play an ass-ton of video games are better at certain tasks - send those people to war zones or to fly drones because they've been in simulated situations for years.

Eventually, we can hope that education can take advantage of the ways people like to use and use information and absorb information. The schools haven't kept up. Eventually, things will kind of catch up. We live in an interesting time. It appears the Senate is divided 50-50 on whether to make Betsy DeVos Education Secretary. I think she’s the least qualified of all of Trump’s nominees for any Cabinet position. She would be in charge of public schools and to some extent college debt. She and her family have never gone to public schools because she married into the Amway fortune.

She and her family donated $9.5 million to Republican schools and causes. She believes in school vouchers, which is a way for people to be given money instead of going to the public schools to be given money, or the money equivalent, by the government to spend on schools of

their choice, which are charter schools. It is basically a way to strangle public schools. Her method, because she has been active in Michigan schools, has brought the Michigan schools down to the bottom 1/3 of schools nationwide. She doesn't know anything. She did the worst of any Cabinet nominee in Senate hearings. Public education has been one of the shining areas of American excellence for the past more than 100 years.

Scott: What about the University of California system too?

Rick: California, where I live, has an excellent junior college system that feeds into our really good university system. We have the Cal State system and the UC system. For a long time, they have provided super high quality education for almost nothing. Now, some of them are fairly pricey. A semester at UCLA might cost $12,000. It will be a sad time for education if DeVos is confirmed. To get her confirmed, it looks like the Vice President will have to break the tie in the Senate if no more Republicans defect.

Whether Betsy DeVos is a Secretary or not does not effect the long-term prognosis for education in general, education will have to change to address how people use information now. In the past, future education was presented often as a pill you'd take and then you know French, or you have something jacked into your head and then your head fills with knowledge. Obviously, those are hacky ways of acquiring knowledge, but sitting in class and being talked to for 40 min. times 7 periods a day might not be the most currently effective way for people to learn.

It is going to take some sorting out because right now the way that people absorb information from their devices is that it is all candy, all junk, and almost no stuff that takes serious effort to absorb. You can go to your favorite information sources and go to ones that have been formed to your cultural niche and biases that has been knocked down into 800-word articles. You can just read the photo captions because the market place only rewards stuff that people click on. We're stuffed with informational candy.

It is not clear year how we're going to get people to absorb via those same few ways and how we're going to get the education system to adjust to new ways of absorbing information that includes non-delicious information. Whether you're sitting in a classroom or doing homework or trying to absorb lessons in partial differential equations online, it still takes effort. We're at risk that people in less developed and less rich countries have more incentive to be more disciplined to not click on crap and study.

I have fallen into the rut of doing very little work over the past 4 months. It is almost all delicious information. I generate tweets, which are simple and, thus, delicious to generate. I read my niche sources. I get worked up over the political situation and get very little work done. I am more current case of modern information disease. We need to find ways to harness America's ability to be educated.

Otherwise, we're screwed.

Ask A Genius 78 – Present-Day America (1)

Scott Douglas Jacobsen and Rick Rosner

February 3, 2017

Scott: What's the general picture of America now?

Rick: Let's preface this. We're talking about the end of the America, whether we're seeing it and what it might be. There was a duology, a pair of books, in the late 60s by John Brunner called *Stand on Zanzibar* and *The Sheep Look Up*. At the end of one of them, it's been set in America the whole time. At the end, there's a chapter set in England. Somebody smells something and asks somebody on the street. The person on the street says, "That's America burning."

(Laugh)

It is the most dire picture of the end of America, but we should pin it down. There are various flavors. One involves the end of civilization, where we have some World War that includes nukes and other stuff that leaves the world a wasteland. That is seen as more likely under Trump than somebody else. Then there are other ends of America. The end of democracy, or functioning democracy, where politics in America may never be representative of the people again and politics will be stupid from now on, with stupid people being elected. It would be a kakistocracy or rule by the worst people.

A lot of people thought that Hillary Clinton getting elected would, maybe, start getting normal politics back. Of course, that didn't happen. The next really terrible Republican politicians dominated. They haven't always been, and aren't always, but are particularly right now. Gerrymandering is a problem. Based on the 2010 census and sophisticated political trickery with the Democrats not paying attention, the Republicans took over a lot of state houses that favored Republicans. So, Republicans are overrepresented relative to how many people voted for Republicans thanks to gerrymandering.

And thanks to primarying, which is a consequence of gerrymandering, where the most extreme candidates win the primaries, we have a lot of assholes in office with most being Republican. It is probably the worst time for someone actually serving in national offices such as congress people, senators, and presidential administrations.

Scott: What traits do you see in them? What are in their policies?

Rick: Not wanting to compromise because compromise doesn't serve any purpose in the gerrymandered and primaried system, you win by going extreme because if you don't go extreme then some more extreme person will come along to draw in the extreme voters. There are charts based on voting patterns that show this is possibly the least compromising era in American politics. Also, what comes along with it is not caring about what most people think, it is a cavalier attitude about approval among the general population.

Win-at-all costs gamesmanship, McConnell is the best example of that. Where they decide they are not going to give Obama his last Supreme Court nominee using a bullshit argument, an

unprecedented argument with a basis in nothing, and the running around and saying, "The Democrats may do the same thing with this same nominee, and so are being obstructionist."

Scott: Does politics in the United States tend to attract worse people?

Rick: It depends on the era. Right now, it does. We see old school politicians quitting because they hate being politicians. There have been other times in American history where it hasn't been as bad to be a politician and better people have run. If you look at the conditions of the job to see what people are going to be attracted to it, politician isn't an attractive position. Same with teaching. Teaching isn't as attractive as a profession. If you look at GRE scores, GRE scores are lower for teaching than for any other profession.

If teaching paid a quarter of a million dollars per year, and if teachers were looked at as skilled professionals as doctors are, then it might attract better people. In Russia, medicine and doctors are not as highly valued, so that has allowed more women to enter into the field. It is a chicken and egg thing. You have more female doctors who have been shown by studies to do better than male doctors. In Russia, it is seen as women's work, so not as highly valuable.

Politics has gotten much more miserable. It has gotten much more miserable to be a national-level politician than it was 30, 40, 50 years ago. So, it attracts more dickheads. So, we've talked about two set ups for the end of America. The end of America having reasonable politics. The end of America with international conflagration. Then there's the end of America culturally and technologically. All three of those things have good and bad implications for America and the world.

Probably, the least serious one for people individually throughout the world is America losing its place culturally, technologically, and economically. It will still be a rich and sophisticated country, even as or if we lose our place as number one country in the world by China and even India at some point. Americans will still have a decent standard of living. We'll still have access to all sorts of cultural and technological and economic opportunity, and products.

