



Some Smart People: Views and Lives 1

Scott Douglas Jacobsen

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To Manahel Thabet for being the first in this series and giving a gauge on the feasibility of this project, and to Rick Rosner, Evangelos Katsioulis, Paul Cooijmans, Marco Ripà, and Jason Betts; in spite of far more men in these communities, it, interview-wise, started with a woman, even the Leo Jung Mensa article arose from the generosity of a woman friend, Jade.

Scott Douglas Jacobsen

Foreword by Scott Douglas Jacobsen

I have immense gratitude for the members of these communities to interview them, individually and in groups, over more than a decade. I tend to come back in waves when time and finances permit to work on this theme. I did not expect to work in this niche more than a year, probably, at the outset.

However, several opportunities and areas to explore for further writing and interviewing came to the fore, whether new societies or high scorers. For the most part, these communities are merely one outlet for expressing intellectual abilities, so one facet of their lives.

The interviews in this volume and in the associated, upcoming volumes in this larger series comprise more than a solid decade of commitment into interviewing members of these communities from all over the world, all different backgrounds, and a wide range of high-range measured abilities.

A potential central benefit in this work will be the evolution of knowledge and perspective through these interviews as represented in the interviews themselves, i.e., a representation of growth from learning through my mistakes and then a lessening ignorance.

Which is to say, a good life goal for me, each day: Try to be less dumb today than yesterday. The material presented is chronological. If I missed someone, I apologize, please let me know. I am not infallible and simply made a mistake. This error can be corrected.

Lastly, I can only re-emphasize rather than add: Without the generosity and kindness from many people in these communities, I would neither continue exploration of these communities nor compile these into a thematic series of public resource.

Scott Douglas Jacobsen

August 25, 2024

Kyiv, Ukraine

Dr. Manahel Thabet: WIQF, President; Smart Tips Consultants, President; World Intelligence Network, Vice-President

2014-05-01

*The following broad interview with **Dr. Manahel Thabet** discusses the following: geographic, cultural, and linguistic background; developing as a gifted child and early identification by her parents; original dreams of entering space; earning her first Ph.D. in Financial engineering (age 25) and second in Quantum mathematics (age 31); work at WIQF, Smart Tips Consultants, and WIN; non-verbal intelligence tests; myths of the gifted population; emotional struggles as a woman in leadership; distinctions and awards; position as patron of the Women's Leadership program MBA at Synergy University; thoughts on the past of and projections for quantum physics; concerns for the gifted community; responsibilities of the gifted population; thoughts of the near and far future for the gifted population; influences and inspirations; and things giving hope and the complicity of the structure of the universe.*

Scott Douglas Jacobsen: In terms of geography, culture, and language, where does your family background reside? How do you find this influencing your development?

Dr. Manahel Thabet: In fact, I lived in many different countries and diverse cultures. I believe this diversity of location, and moving from one place to another, had enriched my knowledge in many areas and shaped my personality in a deep way.

Jacobsen: How did you find developing from childhood through adolescence into young adulthood with giftedness? Did you know from an early age? What events provided others, and you, awareness of your high-level of ability?

Thabet: My family noticed something. I did not start speaking like normal kids. They were worried about that and took me to a speech therapist who advised them to run an IQ test for me. As early as 7 years old, my family knew, I was different. They embraced this fact. They did their best to cope and enable me to utilise my giftedness.

Jacobsen: You had an original dream to enter space. What happened to that dream? How did you cope?

Thabet: As a kid who had many dreams like any other kid in the world, I was so fascinated by space and the universe. My dream was to be an astronaut. Of course, I did not know it is very difficult to be one – lol. I grew up with the love of this field. Ever since I can remember, it has been my passion. I embraced this passion. Throughout the years, I improved the passion through studying, research, development, and hobbies. For one hobby, I enjoy stargazing the most. I am an amateur astronomer. Also, I am a member of Dubai Astronomy Group and in some days you will see me tracking stars from one place to another.

Jacobsen: You earned a first Ph.D. in Financial Engineering, at the age of 25, and a second in Quantum Mathematics, at the age of 31. Why did you pursue these areas of education? How are your productions changing their respective fields?

Thabet: This is an interesting question! The common thing between the two fields are numbers. Yes, I am fascinated by numbers. I feel that everything in our lives is calculated in a way or another. Formulas exist in every aspect of our lives, even in love and relations.

Jacobsen: You have earned the title ‘Queen of Bourse’. What does this mean? How did this originate?

Thabet: I was at the stock market once, and a reporter saw my performance, which was at that time very high. She asked me, “Where are you from?” I said, “From Yemen.” She didn’t know where Yemen is, then I told her I am from the land of ‘Queen of Sheeba’. At that point, she wrote from ‘Queen of Sheeba’ to ‘Queen of Bourse’. Since that time, people took it as a title.

Jacobsen: You are President of WIQF, President of Smart Tips Consultants, and Vice-President of the *World Intelligence Network*. What is the function of these organizations? What other major organizations devoted to similar causes can you recommend for resources and support?

Thabet: WIQF and WIN are think tanks for the high IQ world. Through the operations of these organization, we are trying to gather high IQ individuals in one platform to discuss ideas and exchange knowledge. As well, we do IQ testing through our connections with accredited sources, ability testing, and personality assessments.

For Smart Tips, it’s a consultancy firm. I founded the firm in 2005. We do financial engineering, consultancy, internal auditing, and feasibility studies.

Jacobsen: In terms of universalizing the testing of intelligence, non-verbal tests appear to have much promise, especially for the high-range. What do you see in the future for high-range non-verbal tests? How will this change general intelligence testing and the identification of gifted individuals?

Thabet: Nonverbal tests have been considered pure measures of general intelligence and are excellent indicators of abstract reasoning, particularly in the visual-spatial domain. These instruments have negligible ethnic biases, and I support their use in identifying gifted children from culturally diverse groups.