We'll be like England, which once had an empire greater than anything else at the time. Now, it is a sophisticated country that is mostly nice to live in, but doesn't dominate the world. Ditto for Italy. Less so for Greece, it has a lot of miserable conditions. 2,200, 2,400, years ago, it dominated certain aspects of the world. Ditto for Spain. Now, these are empires reduced to being just countries. There are plenty of pressures that could work to have that happen independent of Trump.

Trump makes it more likely by reinforcing the idea of America as a dumb and self-satisfied country that's not going to work hard to maintain its dominance. You could argue Trump, by setting business free, will lead to an American resurgence, but his idea is reducing taxes and regulations. Some analysis will show those shouldn't be the priorities if you're looking to maintain dominance. There should be an emphasis on education, hard work, innovation, government support of science and research rather than a willfully anti-science and ignorant stance.

Citizens should be challenged on their stupid beliefs. Instead, we have politicians who encourage Americans to be comfortable in their stupidity, which threatens our dominance. Also, the immigration stuff, we have been able to cherry pick and attract the best and most talented people from the other 95% of the world. If we're going to become an outwardly racist and nationalist, and separatist, country, we're going to lose those most talented people to other countries such as China, which was seen, even 10 or 20 years ago, as a super repressive place to live.

Now, it is a pretty great place to live if you're a captain of industry and live in an industrial Chinese city as decadently and indulgently as much as you want in America with hot and cold running sexy ladies, gourmet meals, penthouse apartments, and $200,000 cars. China will set that up for you if you're a good business person in China.

Ask A Genius 79 – Present-Day America (2)

Scott Douglas Jacobsen and Rick Rosner

February 4, 2017

Scott: That's the political system with some commentary on the economic and technological impacts of the declining attractiveness of America for the talented.

Rick: Oliver Stone has a series on Netflix, where he talks about the secret history of the US. I have been thinking this is the most bullshit election since Rutherford B. Hays around 1880s or 1890s. If you believe the Oliver Stone deal, the election of 1944 was bullshit.

In that, people knew that Roosevelt may not live through his fourth term as president, and who became vice president would become president. There was chicanery at the Democratic National Convention to elect a completely unqualified Harry Truman to be VP.

That led to him being the one who decided to drop the bomb, and also belligerently escalate our relationship with former ally Russia into a Cold War that would determine the course of our world for the next 40 years or more.

The previous VP would have maybe been able to handle relations that wouldn't have put the world into a state of war for the next 4 decades. The Trump election is the most bullshit election in at least 72 years.

Much more so than we thought was the most bullshit election in our lives, which was Bush v. Gore, and that looks like a happy picnic compared to the present. Right now, 2 weeks into Trump, the national politics is a mess. I like to trace everything back to the BJs that Bill Clinton got in the Oval Office.

He wasn't a bad president, or he was a lucky president. We didn't have that many serious things going on and things were largely good in the country, and he got BJs. Gore gets pissed that Clinton has sullied the office of the presidency. Gore doesn't get elected.

So, Bush and Cheney take us into this unnecessary war in Iraq. Anyway, things have been crap since then. Yes, Obama was great, but Obama was not aggressive enough. He believes the best about people and was not aggressive enough with the Republicans, at the least the ones who hold national office.

So, he didn't get as much done as he would have liked. So, it has been a pretty solid 16 years of terrible national politics. But! In the meantime, we continue to excel in technology. The future continues to arrive in ways that are pretty great, even as we're wringing our hands about our awful president and the dominance of a bunch of Republican yahoos.

People talk – I'm on Twitter a lot – the end of America, or the world. Most of the jokes are facetious, but there's a real fear behind the comments. We can talk about the ways in which we might have things that might be considered disasters.

Trump likes to talk about the world and the US as a disaster, but he's basing that on terrorism, ISIS in the Mid-East trying to build a Caliphate (which they can't) or at least cause terror in the US and the West.

The deal is, when you look at terrorism statistically, our current situation is preferable to being in a war, at least a giant world conflict. We are still in war in Afghanistan and in the Mid-East, but these are low-level conflicts, at least in terms of what we have to do compared to what we had to do in WWII to do our part in the fight against ISIS, the Taliban, and associated warlords.

In the past 1,000 days or 3 years, the US has flown 13,000 or 14,00 sorties or bombing runs against ISIS and knocked down their territory by about 50%. That's really expensive to drop those bombs on ISIS every day, but it doesn't kill that many of our troops. Also, it is well-away from most Americans' attention. Most could not tell you that we've run so many sorties. If you listen to the Republican politicians, they make it sound like Obama did nothing.

It is a small war against tens of thousands of fundamentalist Islamic assholes, who use their ethnic and religious background to commit tremendous acts of aggression and cruelty, but there are only about 30,000 of these soldiers over there.

It's not like WWII, counting everybody up, where we lost easily 100 million people in the various aspects of it. Hitler kills 11 million in the camps. 30 million, at least, Russians died. At the end, it comes out to about 100 million. It is reasonable to view WWII as a world disaster.

It caused suffering that persisted for decades. The terrorism we have, which kills 100s of people a year and some suffering, does not compare to WWII by a factor of a few hundred thousand to one. Things could be worse.

We could move from these small-scale rolling wars in Syria and Northern Iraq with us vs. ISIS, and our action in Afghanistan, into hotter conflicts with Iran and North Korea. It doesn't mean the rest of the world is fine. Syrians are suffering and getting killed by the hundreds of thousands.

There are the African rolling genocides that kill hundreds of thousands. We're still not in a World War. It is unlikely Trump will get us into a conflict that will get us into a World War, but it is more possible with him than it would be with an experienced politician like Clinton. That's one way it could be the end of America.

We get into more belligerent conflicts or the terrorism ramps up. Any nuclear weapon being detonated in the US, and to a lesser extent anywhere, where a clean fission bomb with a nuclear reaction or a dirty bomb that spreads radioactive materials all over a city center.

It is still the end of something. The reactions to any kind nuclear bomb, whether it actually fissions or not would be the end of a peaceful, safe era in the US. Of course, the exchange of more than one nuclear weapon anyplace in the world – any nuclear exchange – would be the end of a safe era.

Other things that can be seen as the end of America via catastrophic struggle are ecological disaster. Where any ecological disaster that we have will not reduce the world to a wasteland that Denzel Washington walks through in a black leather trench coat. There's no *Mad Max* deal.