However, they do not measure as wide a range of abilities as IQ tests and would not be as predictive of success in a gifted program.

Jacobsen: Of the gifted population, there exist many myths. What do you consider the greatest of these? What truths dispel them?

Thabet: One of the things people should notice is the high level of extremely intelligent people in autistic children. If not discovered, it is a serious waste of human capacity to do wonders.

Jacobsen: As a woman in leadership and achieving records for many endeavors, what struggles and emotional difficulties have you endured to attain such accomplishments?

Thabet: Ahhh, living in the Middle East where a male-dominated society still rules is a big challenge. I cannot deny that it is changing, but a woman needs to make double the effort to get less than half of the recognition and support. My journey was a bit bumpy. It took a lot of emotional strength to keep going, but sometimes I would feel drained. However, I will not allow this to drag me down. I am blessed with a caring family and supportive friends.

Jacobsen: You are the patron for the MBA – Women’s Leadership Program – at Synergy University. What does this program encompass? What does such a program mean to you?

This MBA programme is the first in the Middle East in Women’s Leadership. I was so proud to be selected as the patron of this programme. It means a lot to me to see prospective women leaders coming soon. I have always been a supporter of female education and empowerment of women.

Jacobsen: You earned multiple awards and recognition including the *Excellence of Global International Environmental and Humanitarian Award*, *L’Officiel Inspirational Woman of the Year Award*, *Genius of the Year Award for 2013*(Representative of Asia), and *Excellence of Global International Environmental and Humanitarian Award*. What do these and other awards mean to you? What responsibilities and duties do these imply to you?

Thabet: Being recognised and being honored with these awards puts you in a position of big responsibility. Once you are put in this position, you are a role model for many. Therefore, ethically, you should be fit to inspire those who look up to you. Whenever I take an award, I do not call it an award. I call it a reward for many days and years of hard work, and then continue attention to what I do best.

Jacobsen: How has the world of quantum physics changed over the past decade? What do you anticipate to be the next big steps?

Thabet: Einstein’s sentiments still reverberate today, more than a century after humanity’s first insights into the quantum world; quantum mechanics makes perfect sense mathematically, but defies our intuition at every turn. So it might surprise you that, despite its strangeness, quantum mechanics has led to some revolutionary inventions over the past century and promises to lead to many more in the years to come. I believe that quantum aspect will be involved in every aspect in our lives. Starting from the theoretical basis which is the teaching of new quantum methods up to using it in quantitative methods in economy up to using it to find cures for diseases using quantitative measurements and cellular techniques.

Jacobsen: You share a concern of mine. In particular, the sincere desire to assist the gifted population in flourishing, especially the young. Now, many organizations provide for the needs of the moderately gifted ability sectors of the general population, most often adults and sometimes children. However, few provide for the needs of children (and adults) in the high, profound, exceptional, or ‘unmeasurable’ ability sectors of the general population. Some organizations and societies provide forums, retreats, journals, intelligence tests, literature, or outlets for the highest ability sub-populations. What can individuals, organizations, and societies do to provide for the gifted population? What argument most convinces you of the need to

provide for this sector of society?

Thabet: Caring about gifted individuals is not something to easily say, it is an action to make. It cannot be highlighted by individuals only, government attention is needed too. Caring about gifted individuals includes education, systems, and qualified individuals to explore gifted abilities in kids, utilities and so on.

Yes, it is important for people like myself, and others to have their voice out, and call for more attention to this category of people. This cannot be taken care of if so many government entities bind together to form a whole adaptation system to those who need it the most (and I mean here the gifted and talented sector only)

Jacobsen: In turn, what responsibilities do the gifted population have towards society and culture? Why do you think this?

Thabet: See, gifted individuals are as normal as other people. They share the same duties and responsibilities towards society. Responsibilities towards society and culture are something ethical. It does not differentiate between gifted or non-gifted.

Jacobsen: Where do you see the future of the gifted population in relation to society? What about the near and far future of the gifted population in general?

Thabet: We are heading towards a knowledge-based era. We are transforming our dependency from usable technology to wearable technology, and soon consumable technology. Minds will be the true asset for any nation. The technological revolution we are heading to embrace just like the production revolution will need special leaders and those leaders will have to be somehow gifted or talented in the technological arena.

Jacobsen: What projects do you have in the coming years?

Thabet: Many!

Jacobsen: Who most influenced you? Who inspires you?

Thabet: Strangely enough, I can get inspired by anyone or anything. From a writer, inventor, poet, singer actor, animal, or even a view. Inspiration is not limited if you can embrace it. And I always believe that “if the universe exists the sky is not the limit”.

Jacobsen: Finally, you have tweeted, “The Universe has many hilarious aspects. So I should not get credit for a sense of humor if all I do is point this out.” What gives you hope, humor, and a sense of wonder?

Thabet: What gives me hope is when I see those who are deprived from everything smiling. And what keeps me wondering all the time is the structure of our amazing universe and the complicity behind its creation.

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Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part One)