That's just laziness on the part of writers and movie makers. There are countries that have experienced ecological disasters. Some of the Eastern Bloc countries that didn't put a lid on pollution for 30 years.

You don't get the whole world dying, or living in grossly polluted areas and lifespans and quality of life being reduced because people are being poisoned or otherwise harmed by their environment.

So, as far as global warming and pollution go, we might see gradual reductions in our quality of life because we haven't put adequate controls on pollution and climate change. Even under a different president, the controls wouldn't be adequate. We're still going to see the consequences of climate change and the other consequences of the pollution we've caused.

Although, the benefits may continue to outweigh the consequences, but it is more likely that we'll see fewer positive consequences an developments of less stupid and less polluting technologies under Trump than under a different administration.

The consequences will be different for America than for the rest of the world because we have more ways of dancing away from the consequences. In other areas of the world, you might see wars over climate change. Some of the ways ongoing now are probably exacerbated, to some not great extent, by climate change.

That will continue to increase. Other problems might be new diseases or new forms of old diseases becoming more virulent and causing more deaths and problems. If Ebola is able to be transmitted through the air, then you could lose tens of millions of people around the world.

That could be see as not the end of the world or the end of America, but the beginning of an era of a new type of massively killing diseases. It probably won't happen. I don't know if the chances of that happening will change under Trump, but, of course, Trump is running an anti-science administration.

Where the science is fine, but we're not going to pay for that kind of frippery, Republicans don't like paying for that stuff as much.

Ask A Genius 80 – The Soul and Consciousness (3)

Scott Douglas Jacobsen and Rick Rosner

February 5, 2017

Scott: Polarization is another issue.

Rick: There could be belligerent yahoo-ism to the point where violence and riots break out among the Trump-ish states and the Liberal states. You could imagine something like that happening. It is more likely in our currently polarized environment.

Obama was president for 8 years and widely loathed by many tens of millions of Americans, but we heard of no attempts on his life. Maybe, we're not told about every possible attempt, but a couple of attempts were made on President Ford within a couple of months.

He's one of our most innocuous presidents, but we knew all about it. I think nobody making an attempt on Obama's life indicates that, even though we're belligerent on social media, day-to-day belligerence leading to actual violence between or among Americans is still not a significant threat.

If violence were to break out in a number of cities among thousands of people across the country, it could be seen as a beginning of peaceful era in America or the beginning of a violent era in America. We had at least 3 million women's march marchers across America with zero arrests.

We're going to have a science march on Earth Day. There will be a similar thing on Tax Day to urge Trump to release his taxes. Nobody is expecting, except for yelly assholes on conspiracy-oriented Right-wing talk radio, these to erupt into violence.

Scott: A lot of the problems have technological sources. However, most of the solutions, aside from going back to the Dark Ages, are technological themselves.

Rick: That's a good point.

Scott: With America on possible technical decline, how will that have an impact? Also, what are some thoughts on America's technological dominance?

Rick: Before we get to America's technological dominance and possible decline, let's get to the Four Horseman of potential modern disasters: war, disease, ecological collapse, and technical decline. There are fixes to most of these things that will roll out over the next decades.

There are tech fixes for this stuff. America is screwed with regard to guns. We're not entirely screwed. We lose as many people to guns as we do to cars, about 35,000 people dying due to guns including a significant number of people who use guns for suicide.

There about 375 million guns for 325 million American. It doesn't mean everyone has a gun. It means the guns are mostly in about 1/3 of American households. The average gun owner owns

like 8 guns. Guns are concentrated among gun lovers. You are never going to make guns go away in America.

It is unlikely we'll have an Australian solution, where we legislate against guns and knock them down and reduce the number of mass killings. There are science fictioney solutions to this, which is to make people bullet proof.

If you can't get rid of guns, make people bullet proof. The way you make people bullet, disaster, and disease proof is to make consciousness transferable out of the body. So, you make it so that you can record and duplicate consciousness and download it into something else, and that makes people, to some extent, immortal.

If you get killed, and if you downloaded your consciousness in the morning before you got run over or shot, you can be started over from the version of you at 8 in the morning. It is like a hundred years away, but it's not a million years away or time travel, which is unlikely, or anti-gravity, which is unlikely.

It is the technology to take the information and the way we process that information in our heads then record it, duplicate it, and make it transferable. Once we're not locked into the body we were exclusively born into, accidents like guns are less expensive.

But there will be other things like computer hacking and the risks of a hundred years or a hundred and fifty years will be magnified versions of some of the informational problems now like viruses and technological failure.

Also, the disruption of normal societal behavior by new technology, but, even though it presents a whole new set of dangers, many of the solutions to our most frightening and intractable problems lie in super-advanced technology.

Although, it is in ways that will pretty much rejigger society in ways that would make us very disturbed if we saw them – if we were shown life a century from now.

Scott: On the other hand, as you know as well as I do, there are movements, which are global Luddite movements. They want to move back to pre-Industrial eras, if not tribal and hunter-gatherer levels, as retribution for colonization, but also as a stance of self-esteem.

Rick: I'm sure little Luddite movements will form and will go after advanced technology, but they are ultimately doomed to be swamped by the wave of delicious technology that will crash onto us.

Technology is fun, entertaining, and helpful. It means technology wins. We evolved as information-exploiting creatures. As a species, we are the most information-exploiting creatures who have ever lived on the planet. We look for exploitable patterns everywhere.

We are omnivorous in our appetite for information. Dogs like dead things and sniffing butts. Dogs are specialized. Same with most other creatures. We are not. We made the breakthrough

from being specialists in survival tightly adapted to certain behaviours to being completely flexible in where we look and what we do to survive.

It means that we have to be receptive to information. We love information. A trend in entertainment across all of history is the medium that delivers the most information wins! It was a slow thing.

You go from grunting and waving your hands 10,000 years ago to language, which contains more information. Language wins. Nobody grunts! There's a lot less grunting than 10,000 years ago because spoken words contain more information and written words are even more efficient at transmitting and preserving information.

All of the different mediums too. Each type and each genre under each medium. Everything shows a general bias towards showing more information and faster – and more dense data. Rap music is super fast. More words per second than any other music. Superhero movies contain more visual information than any other kind of movie.

We're going to continue to be drawn into it. You can't fight delicious information. Technology will offer more and more entertaining ways to absorb information. We will continue to love and embrace it, even as that technology completely re-engineers what we are.

We're going to become the Borg, except fun Borg. We'll become fun Borg. I didn't watch much *Star Trek*, but the Borg seemed like assholes of the universe. They seemed to not have a lot of fun. We're going to be all tied together with devices all around us, on us, and in us. We'll still be using that stuff to still be transmitting entertaining non-sense.