2014-10-08

*Part one of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1990-96), and writer. He discusses the following subject-matter: geography, culture, and linguistic background, and attenuated Jewish cultural influence during upbringing; Noesis issue 57 article entitled *When Good IQs Happen to Bad People*, and early signs of being a child prodigy; experiences in grade school, junior high, high school, and college; long history of forging identities beginning in entering high school another time, and many more, motivations for the behavior, outcomes for him, and tease for upcoming book entitled *Dumbass Genius*; ideas on cosmology and physics beginning at age 10, coming to a realization at age 21, Noesis 58 comments on the equivalence, and subsequent development of the equivalence to the present day; discussion on a mathematical model to represent the equivalence and a layman analogy for this equivalence; coined phrase of “lazy voodoo physics,” definition of it, and relation of this to considerations about 20th and 21st century cosmology and physics; entrance into the ultra-high IQ community, the Mega Society, forging another identity, pseudonym of Richard Sterman, Noesis, and eventual amends for forgery; three trends in Noesis of high-level material across arts and sciences, mix of scatological material (circa 1990-96), and his time as an editor from 1990-1996, earning position of editor, and thoughts on fulfilling the purpose of the journal’s constitution; *My Problem With Black People* (1992), argument at the time for equivalent intelligence of the races, differing views of other Mega Society members, and current stance on the issue; current membership in societies and personal use through membership; Intelligence Quotient (IQ) pervading American culture, Raven’s Progressive Matrices (RPM) and the Wechsler Adult Intelligence Scale (WAIS), some independent researchers’ work and test constructors’ productions for those achieving maximum or near-maximum scores on mainstream tests, and this setting the groundwork for his obsession of IQ tests; Titan Test perfect score, and range, mean, and median for best high-range IQ test scores; criticism of some intelligence tests and solution through non-verbal/‘culture-fair’ tests, and recommendations for identifying giftedness; and interest in health from a young age and the reason for it.*

Scott Douglas Jacobsen: In terms of geography, culture, and language, where does your family background reside? How do you find this influencing your development?

Rick Rosner: I grew up in Boulder, Colorado, with my mom, stepdad and brother, and spent a month each summer with my dad and stepmom and their kids in Albuquerque, New Mexico. My ancestors came from Eastern Europe and the Baltics by way of Cincinnati and Shreveport. I’m Jewish, but out west, Jewish cultural influence is somewhat attenuated.

Jacobsen: In Noesis issue 57’s article *When Good IQs Happen to Bad People*, you describe some of your experience as a kid. Could you elaborate on some of the history before entering grade school?

Rosner: I showed some signs of being a child prodigy – by the age of about 18 months, I’d

learned the alphabet, and by age 3 $\frac{3}{4}$, I'd taught myself to read at a near-adult level, which was unusual for the era. I was good with puzzles and math – but this wasn't encouraged. My parents thought I'd do better growing up as a normal kid, which did not go smoothly.

Some non-prodigy stuff – the theme music to *Perry Mason* scared me – I'd have to go hide behind the couch. My first crush was on Patty Duke on *The Patty Duke Show*, who I somehow conflated with my dad's sister, Aunt Janice, whom I saw during summer visitation with my dad in Los Angeles. My first memory is of the Raggedy Ann & Andy curtains and bedspread in my room. We had a very nice cocker spaniel named Tinkerbelle, who died when I was four. (This is before cockers became overbred and high-strung.)

I was terrified of swimming, which was part of my generally being a wuss – had to be peeled off the side of the pool by the swim teacher.

Jacobsen: What about your time in grade school, junior high, high school, and college? In particular, what do you consider pivotal moments in each of these cross-sections of latter portions of your early life?

Rosner: I grew up nerdy and interested in science, deciding at a young age to make it my job to figure out the universe. At age six, I was left with a scary babysitter, which led me to start spinning clockwise, chanting to God, and to be sent to my first shrink.

I was uncoordinated. Each year, I'd enter the 50-yard-dash on track & field day, and each year, would come in last. (Maybe the other not-so-fast kids knew not to enter the race and avoid the embarrassment.) Even as a kid, I had gross caveman feet with weirdly long second toes. I used to take off my shoe to make girls scream and run away – I liked the attention.

In the 1970s, there was no such thing as nerd chic. If you were nerdy, you were probably lonely. But, like many misguided nerds, I thought my intelligence and niceness would inspire a girl to look past my nerdiness. I spent the second semester of ninth grade building a Three-Dimensional Gaussian Distribution Generator to demonstrate to my honors math class. The machine dropped a thousand BBs through a pyramidal tower of overlapping half-inch grids into a 24-by-12 array of columns. It was a supercharged Plinko machine with an added spatial dimension, forming a half-bell of BBs, thanks to the laws of probability. During its construction, I thought, "A girl will see this elegant experimental apparatus, think I'm brilliant, and become my girlfriend." I completed the BB Machine in time to demonstrate it to the class on the last day of school. No one cared. Of course they didn't – it was the last day of junior high, and a dweeb was pouring BBs into a plastic pyramid.

Realizing that my nerdiness was standing in the way of ever having a girlfriend, I began changing myself – lifting weights and wearing contact lenses.

Towards the end of high school, I saw my IQ test scores, which maxed out at about 150. I decided that a 150 IQ wasn't high enough for me to become the world-changing physicist I wanted to be, so I decided to become kind of a meathead – a stripper and a bar bouncer. At about the same time I was beginning my meathead career, I started to take high-end IQ tests, scoring in

the 170s, 180s, and eventually 190s. I also found out that among the reasons I'd never scored much above 150 on school-administered IQ tests is that the tests themselves don't go much above 150. (This makes sense – if you're a teacher or administrator trying to figure out whether a kid needs educational enrichment, it doesn't matter much whether a kid's IQ is 150 or 165. With either IQ, that kid will go stir-crazy in a regular classroom.)

I'd never quit thinking about physics, but my new, high scores gave me more confidence that I might eventually be able to theorize productively. Of course, a few points should probably be subtracted from my IQ for basing my life on IQ scores.

Jacobsen: You have a long history with forging identities beginning with entering high school another time, and many more. What motivated this behavior? How long did you pursue this 'calling' of entering high school? In particular, how did each experience turn out? How many times did you do this?

Rosner: Though I had started trying to de-nerdify myself as early as ninth grade, it wasn't effective. In my small town, my classmates were well aware of my nerdiness – there was no erasing that. After years of trying to be cool and failing, I was very frustrated and had something like a freak-out. I decided that I would not leave high school a virgin. So after graduating high school with the class of 1978, using forged transcripts, I went back to high school for a second senior year (class of '79) with my other family in Albuquerque. I only lasted ten weeks and didn't come close to even making out with a girl.