It is the sugar-coating on the pill of transformation. That's one reason I don't like *Star Trek* because there's no fun in *Star Trek*. Occasionally, Spock will crack a joke at the end of an episode, but there's no non-sense. There's no crap. There's no ridiculousness.

When they show a future city, it is all clean. It's not polluted with all sorts of signage and advertising blimps. Compare the Los Angeles of 2019 in *Blade Runner* to the future on *Star Trek*, the *Blade Runner* future is all craped out. There's shitty advertisement in neon and funky dominatrix clothes all over the place.

Or *Minority Report*, which is semi-crappy and semi-cluttered with non-sense and junk, compare that to the occasional future US city you see in *Star Trek*, which is all clean and people walking around like healthy, well-adjusted people in plazas wearing asymmetrical clothing.

It is bullshit. That's not what the future will be. The future will be awesome and filled with crappy non-sense, as is everything all of the time.

Ask A Genius 81 – Other Arms Races

Scott Douglas Jacobsen and Rick Rosner

February 6, 2017

Scott: We've talked, off tape, about overlapping arms races. Let's label and describe some.

Rick: The biological arms race is one. It is considered weird to be living as long as possible outside of the normal realm: "I can exercise and eat well to live well into my 90s, if I'm lucky." People consider that cool for the most part.

Anybody that talked about wanting to buy pig organs, take 100 pills a day, or get stuff built into their brain so they can live to 120 or 150, or indefinitely into the future, were considered creepy and weird. Only now, this is coming out of the closet.

The only celebrity that says he wants to be cryonically preserved upon death to see if he can be resurrected later is Simon Cowell, who is widely know for being a dick who doesn't care what anybody thinks about him or what he says.

It is considered less and less creepy. If you want to live more than 100 years, it will be more and more acceptable. These little baby industries that will be fighting for, not exactly dominance but, the same goals, and once any one of them cleanly achieves the goal of helping people live indefinitely, the others will atrophy.

One possible means is cryonic freezing. You turn people into frozen pieces of class. It is called vitrification, which is different than freezing. You put them in 200 degrees below 0 temperatures. You can put them there for as long as you want, then resurrect them when medicine is able to cure them of whatever was going to kill them.

Another technology is keeping your body going as long as possible with supplements, gene therapy, and growing organs in pigs. It's like we're cars in Cuba. Everyone has a 1954 Chevy. We have to keep the cars going for 60 years because there's no replacement with the car as us.

The parts wear out. We need to replace the parts. The third technology, which is not even conceivable by a lot of people, is figuring out consciousness and learning how to move the information and the structure of thought in your brain out of your brain.

The way to digitize and replicate it elsewhere. Once that technology takes over, the whole body-centric civilization that we've lived in for millions of years begins to erode. If you can move yourself out of your body into cyberspace or into another body, or into a partner body, so many different foundational elements of civilization fall under attack.

Once you're able to move consciousness easily out of the body, easily and cheaply, and not just rich people, and preserving the body at all costs becomes less of a deal, you can build replacement bodies and put your consciousness in them.

Ditto for cryonics. Why try to freeze the one body you have if the one body you have isn't the one body you have anymore? There will be an arms race in these three areas of life extension technology. Another area of future arms races that are barely starting now is in transportation.

Where making transportation faster is a little bit boutiquey at this point, every place is like a day away from any other place on Earth, except crazily out-of-the-way places like Antarctica. The greatest distance between two places on Earth is about 12,500 miles, which is about a day away.

Unless, you have connecting flights. From any point on the Earth, you can travel to the most distant point from that point in a day or a day and half. The idea that you need to shave another 10 hours off of that or an hour and a half off of the 5 or 6 hours it takes to go from coast to coast in the US via some rocket that shoots you into low orbit, then comes back down.

So, you can do LA to New York in 2 hours rather than 5 hours. Who is that for? It is for rich pricks. They can't bother with 3 hours on the plane. Ditto with the Hyperloop. Somehow, you need to get from LA to San Francisco in 2 hours because you don't want to do it via plane.

Or, maybe, somebody builds rapid transit from LA to Vegas. You either fly or drive. Anyway, the idea that we need to go faster to transport people around Earth is a little goofy. We've done as fast as we need to go. We just need to figure out how to make existing transportation systems suck less.

Yes, it would be great if we could build competing transportation systems with flying that avoids the sucky aspects of flying, but transporting people places is an actively developing industry. However, a competing industry that will kill the further development of transportation or make it atrophy is when telepresence becomes completely satisfying.

When people don't need to actually travel to do business, or to do other things in life, when the sensory input is satisfying enough that you can strap on VR junk and you get 94% of what you get by travelling 8 hours to meet some other person. Telepresence since the 90s, in terms of what in-person stuff gives you, has been becoming better than the things transportation gives you.

Transportation needs to constantly improve. It is the same way TV killed radio. Radio is a suck ass wasteland because TV is so much more satisfying. Those are two technological arms races that will play out over the next 100 years.

There's been a long unending arms race between science and religion. Where religion offers deep solace and satisfaction in areas that are most frightening or painful to us, death, ultimate justice, suffering and being compensated for it, then explaining stuff that we desperately want to have explained.

Science has been taking over some of those functions. Science is good at explaining stuff, but terrible at offering solace. Under science, under the cold, randomly originating universe, once you're dead, you're dead. So, religion beats science in that area.

There’s no ultimate justice under science. Everything is random. However, science, I believe, will get better at offering some of the things that are benefits traditionally offered by religion. Life after life, e.g. technical resurrection.

If technology can offer unlimited wish fulfillment in some kind of cyberspace and some afterlife, or current life, then science will.

Ask A Genius 82 – Chaos and Order (1)

Scott Douglas Jacobsen and Rick Rosner

February 7, 2017

Scott: So, there's a little argument to be made that you can get chaos in pockets of an ordered system, but, I would argue, you would probably need a, not a nothingness chaos but, bubbly-inconsistency chaos as your foundation to get any real type of order. From that order, you can get standard chaos.

Rick: Three forms of chaos come to mind. One is non-existent chaos, which is that with total chaos you have no information, and so no space and no time. Thus, no existence, so things are sufficiently undefined across your entire system that you don't have a system. You have nothingness.

Scott: Is it a bit like the Empty Set (Weisstein, 2017)?

Rick: Yes, it is not an existent nothingness. There's no space and no time. It's null. It is not something that you can experience or that contains anything. It is a zero information deal. It is just not there.

Then you can imagine as you come out of chaos, as you impose a timeline upon any ordered system, you can probably imagine or see that system arising from chaos that goes from nebulousness that contains no information, no space and no time, to this chaos that is gauzy, hot, messy and contains a little information to something that contains more causality as information bootstraps itself out of chaos, but the chaos it comes out of is this non-existent chaos that has nothing.

Another flavor or form of chaos is chaos within an ordered system. It is an ordered system that is so large that it can afford to have big pockets of random fluctuations across space and time that are either 1) this true randomness or 2) what looks like randomness but you don't have the right informational framework to contextualize what looks random to you.

That could be two flavors of randomness. Some true randomness within an ordered system that has the wherewithal to set up arenas or pockets of chaos or chaos that is chaos because you can't decode it. So, 2 ½ or 3 flavors of chaos.

Scott: The last one half or one whole provides the basis for chaos within order, technically, and that's what we see.

Rick: Yes, we see a lot of processes. The universe can be understood thermodynamically. You have large aggregations of random fluctuations that create statistical stability, like all of the air in a room being roughly the same temperature and all of the molecules being roughly evenly distributed.

That all of the molecules don't go over to the other side of the room and you suffocate because there's no air where you are. That doesn't happen because of statistical action. Also, that all of the

heat in the room doesn't collect in a single point and burn your ear. That doesn't happen. The stability of temperature and the even distribution of stuff is statistical for the stability we see.

Based on the averaging out of the behavior of large numbers of individual, randomly acting things in the universe, some kind of deep randomness is behind a lot of the stability that we enjoy.

But! If the universe is a semi-closed, self-consistent, information processing system, then every one of those random blips in the room full of air actually contains information and isn't random at all, but is a read-out to the overall framework of the universe that's interpreting the information of a vast and timeline-traversing tapestry of information.

Information that is flowing in - like the biggest most HD TV ever. What we see as randomness is pretty much because we're not watching the TV, we're part of the TV, but if we could understand everything within context, then that randomness would be the unfolding of information within the sensory-perceptual information-processing system that is the entire universe.

Thus, not random, random, but only random in the sense that the unfolding of time is incompletely determined. Where what happens as we travel through time, we don't have enough information to tell what the future is exactly going to be.

You have to pump in more and more information as you traverse time to tell you what is happening moment-to-moment. That moment-to-moment unfolding in time is a moment-to-moment hosing down of the universe and of your perceptual system with information.

Before the Super Bowl, we can't exactly tell how the Super Bowl is going to turn out. That's new information unfolding or being piped into the universe, which is different than randomness. It is information being piped in.

Scott: All of this requires agents, perceptual entities.

Rick: It requires a lot of stuff. To be an information processing system, there has to be a hidden armature. There has to be hardware that is probably not visible to the information processing system. The information processing system processes the information that is piped into it. That information may or may not contain a model of the armature. You need an armature. You need a hardware framework. We can argue as to how much of that framework is visible to the information processing structure. It doesn't have to be visible at all, or it can be very visible, depending on how much information about the armature is being piped into the information processor.

That at a metaphysical level you need a physics of the interaction of information, which is how information sets up its own space and time that is dependent on the rules of information and on the hardware that contains the information.

But there's a metaphysics of it, and then, more precisely, there's a physics of information within an information processing system, which looks to us – if you're informationist – like information as matter following the rules of physics. We're made of matter. Anyway, it requires a lot of stuff.

Scott: The stuff about the 3 or 2 ½ types of chaos, and the example of the Super Bowl with the unfolding of the information of the universe where the universe is having new information "piped into" itself through the unfolding of time. In a way, that requires agents. It requires information sub-processors in the universe to identify that. The idea of the Super Bowl requires a lot of components and a lot of interrelationships perceived within some sub-set of sub-systems within the universe.

There's some integral part of that to be played by sub-processors. However, looking at the scale of things, the scale of the brain and the scale of the universe, the difference is so vast. Even if you take all the minds on the planet, it doesn't come to anything extraordinary in terms of its importance - or even integral - to the information processing of the universe. Unless, you take the style of information processing as integral. Something like that.

Rick: So, are you saying on the scale of the universe the Super Bowl is inconsequential? Or is human cognition inconsequential because the amount of information contained in the Super Bowl or in a human brain is so negligible compared to all of the information being processed across the entire universe with these as tiny little motes? Is that what you're saying?

Scott: To get the Super Bowl, you need a lot of things out in the outside world. You need processors too. Both to make it a more or less a real thing.

Rick: There are agents at various scales.

Scott: No people, no Super Bowl.

Rick: Yes, a single human person with his or her physiology consists of a number of agents at all different scales from atomic processes that are arranged in such a way that they form chemical functions that are arranged in such a way that they perform biological functions that are often packaged in organs performing specific functions that feed back with each other in ways that involved the entire body. You have different feedback loops. You have the basic physics of electron exchange all the way up to the way your brain regulates hormones. You've got a bunch of agency going on there. The Super Bowl, you've got the various agents associated with having a society. A society that wants humans to come together to develop football skills, play a football game, and where people benefit from more than 100 million people paying attention to the game. There are all sorts of civilizational and cultural, and historic, agents that make the Super Bowl possible. So, there are agents at all sorts of different levels.

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Ask A Genius 83 – Chaos and Order (2)

Scott Douglas Jacobsen and Rick Rosner

February 8, 2017

This session has been edited for clarity and readability.

Scott: What else would "flavors" of order and chaos imply (Pippard, 2015)?

Rick: There's the idea that if you step all of the way back that our world is an epiphenomenon of information processing within a vast information processor and that the information processing tends to be an order producing process (Robinson, 2015).

That we are the consequence of the increase in order within a vast information processor. That we are more ordered with all of our agents and feedback systems than hot lava on the surface of primitive Earth or bunch of flying hydrogen and helium 300,000 years after the purported Big Bang (Mastin, 2009; Shu, 2016).[1]

We were the product of billions of years of evolution and are highly ordered. Not in an order that is the universe as an information processor that particularly cares about things the way an omniscient God would care about his or her creatures.

But that we're an epiphenomenon of the universe with its perhaps consciousness, which isn't even aware of us because the universe is aware of the universe we're made out of as its own model of its own world.

We and our Super Bowl, and our human bodies, are not a model of anything in the mental world of the information processor that is the universe. Everybody is going to have to straighten out all of this stuff philosophically before we have a complete picture of how the world, meaning everything, works, but it seems doable.