A note on inappropriateness: I think standards have changed since I did this. The creepiness factor has increased. But since I was just 18 – still roughly high school age – and barely talked to any girls much less date them when I returned to high school, it was pretty harmless.

1980: Went on a double-date to a high school prom because my girlfriend (who, like me, was in college) had a best friend who was still in high school and thought we should all go to her prom.

Also 1980: I went to L.A. to try to sell my back-to-high-school story to a Hollywood producer. Thought it would help sell the story if I were back in high school at the time. Tried to talk my way into a couple of L.A. schools without any transcripts, just a class of '81 letterman's jacket.

I eventually spent several more semesters in high school, but rather than tell about them here, I'll just tease my forthcoming book, *Dumbass Genius*, which will detail my more than ten years as a sometime high school student.

Jacobsen: In terms of your ideas related to cosmology and physics, at 10, you began thinking about the universe. The reason for existence. At 21, you came to a realization. You note, "All the big theories are built around big equivalences." Namely, your realization of an equivalence between the operation of information in an individual consciousness and the operation of space & matter in the universe. Both have self-consistency. In addition to this, and later in response to a similar topic in *Noesis* 58, you state, "I believe in matter and space as information held in some vast awareness..." What do you mean by these? In particular, the idea of a great equivalence. How have you developed the idea from the original equivalence to the present

day?

Rosner: I've continued to think about this stuff and think I have a pretty good theoretical framework, though it needs more math.

I believe that it's almost impossible to have a large, self-consistent system of information without that system having some degree of consciousness – probably a high degree.

Consciousness can be characterized as every part of a system knowing what's going on, more or less, with every other part of the system, within a framework that assigns (emotional) values to events perceived by the system. (Of course there are processes which are peripheral to consciousness – most of the time, we're not aware of the finer points of breathing or walking or why we like looking at cat videos and butts.)

Plenty of people think that the universe is a massive processor of information. Quantum mechanics mathematicizes the limitations of the universe's information-processing ability. Being finite, the universe cannot observe itself with infinite precision.

Jacobsen: Provided the nature of these particular equivalences, especially related to the universe, do you have a mathematical model to represent this equivalence? Furthermore, do you have a layman analogy for this equivalence?

Rosner: I think the most efficient model of the information contained in a complex, self-contained and self-consistent system of information looks like the universe – locally three-dimensional (spatially) with linear time and particles and forces that transact business more or less the way they do in the universe itself.

I don't believe in the big bang – instead, I believe that what looks like a big bang is kind of a trick of perspective, based on the universe being made of information. Parts of the universe which have less information in common with us are more distant and red-shifted. The apparent age of the universe is a measure of the amount of information it contains (or has in play). Somewhat similarly, train tracks don't really touch at the horizon.

Kind of picture the universe as being at a slow boil. Some parts are energy-rich and expanding, while other parts are burned out and pushed to the outskirts by the expanding regions, waiting for their chance to expand again.

Jacobsen: You have coined the phrase “lazy voodoo physics”. How do you define “lazy voodoo physics”? Why resort to this form of considering major interests such as the structure and fate our universe, or existence of other universes, and other concepts arising from 20th and 21st century cosmology and physics?

Rosner: Lazy voodoo physics is my term for crappy metaphysical theorizing (which I've done some of, particularly as a little kid). I prefer to think that my current metaphysical theorizing is less crappy.

It is possible to think about the universe without a full mathematical arsenal. George

Gamow, who came up with the big bang, was notoriously unschooled in math. Immanuel Kant was among the first people to endorse the idea of galaxies, and Edgar Allen Poe offered a reasonable solution to *Olbers' Paradox*. Einstein himself had to be pointed towards the mathematical framework for general relativity by his friends. Trying to imagine the processes of the universe with the math to come later is not voodoo physics. Metaphysics doesn't have to be voodoo physics, either.

Jacobsen: When did you enter into the world of the ultra-high IQ community? In particular, the Mega Society. In it, once more, you forged an identity. What motivated this resurgence of forging an identity? For instance, the use of the pseudonym Richard Sterman within the publications of the Mega Society journal, *Noesis*. To make amends, and needing stating, you did apologize to members and readers of the journal for the false identity portrayal.

Rosner: When I first qualified for the Mega Society in late 1985, I was depressed from a bad breakup and would try to make myself less depressed by doing stupid stuff. After receiving a score on the Mega Test that qualified me for the Mega Society, I wrote to Marilyn Savant (who must've been in charge of membership at the time) and asked, "Hey, can I join your club...and want to go on a date? I'm a stripper." Marilyn wrote back and said my score didn't qualify me for Mega. She had no response to the personal invitation. (Later, my score did turn out qualify me for Mega. My score's IQ equivalent jumped around as more scores came in and the test was repeatedly recalibrated.)

On the Mega Test, I had tied for the second-highest score in the country. The *CBS Morning News* called to invite me to be on the show. I asked the producer if I should wear my tux or my loincloth. She immediately cancelled me for being a crazy person. In my defense, I worked in bars until two in the morning and didn't wake up in time to see what morning news shows were like. I thought, stupidly, that the *CBS Morning News* would want somebody really fun. (Fun = loincloth.)

The other people with high scores were two Los Angeles math professors, Solomon Golomb and Herbert Taylor, and the Governor of New Hampshire. People seemed really annoyed that I, a roller skating waiter, stripper, bar bouncer, and amateur undercover high school student, was in their company.

In 1990, when the Titan Test came out, I remembered how appalled at me people were after the Mega. So I decided to take the test using my girlfriend's last name instead of my own, figuring that if I did well on the Titan, I could get a fresh start at talking to reporters without being tainted by being the person who shocked people the first time around. If this sounds dumb, it's because it was. My Twitter handle is [@dumbassgenius](#) because I tend to do a mix of smart and dumb stuff (not usually on purpose). I wasn't trying to fool anyone for test purposes, I was just trying to sidestep my stupid past.