Until 100 years ago, we didn't have any idea of the structure of the universe. Everything was a wild guess. Now, we have a decent picture of the type of matter clumping and the spatial scale of that clumping of all the visible matter in the universe.

Not all of it, but most of it. From that, we have assumed a temporal structure, an explanation, for the distribution of that matter, which is the Big Bang. I happen to think that the Big Bang is not

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[1] *Cosmic Microwave Background Radiation* (2009) states:

> *This radiation was emitted approximately 300,000 years after the Big Bang, before which time space was so hot that protons and electrons existed only as free ions, making the universe opaque to radiation. It should be visible today because, after this time, when temperatures fell to below about 3,000°K, ionized hydrogen and helium atoms were able to capture electrons, thus neutralizing their electric charge (known as "recombination"), and the universe finally became transparent to light.*

Mastin, L. (2009). Cosmic microwave Background Radiation. Retrieved from http://www.physicsoftheuniverse.com/topics_bigbang_background.html.

right and that the spatial distribution of matter is due to the nature of information with the necessary appearance of something that is Big Bangy.

But 100 years ago, we didn't have any of that. We didn't have any idea of the spatial distribution of matter or of the possible dynamics of the matter characterized by the Hubble Constant, which makes it look like we live in an expanding universe.

Where the farther a galaxy is from our galaxy, the faster it seems to be moving from us, whether it actually is or it is an informational thing rather than a Big Bangy thing. We didn't have anything like that. Now, we do.

That can give us some optimism that we can eventually come up with a logically, metaphysically satisfying first stab at an overall understanding of existence and the universe, which would be a frickin' lucky thing.

That there's a logical, philosophical underpinning that it's even possible. It may not be. It may be that such an underpinning may have holes in it. That are so powerful as to render any overall understanding impossible. But maybe not!

If things exist because they can't not exist, because things that don't contradict the rules or the principles of non-contradiction must unavoidably exist, then maybe that whole structure of things existing via not violating principles of contradiction, maybe, there's a thing there.

An overall understanding, or maybe that's hopelessly naïve, or maybe it is something in the middle. Where we get something pretty satisfying logically, that once you dig down into the foundation of it, then there are giant disturbing holes.

The only people well-versed in the giant disturbing holes are PhDs in the meta-meta-metaness of everything. There might be some satisfaction in understanding why things are. It is a little bit more satisfying than the current scientific paradigm of everything from randomness and randomness in charge.

I think information is in charge, rather than randomness, and there might be solace in that, and understanding. One more thing, there's the Feynman talk about 55 years ago in the early 60s. He talked about the 3 paths of possible science (The Nobel Prize Foundation, 2017).

Science could explain everything within a reasonable amount of time. We reach a fairly thorough understanding of how everything works. Science hits an impregnable wall. It turns out you can only understand so much of the universe. There are no answers or no easy answers beyond a reasonable point.

Science chugs along finding out more and more about the universe bit-by-bit without acquisition of any thorough understanding. Those are the 3 paths of science according to Feynman: hitting a wall, understanding close to everything, and chugging along understanding more and more without coming to complete understanding.

That's equivalent to what we might find once we bring philosophy and metaphysics back into science. You may end up with some philosophically and logically very satisfying understandings of the universe or we may hit a wall.

We may go chugging along and come to something that feels incomplete, but still gathers and accumulates more and more understanding like a snowball. That's a lot.

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Ask A Genius 84 – Connectome and Genome (1)

Scott Douglas Jacobsen and Rick Rosner

February 9, 2017

This session has been edited for clarity and readability.

Scott: There's the idea of the connectome, which is a structural-functional mapping of the brain. It is supposed to be used in connection with the genome for people to be able to draw a highly accurate map of an individual and their consciousness (Griffiths, 2016; USC, n.d.).

Rick: The most fun or science fictioney thing is to be able to technically resurrect people based on the information that you have about them. The most direct way to technically resurrect people is to use their actual brain.

If people are cryonically preserved, you bring them back, then they still use their same brain. Or you send in a bunch of Nanobots to trace every single dendritic connection in the brain, which seems crazily overly ambitious, or some scan that replicates the brain molecule-by-molecule.

The more ambitious stuff is super science fictioney, but people are still going to try to resurrect people. There are projects right now that try to program a computer to write like Shakespeare. They are crappy right now.

It seems reasonable to think that 50 years from now that resurrecting people with various degrees of fidelity will be a project that people will take on. There's an arms race between resurrecting people and human existence being trivialized and debunked by future forms of existence – to the point that people or future beings that are almost people aren't as heavily invested in our resurrection.

In the next years, technical resurrection will be pretty big. You mentioned the genome. The genes that go into making an individual's body. Then you mentioned the connectome, which is a fairly detailed map of what regions in an individual connect to other regions in the brain of the individual.

It looks like one of those old airline maps in the 60s through the 90s, maybe even now. It shows all of the cities connected by an airline with all of these curved lines. A connectome looks like a big circle with hundreds of curved lines crisscrossing and showing which parts of the brain are most directly connected to each other via neural pathways.

It's not unreasonable to think, given the genome, you would get some information out of it. With the connectome, right now, if you are going to map somebody's brain, you need to do this non-invasively. We don't have Nanobots to trace dendrites.

You have to refer to the record people leave, the words they say, the words typed in social media, PET scans, CT scans, maybe injecting a dye and taking pictures of that (Canadian Cancer

Society, 2017; Mayo Clinic Staff, 2015).[2,3] I think the genome will be much more useful in the future than it is now.

We can estimate percentages. If you were going to build somebody now, if you were going to replicate or build a replica of somebody that would pass something like a Turing test, where a computer would not only sound human but like the person you're trying to replicate, what usefulness would various information sources be (Encyclopædia Britannica, 2016)?

You've got the genome. It's probably only worth 5 or 10% because the brain is super fluid, super plastic. It is always rebuilding itself by sending out new patterns of dendrites. So, the blueprint for the architecture of the brain in the genome is mostly useless because the brain is always being remodeled.

The records of words people use given the modern state of technology can probably account for half of the information out there that you can exploit to create a replica of what somebody might sound like, the person you're trying to replicate.

The words that people have already said give you a template for generating more words that that person might say in the form by which they're going to be evaluated, whether they are the real thing or not.

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[2] *Positron emission tomography (PET) scan* (2017) states:

> *A PET scan is a nuclear medicine imaging test that uses a form of radioactive sugar to create images of body function and metabolism. PET imaging can be used to evaluate normal and abnormal biological function of cells and organs.*
> *PET uses a radiopharmaceutical made up of a radioactive isotope attached to a natural body compound, usually glucose. The radiopharmaceutical concentrates in certain areas of the body and is detected by the PET scanner.*
> *The PET scanner is made up of a circular arrangement of detectors. These detectors pick up the pattern of radioactivity from the radiopharmaceutical in the body. A computer analyzes the patterns and creates 3-dimensional colour images of the area being scanned. Different colours or degrees of brightness on a PET image represent different levels of tissue or organ function.*

Canadian Cancer Society. (2017). Positron emission tomography (PET) scan. Retrieved from http://www.cancer.ca/en/cancer-information/diagnosis-and-treatment/tests-and-procedures/positron-emission-tomography-pet-scan/?region=sk.

[3] CT Scan (2015) states:

> *A computerized tomography (CT) scan combines a series of X-ray images taken from different angles and uses computer processing to create cross-sectional images, or slices, of the bones, blood vessels and soft tissues inside your body. CT scan images provide more detailed information than plain X-rays do.*
> *A CT scan has many uses, but is particularly well-suited to quickly examine people who may have internal injuries from car accidents or other types of trauma. A CT scan can be used to visualize nearly all parts of the body and is used to diagnose disease or injury as well as to plan medical, surgical or radiation treatment.*

Mayo Clinic Staff. (2015, March 25). CT Scan. Retrieved from http://www.mayoclinic.org/tests-procedures/ct-scan/basics/definition/prc-20014610.

The Turing Test was presented something taking place via typed messages. You couldn't see what's sending it to you because you're in a room, but it was slipped into the room where you are via teletype or something.

The second-level Turing Test where you're trying to convince people your machine is a specific person. So, the words somebody has already said is a major information source. Then you have whatever you can discern based on brain architecture, whatever you know, and use whatever you can find out via PET scans and CT scans.

But it's still a really incomplete picture. The future, say 80 years from now, when it is possible to replicate people with a high degree of fidelity – maybe, not their exact consciousness – to what they might say. I still don't think the genome is going to be that much more important.

It will be all of the new technology that will let you explore the individual layouts of people's brains, whether it is Nanobots or fast PET scans with super precise imaging.

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Ask A Genius 80 – Connectome and Genome (2)

Scott Douglas Jacobsen and Rick Rosner

February 10, 2017

This session has been edited for clarity and readability.

Scott: You mentioned the digital trace someone leaves. So, if you take the current popular social medial like Facebook, Twitter, and Instagram, people might be able to somehow backtrack how people process the type of information necessary for that, and then be able to get a rough map of how people's brains might be laid out over time.

Rick: If you limit your second-level Turing Test to just tweets, you might be able to do a human-mediated imposter of somebody's tweets (Encyclopædia Britannica, 2016). Hundreds of people are doing that with Trump's tweets. Every time he tweets. People make parody tweets of whatever he says on Twitter.

If you could human-mediate somebody's tweets, then you could build software that is not as good as humans at some parts, but better than humans are other parts. In the same way, you can do computer-based textual analysis to find trends that people weren't previously aware of.

Trends in what kinds of verbs and nouns he used. Things people were only vaguely aware of. But you still have to you run it by people are this point because computers can't run decent tweets. Even Watson is held up by teams of dozens of people who are making use of the statistical patterns, that have to be interpreted by people (TechTarget, 2017).

You can run a computer analysis of Trump's tweets. You could find things that people who write fake Trump tweets are only vaguely aware of, but once it's made clear it would make the fake Trump tweeters more effective at their job, or fake tweeting.

There was an episode of *Black Mirror*, where a woman's boyfriend dies. She orders a simulation of him based on his social media presence. Since it is a science fiction program, the program is eerily accurate. That's where the creepiness of the episode comes in.

Along with higher and higher degrees of fidelity of replication somebody's behaviour and then eventually their inner life, there will be numerical indicators of how accurate that replication might be.

We know that we're okay with less than 100% replication because we change from day-to-day. Nobody wants to live the same day over. Even in *Groundhog's Day*, the same day happens over and over, but the main Bill Murray character accumulates information.

We are okay with forgetting information. It doesn't bug us. All of the things that we've forgotten. Some of the things that we thought we'd always remember and don't remember. We are okay with the degree of fidelity with which we reproduce ourselves from day-to-day.

Since beggars can't be choosers, we'll probably be okay with not great levels of technical resurrection when those are the only means of resurrection. From day-to-day, we have better than 99.9% fidelity.

Anything we liked about ourselves yesterday, we can find in ourselves today to 99.9%+ accuracy. Somebody said, "Don't you wish you had the innocence and wonder you had at 8-years-old?" We can't do that.

We can sit, think, and remember. Maybe, we can replicate the feeling of us as 8-year-olds to about 60% fidelity. Although, that leads to us needing to figure out what we mean by fidelity because most of the experiences for the 8-year-old are in there, but the brain architecture has changed too much.

So, you need things that trigger memory. It is not like you are remembering things from when you were 8-years-old, when circumstances prompted it. We need to learn more about brain architecture and consciousness. I assume that replication will become acceptable to people in big enough segments of the population to be commercially viable when replication offers 70-80% fidelity.

However, I don't know how far the deal is, or how far along we are, to know what 70-80% fidelity would look like. We will figure it out. Eventually, we will be able to replicate people's consciousness that is only a few degrees worse than our daily fidelity.

However, we decide to define. It will eventually become good enough to be in the high 90s. Where if somebody is dying and doesn't want to, they will be able to come back with 96% accuracy. There will be a bunch of stuff that is lost.

More stuff will be not lost than lost. They'll still have some version of themselves or something they can accept as a version of themselves, which is not too far from the person they used to be. There are processes associated with illness and aging that reduce our fidelity. Alzheimer's is a disastrous destruction of fidelity. I've heard of something called 'Pump Head' (Fogoros, 2017).[4] That's not the technical term for it.

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[4] *Pump Head – Cognitive Impairment After Bypass Surgery* (2017) states:

> *A study from Duke University, published in the New England Journal of Medicine in February, 2001, confirms what many doctors have suspected, but have been reluctant to discuss with their patients: A substantial proportion of patients after coronary artery bypass surgery experience measurable impairment in their mental capabilities.*
>
> *In the surgeons' locker room, this phenomenon (not publicized for obvious reasons) has been referred to as "pump head."*
>
> *In the Duke study, 261 patients having bypass surgery were tested for their cognitive capacity (i.e. mental ability) at four different times: before surgery, six weeks, six months, and five years after bypass surgery. Patients were deemed to have significant impairment if they had a 20% decrease in test scores.*
> *This study had three major findings*

When someone is stuff on a heart and lung machine for 8 or 10 hours during cardiac bypass or some other surgical procedure, they need to shut down the heart. The mechanical pump doesn't have as smooth an action as your own heart, and it beats up your blood cells.