I did really well on the Titan, finally joining the Mega Society and becoming editor of the Mega Society journal. After a few months, I told everyone, "Hey, I'm the same guy who did well on the Mega Test." I don't think anyone was outraged. (I also took the Mega Test for a second time as Richard Sterman. But I soon came clean.)

Jacobsen: In reading through the available literature of *Noesis*, i.e. available online, three trends persist to me. One, the range of high-level and engaging material across the arts and science, e.g. the lucid description of relativity by Chris Cole at the end of issue 69 entitled *Relativity – A Primer*. Two, the mix of the occasional scatological material in the writing, mostly c. 1990-1996. Three, the length of your time as the main editor from 1990-1996. How did you come into the world of the Mega Society? How did you earn the position of editor for six years? Do you think the journal fulfilled part of the purpose stated in the constitution to “facilitate interaction among its members and to assist them in gaining access to resources to accomplish their individual purposes”?

Rosner: When the editorship was offered to me, I was underemployed. I’d written for some TV quiz shows and thought that work would continue but didn’t know how to get that work. The publisher of *Noesis* said I could have the subscription money if I’d edit it. It wasn’t much, but everything helps when you’re a bouncer and nude model who’s trying to cover a mortgage and pay for hair transplants. I edited *Noesis* for six years because no one else was clamoring to do it. Towards the end, I started getting TV work again, and became even less reliable about getting issues out on time. Other members volunteered to take over.

As editor, I didn’t do too much editing. Most material submitted to me went straight into *Noesis*. I may have left out some crackpot submissions claiming to have disproved Einstein and perhaps some angry letters from people who thought they deserved to be admitted to Mega though they didn’t meet the entrance requirements.

Some of the writing you term scatological may have been my writing about myself. While most of the material submitted to *Noesis* is at a high intellectual level or at least reflects striving in that direction, I was trying to be entertaining and tell the embarrassing and I hope funny truth about myself. I eventually became a professional comedy writer, and, without looking back on my writing for *Noesis*, I’m sure much of it was goofier and more obnoxious (and perhaps more entertaining) than the average article.

I’m fairly pessimistic about the effectiveness of most high-IQ journals, though I’ve seen some good ones. My editorship was at the very beginning of the internet era, so most communication was by snail mail. Now, of course, high-IQ organizations are online, which speeds up discourse. The Mega Society online journal has some good material and discussions.

Jacobsen: Amidst the busywork of editorials and organization of the material, upon reading *Noesis*, one article struck me regarding the title and content entitled *My Problem With Black People*. At the time, August 1992, other members of the Mega Society argued for the possibility of intellectual inferiority of blacks. You argued otherwise. In that, by your estimate, all races have about equal intelligence. Although in defense of all parties involved in the discussion of issue 72, the articles were written in 1992. Much work written in public discourse has progressed on the issue of intelligence and race: ‘does race count as an appropriate scientific category?’, ‘do IQ tests measure intelligence?’ and so forth. Where do you stand on this issue now?

Rosner: I don’t have a problem with black people – in my juvenile manner, just wanted an

attention-grabbing title. I believe that most work which tries to or claims to establish a relationship between intelligence and race has elements of creepy bullshit. Little good and lots and lots of bad has been done by people who claim that certain races or nationalities are mentally inferior to others.

Intelligence has a fluid relationship with environment, and all sorts of things can happen during an individual's lifetime which may or may not bring his or her intelligence to fruition. Sometimes, being imperfectly adapted to an environment may elicit the expression of intelligence – think of perfectly adapted jocks who never had to learn to think versus awkward nerds who, because of physical imperfection, have to follow the riskier strategy of original thought. So, people who want to eliminate or reduce the reproductive opportunities of groups that may be considered inferior (according to crappy, wobbly, arbitrary, prejudiced and culturally loaded standards) may actually be trying to eliminate one of the triggers for intelligence – being at odds with one's circumstances. More great art has been made by people who are ill-at-ease with their world than by people who are perfectly at home in it.

Furthermore, this is a particularly dumb time for arguments about racial differences in intelligence, as more and more of our effective intelligence comes from our interaction with technology. Tech is turning us all into geniuses, though it doesn't seem like it when you see so many people behaving stupidly with their devices. Since World War Two, the average IQ of all of humanity has gone up by 15 points – the Flynn Effect. One of the main suspects in this upslope is the pervasiveness of complicated modern culture. Culture and tech will keep getting more complicated, and humans in conjunction with our devices will keep getting smarter. Tech that's built into our bodies isn't too far in the future. More than one percent of the population already has built-in computers – pacemakers, cochlear implants, etc. So who cares about some hard-to-measure few-IQ-point alleged difference among groups when we're all going to end up being increasingly augmented geniuses?

People who insist on racial inferiority are creeps. We can discuss cultural differences – for instance, there seem to be cultural differences in causes of passenger jet pilot error – but the idea that some races need to be babysat by other races is gross. We're all going to need to figure out how to work with each (augmented) other as tech reshapes the world.

Jacobsen: How many societies do you have membership inside of now? What use do you get from these societies?

Rosner: Don't know how many societies I belong to. People ask me to click on things on Facebook, and sometimes clicking means that I've joined something. Could be 8 societies, could be 15. I'm not very good at Facebook and don't live on it, as does your Aunt Angie, with her constant posting of cat and casserole pictures. Currently living on Twitter.

Jacobsen: Intelligence Quotient (IQ) pervades American culture more than most, based on my reading of the culture, with a litany of reactions ranging from reverence to laughter to skepticism – and serious scholarship. Many neuropsychological tests developed by those with appropriate qualifications have developed some of the most well-used and researched tests such as the Raven's Progressive Matrices (RPM) and the Wechsler Adult Intelligence

Scale (WAIS). However, mainstream standardized intelligence tests tend to have maximum scores at 4-sigma above the norm (160/164/196; SD-15/16/24, respectively). In the development of this work, some independent researchers and test constructors began to make tests for those earning maximum, or near-maximum, scores on mainstream tests. In the process, tests and societies developed for the high-ability population. This environment set the stage for the flourishing of your obsession: IQ tests. For example, on a high-ability test called the *Titan Test* – one of the most difficult, you set a record score. In fact, you earned a perfect score. You have taken many more. What are some of the other tests? In particular, where does your range, mean, and median lie for the set of high-range IQ tests taken?