The battered blood cells tend to clump together and make little clots or blockages. A lot of people who are coming out heart surgery within the few weeks after that lose a lot of their identity because they've had a lot of little teeny strokes from the beat up blood cells making lots of little blockages in the brain.

It reduces the fidelity of or the definition, or the sharpness, of moment-to-moment awareness. It sucks the joy out of people because it is like being wrapped in gauze at all different kinds of levels. My step-dad had cardiac bypass. It blunted his emotions.

Not that he was ever super emotional, but I was talking with my mom today, the doctor said, "Yea, people lose a feeling for things because their brains get beaten up." Eventually, most people who get Pump Head are able to have their brain establish new pathways to work around some of the damage.

People come back to themselves over a period of months, even years. Plus, people get used to the new and reduced definition of moment-to-moment awareness. So, you already see different levels fidelity.

We will see more mechanically aided fidelity. Now, to go off on a tangent, you and I and other people have talked about how the different subsystems of the brain have to understand each other for consciousness to exist and for the brain to process information efficiently.

Every specialist subsystem in the brain needs to have a rough understanding of the work product of every other specialist subsystem, which, at first thought, makes you think that each part of the brain needs to have developed this language of understanding.

Some kind of translation mode that lets it understand what every other part of the brain is telling it, which seems like a big pain in the ass technically, biologically. It seems like a huge burden that every little part of the brain has to understand every other part.

- *Cognitive impairment does indeed occur after bypass surgery. This study should move the existence of this phenomenon from the realm of locker room speculation to the realm of fact.*
- *The incidence of cognitive impairment was greater than most doctors would have predicted. In this study, 42% of patients had at least a 20% drop in test scores after surgery.*
- *The impairment was not temporary, as many doctors have claimed (or at least hoped).*

The decrease in cognitive capacity persisted for 5 years.

Fogoros, R.N. (2017, January 7). Pump Head – Cognitive Impairment After Bypass Surgery. Retrieved from https://www.verywell.com/pump-head-cognitive-impairment-after-bypass-surgery-1745241.

But if you look at the information in consciousness as a universe, it's own space and time. It may be that the language of understanding is tacitly built-in because the different clumps of information in the brain have shared histories with each other.

They developed along with each other. If you're looking at information as the universe, the information looks like it came from a Big Bang with a shared history being generated as matter clumps up and emits gravitationally derived energy that travels throughout the rest of the universe, which makes the universe more and more defined (Wollack, 2014).[5]

It is the apparent expansion of space. You start with a hot undefined and small universe. Then you end up an apparent few billion years later with objects in space being fairly precisely defined

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[5] *Foundations of Big Bang Cosmology* (2014) states:

> *The Big Bang model of cosmology rests on two key ideas that date back to the early 20th century: General Relativity and the Cosmological Principle. By assuming that the matter in the universe is distributed uniformly on the largest scales, one can use General Relativity to compute the corresponding gravitational effects of that matter. Since gravity is a property of space-time in General Relativity, this is equivalent to computing the dynamics of space-time itself. The story unfolds as follows:*
>
> *Given the assumption that the matter in the universe is homogeneous and isotropic (The Cosmological Principle) it can be shown that the corresponding distortion of space-time (due to the gravitational effects of this matter) can only have one of three forms, as shown schematically in the picture at left. It can be "positively" curved like the surface of a ball and finite in extent; it can be "negatively" curved like a saddle and infinite in extent; or it can be "flat" and infinite in extent - our "ordinary" conception of space. A key limitation of the picture shown here is that we can only portray the curvature of a 2-dimensional plane of an actual 3-dimensional space! Note that in a closed universe you could start a journey off in one direction and, if allowed enough time, ultimately return to your starting point; in an infinite universe, you would never return.*
>
> *Before we discuss which of these three pictures describe our universe (if any) we must make a few disclaimers:*
>
> - *Because the universe has a finite age (~13.77 billion years) we can only see a finite distance out into space: ~13.77 billion light years. This is our so-called horizon. The Big Bang Model does not attempt to describe that region of space significantly beyond our horizon - space-time could well be quite different out there.*
> - *It is possible that the universe has a more complicated global topology than that which is portrayed here, while still having the same local curvature. For example it could have the shape of a torus (doughnut). There may be some ways to test this idea, but most of the following discussion is unaffected.*
>
> *Matter plays a central role in cosmology. It turns out that the average density of matter uniquely determines the geometry of the universe (up to the limitations noted above). If the density of matter is less than the so-called critical density, the universe is open and infinite. If the density is greater than the critical density the universe is closed and finite. If the density just equals the critical density, the universe is flat, but still presumably infinite. The value of the critical density is very small: it corresponds to roughly 6 hydrogen atoms per cubic meter, an astonishingly good vacuum by terrestrial standards! One of the key scientific questions in cosmology today is: what is the average density of matter in our universe? While the answer is not yet known for certain, it appears to be tantalizingly close to the critical density.*

Wollack, E.J. (2014, January 24). Foundations of Big Bang Cosmology. Retrieved from https://map.gsfc.nasa.gov/universe/bb_concepts.html.

relative to the overall size of the universe. Maybe, that shared history builds in its own tacit understanding.

So, you have these clumps of information that can be seen as galaxies if you're considering the analogy to extend to our actual universe. You can ask, "How does one galaxy of information understand what's going on in another galaxy of information?"

The answer is they were once very close, spatially, and as they've grown apart have been continually exchanging or beaming energy past each other with the energy being absorbed into the scale and shape of space, making it apparently expand, and, maybe, that constant flooding of every galaxy with every other galaxy with energy, or flooding the universe which contains all of these other galaxies with photons that lose energy, with the lost energy being tacit information which is shared with space and the objects that space contains.

Maybe, you get that understanding, not for free but, without going to any lengths beyond the natural processes of the universe with those natural processes being seen as informational, as information acting according to the rules of information.

Of course, we're limited by only seeing a momentary slice of the universe's understanding of itself, which is proportional to the apparent age of the universe. We can only observe the universe.

We've only been astronomically observing the universe for a tiny slice of the universe's understanding of itself, temporally. If it takes 30 billion years for the universe to have a thought, then we're only going to have a 300-year slice of that information. So, we don't understand anything, but we have a different way of understanding it visually.

Where the universe doesn't understand its own information as a universe, it understands it as what the information means as a model of the world that the universe is getting information from.

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