Rosner: It's hard to pin down what my actual score might be. It's silly to even think that people have one set IQ and that it's precisely measurable. My lowest scores probably reflect less than my maximum effort, and my highest scores probably grant me some extra points due to crazily high levels of diligence plus vast experience with these tests. It doesn't really matter unless we want to turn IQ testing into a reality show sport. And we should – why do we have a bunch of competition shows about people cooking from Mystery Baskets and none with IQ showdowns?

Jacobsen: In the testing of intelligence, much criticism exists towards the potential for bias inherent in the tests themselves. For example, the use of an examinee's non-native language in intelligence tests. If an individual speaks a different native language than the test provides, they may score low in the verbal section, which may decrease the composite score. To solve this problem, non-verbal/'culture fair' tests exist. However, many of these culture fair tests have lower ceilings. What do you see in the future for high-range non-verbal tests? How will this change general intelligence testing and the identification of gifted individuals?

Rosner: Intelligence testing has always been kind of a mess, often arbitrary and unfair. I think the best, easiest thing to do is test kids repeatedly, using a variety of tests. There are plenty of good, long-established tests. Trouble is, school districts are broke and don't have the resources for repeated testing.

We can hope that tech will make schools more responsive to individual needs. Schools can be a little behind the curve. A century ago, school was the most interesting part of a kid's day – it's where the information was. Now, with the rest of our lives being so information- and entertainment-rich, school can be relatively uninteresting, which isn't helped by politicians and people who don't like paying property tax starving schools of resources.

School needs somewhat of a makeover – increasing automation and personalization, which the ongoing tech wave should help make possible. Don't know if a push for better giftedness-finder diagnostics needs a special push. Would guess that this won't be overlooked as part of high-tech changes to education.

Currently a crazy thing is the pressure on a few tens of thousands of high-end students, with endless AP courses and brutal study loads, for a seven percent chance of getting into an Ivy. When I was in school, the average AP kid took 1.3 AP courses; now it's more than 7. I assume our weird college admissions system will get somewhat straightened out by technological advances in education, or will become weird in exciting new ways.

Jacobsen: You have great interest in health. In fact, you had interest in health since a young age. Why the deep interest in the health from a young age?

Rosner: At first, I wanted to build muscles to impress girls. (This sort of worked, but it took many years of de-nerdification.) People were fit in the 70s – clothes were tight and high-waisted. The Arnold Schwarzenegger documentary, *Pumping Iron*, which came out in 1976, introduced many people to serious muscle-building. Weight training incidentally introduced me to some healthy eating habits, plus I've always been a little fat-phobic and perhaps over-disciplined.

Only much later did I read Kurzweil's book, [*Fantastic Voyage: Live Long Enough to Live Forever*](#), and go from a few vitamins a day to a zillion. I don't buy Kurzweil's entire argument – that the Singularity will happen around 2040, and anyone who can live until then can live forever – but I do think there will be many biotech breakthroughs in the coming decades which may offer extra years of life. I want to stick around – the future is where you can find a lot of cool stuff.

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Two)

2014-10-15

*Part two of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1990-96), and writer. He discusses the following subject-matter: health advice, longevity, mortality, Pythagoreans, Transhumanists, future scenarios of downloadable consciousness, aims for immortality, rewriting genetic code, partial/full mergers with biology, technological and medical futurists, United Nations on lifespans, Dr. Aubrey de Grey divided subproblems for solving aging, figuring out the mind as the ultimate longevity solution, consciousness and evolution, discounting of some animal consciousness by people, and the possibility of the same consideration for human consciousness; personal vitamin and nutraceutical consumption, considerations of efforts for longevity, aspirin and statins, and Life Extension magazine; possible negative interactions of nutritional supplements, circumin, vitamin d, Metformin, Type 2 Diabetes, resveratrol, methylene blue, Fen-Phen, and flossing and inflammation; possible negative interactions with ingested nutritional supplements taken alone or together with another nutritional supplement, and the reasons for considering his current set of nutritional supplements safe; obscure and mainstream thinkers on the progression of technology, some thoughts to do with the Law of Accelerating Returns, Dr. Ray Kurzweil, extrapolations of current technological trends from the past and the trends' influence on us in the future, and relevant extrapolations beyond this century; entrance into the world of trivia, 'Who Wants to be a Millionaire?', first and second times on the show, and Noesis issue 150's articles Three Letters of Protest Regarding "Who Wants to Be a Millionaire?" and Request for Assistance from Mega Society Members; rectifying the situation; mastering multiple intellectual fields, 12 years of university credit in one year at Excelsior College, and reason for pursuing this method of education accreditation; moving beyond academics into acting and physique building (bodybuilding), films with J.D. Mata, and reason for entering into this kind of work; and nude modeling, Obsessive Compulsive Disorder, and time spent at the gym.*

Scott Douglas Jacobsen: Furthermore, many people in history followed health advice. Some provided it. Today this persists. Primarily for well-being with a secondary benefit of longevity. Although, most people in recorded history accepted mortality of the body as fact, but in most cases attended to ritual, scripture, incantation, sacrifice, prayer, meditative practices, and propitiation to a god, the gods, or God to attain immortality as a spirit, a disembodied awareness, an existence in another realm, or through continuous re-incarnation as a mortal creature in this world. These tendencies of thought wax and wane. For instance, Pythagoreans searched for immortality. Even today, an emergent sub-group of a modern school of thought, *Transhumanism*, aims for immortality through hypothetical future scenarios of downloading their minds onto computers, re-writing of genetic code for extended life, and partial/full mergers of biology with machines for bodies and minds immune to the present higher levels of degradation based on the degrading effects of time on our bodies. Some people come to mind such as Dr. Ray Kurzweil, Dr. Terry Grossman, M.D, Dr. Aubrey de Grey, Dr. Peter Diamandis, M.D., Saul Kent of the Life Extension Foundation, and others. What do you think of the many ideas and arguments behind these various groups for longevity – even outright 'immortality'? What makes their arguments and our situation different, and better, enough to

have such possibilities arise in practicality?

Rick Rosner: It sucks to be among the last generations of humans who don't have a choice about dying. Medicine will advance tremendously in the next century, and so will life spans. Even the U.N., which isn't a hotbed of science fiction-ish speculation, says that living to 100 will become common.

Transhumanists like to argue that to be effectively immortal, you don't have to live until immortality is possible. You only have to live until medical science can extend your life at a rate of one year per year.

Researchers such as Dr. Aubrey de Grey say that aging will be conquered by breaking it down into a set of sub-problems and solving each of them. While not part of de Grey's sub-problems, figuring out the mind and consciousness can be seen as the ultimate longevity solution. If you can make the contents and actions of the brain transferable, then keeping your body going may become just one of a variety of longevity strategies.

But figuring out consciousness may be a good news-bad news thing. Consciousness constantly acts as an advertisement for itself, telling you that your life and thoughts and experiences are interesting. Evolutionarily, it has to do that. If you quit paying attention to your life, you make more errors, which might kill you. We come from millions of generations of ancestors who paid attention.

For instance, deciding when to cross at a traffic light. (Traffic lights seem to pop up in discussions of consciousness.) For you not to be killed crossing at a light, your lifetime error rate of observing and stopping for red lights has to be reasonably close to zero. If you weren't sufficiently interested in not being killed, your error rate would rise dangerously. Of course we see this with digital devices being so interesting that people become insufficiently interested in clear, real-life risks (texting while walking or driving a car or even a train being the sadly typical example).

Once we figure out consciousness, it may turn out to not be so awesome. Consciousness may be seen to incorporate a bunch of sensationalistic tricks to keep your attention, like a Michael Bay movie, and there may be a letdown – we're the saps who bought tickets to the movie.

We have little problem discounting consciousness in other creatures – the billions of chickens Americans eat each year, for instance, cows, pigs, octopi. The chickens live their short lives, they're killed, no big deal. A minority of people say it's the ultimate deal – that every creature's experience is important. But what happens if our understanding of consciousness leads us to believe that human consciousness just isn't that big a deal – not much more important than other animals'? That could be a bummer. (But this bummer might partially be addressed via biotech brain helper add-ons that make our moment-to-moment awareness more super-duper.)

We're gonna live longer, we're gonna get weirder, gradually turning into the augmented but still very human beings that will come after humans.

Jacobsen: Granted, death stands atop the mount of costly adventures. You take high-level double digit numbers of vitamins and nutraceuticals every day. Even so, these measures for slowing, potentially halting or reversing, aging seem excessive and even dangerous. For instance, do they all have FDA approval? Where do you base your efforts for longevity? What research and evidence?

Rosner: Mostly, I take vitamins and nutraceuticals, which may not do much – one way or the other. And most of the other stuff is apparently very safe and widely tested – aspirin and a half-dose of statins, for instance.

I research supplements and nutritional strategies on the internet, trying to separate the BS from the crumbs of actual information. *Life Extension* magazine is pretty good, even though it's trying to sell fancy vitamins. At least the claims in the magazine are backed up by some studies.

The purpose of the pills, of course, is to put off dying as long as possible. Will exercise, a semi-careful diet and mostly mainstream supplements increase my mortality? I hope not, and most statistics are on my side.

Jacobsen: For instance, which ones of these nutritional supplements have sufficient clinical testing in favour of their individual use? What about potential negative interactions of an individual supplement or drug? What of negative interactions between two or more of them?

Rosner: I mostly take nutritional supplements. Their effects are probably not as helpful or as potentially harmful as pharmaceuticals, though they haven't usually been through the same clinical trials as prescription drugs. (Some vitamins, however, have had more than a century of testing, and clinical testing is not a 100% guarantee.)

I take a big but not crazy dose of vitamin D and a lot of curcumin, both of which are currently very well-regarded. They're being studied extensively, and the studies are returning encouraging results. As with anything, future research may debunk them, but I don't think they're hurting me. People in India have been using curcumin for centuries, and this seems to be correlated with lower rates for some inflammation-based disease.

Some of what I take may be considered a little wacky. For instance, I take Metformin, a drug for Type 2 diabetes, even though I don't have diabetes. Among other effects, Metformin helps your body use insulin more efficiently. Along with resveratrol, it's one of only two drugs I know of which trigger some of the positive effects of calorie restriction (without the misery of calorie restriction). And Metformin is a more effective calorie restriction mimetic than resveratrol, because orally administered resveratrol gets knocked out by your liver.

Metformin is the most widely prescribed anti-diabetes drug in the world, with 48 million annual prescriptions in the U.S. alone. It's been used in the UK since 1958 and the U.S. since 1995. Negative side effects are rare. There is some evidence that Metformin may reduce the incidence of cancer. I like the stuff.

I sometimes take methylene blue, which may act as a detergent to loosen amyloid plaque in the

brain. (Amyloid is sticky gunk thrown up by damaged brain cells.) MB is currently in Phase III trial for Alzheimer's and Parkinson's. (It turns urine a bright emerald green!) If I were in the NFL and taking a bunch of shots to the head, I'd use methylene blue like Splenda.

Most of what I take doesn't negatively interact. A couple of minor vitamin depletions are covered by a good multi-vitamin. (For instance, Metformin may reduce absorption of B12.)

You don't often hear about people dying early from vitamins. Occasionally, there's a study which might say something like, "People who take vitamin E might have slightly elevated mortality." Then you look at the study, and it's hard to apply to your specific situation, but you cut back on vitamin E. In the 70s, people went on the liquid protein diet. But it depleted potassium and caused heart attacks. A couple of people died – it was big news. In the 90s, Fen-Phen, a combination of diet drugs, killed people. Again, big news. If vitamins were knocking people off like crazy, we'd hear about it. So I take my chances.

Hey – here are two very safe things you should do to add years to your life – take half an aspirin or a baby aspirin each day, and floss your teeth. Unflossed teeth spread inflammation throughout your body.

Jacobsen: In some sectors of the population, some obscure, and other more – as of recent – mainstream thinkers have extrapolations based on many highly complex technological innovations in society regarding the progression of technology. Some will use general hunches, e.g. things seem more complicated and, therefore, will become more complex. Others will use mathematical modelling through extensions of such things as Moore's Law, e.g. the Law of Accelerating Returns *a la* Ray Kurzweil. How do you see these technological trends and changes influencing us in the far and recent past? What extrapolations do you consider most likely for this century and past it?

Rosner: Many of the developments predicted by science fiction eventually happen, though often not as soon as science fiction predicts (the iPad, the atomic bomb, the internet and computer viruses, to name a few).

I think that will be the case with many aspects of the Singularity. (The Singularity is when, according to believers in the Singularity, artificial intelligence will be able to answer any question and solve any problem, and all our wishes will come true, sometime around the year 2040.) Humanity or some version of humans plus technology will get smarter and smarter, but it won't all happen at once or as soon as 2040.

But things will get weird. Good manners and considerate behavior will have an increasingly difficult time keeping up with changes in tech. It would be nice if people would stop being annoying or dangerous with their devices, but I can't see how manners will ever catch up with the accelerating development of technology. Tech will keep making people smarter but appearing to be stupider.

I don't think the future will be humans fighting robots. I think we'll become our own half-robots. We'll keep augmenting ourselves, adding devices around and to ourselves until our artificial

systems do more information-processing than our natural systems. (We'll build expert devices of increasing sophistication, but for the near future, the most expert systems will be human brains plus tech. We already are expert systems – right now it's most effective to add onto us.)

Some people argue that the brain has hidden, possibly quantum, information-processing capacity and that we won't be able to emulate the brain. Obviously, the more complicated our brains turn out to be, the harder it will be to emulate them and interface with them. But we'll still keep going in that direction. We're already pretty good at piping information into our heads nonstop via our current devices.

One big though gradual change is we'll be able to change our drives, motivations, judgments and values. Much of what drives us is pretty thoroughly wired into our brains via evolution – sexual attraction, tastes in food, aesthetic preferences, to name some big ones.

Sex makes just about everyone crazy at one time or another, demonstrating that, to some extent, we're pawns of the need to reproduce. It's just weird that one of the primary engines of human progress is a compulsion for males to insert fleshy tubes into females' fleshy pockets. The entire history of the 21st century hinges on a few instances of oral sex, like this – Al Gore gets mad at Clinton for sullyng the Presidency with Oval Office BJ's. Gore underutilizes the still very popular Clinton in his Presidential campaign and narrowly loses some important states. And there you have it – President George W. Bush and the 21st century.

The fascination with and rituals around eating get pretty weird, too. And look at magazine covers – all the time faces – just pretty faces.

As we better understand our brains, we'll be able to change our drives and desires. Suppose your spouse has put on 160 pounds. Is it better to be resentful of your spouse or to rejigger your sexual tastes to fit your super-sized spouse?

I think by the end of the century, consciousness will begin to be transferable and average life spans will increase by at least 40 years. We can hope this will lead to a reduction in the rate of population growth. People who can look forward to very long lives should on average have fewer kids and have them later, if at all.

There will be glitches, of course. Nanotech will have to be watched. The benefits of increasing technology will have to be made available worldwide in such a way that it's more attractive to join the modern world than to try to take down the modern world.

I doubt that we can count on non-selfish behaviour to turn around the degradation of our planet. A conscientious Prius-driving, recycling American still generates a lot of waste. (On a related note, smug Prius drivers are almost as bad as Audi drivers. "Ooh, I'm making less pollution, so I can drive however I want.") And the world population will keep growing until living indefinitely (and, later, consciousness becoming digitizable and transferable) reduces the production of offspring.

Eventually, high-tech measures will have to be deployed to fix the worst messes we've made –

wide-spread extinction, global warming and the acidification of the oceans, and the like. (This will be followed by more tech to correct the negative effects of previous high-tech fixes). Large swaths of the globe will be Disneyfied – artificially restored and made pretty and sweet – like what New York did with Times Square, but on a global scale.

Jacobsen: At some point, you entered the world of trivia. In particular, professional competition of trivia via the game show *‘Who Wants to be a Millionaire?’*. You did not have a good experience with them on your first, or second, time qualifying to compete on the show, which you recount, somewhat, in *Noesis* issue 150’s articles *Three Letters of Protest Regarding “Who Wants to Be a Millionaire?”* and *Request for Assistance from Mega Society Members*. What happened, Rick?

Rosner: Every quiz show has occasional glitches in which factual errors survive the fact-checking process. (It should work like this: a writer writes a question and cites a source. The question goes to a fact-checker who finds additional legit sources to confirm what should be the facts behind the question. Fact-checkers, writers, and producers eliminate ambiguity and make sure the answer is “pinned.” I did an interview about the process.

On most quiz shows, most glitches don’t affect the outcome of the game. On *Jeopardy!* for instance, a glitchy question might come up, and no one answers it. The game goes on. Or someone gives an unexpected acceptable response. Judges check the answer during a commercial and perhaps award more points.

On *Millionaire*, however, since a player had to answer every question (at the time I was on the show) or withdraw from the game, a factually flawed question often knocked the player who received it out of the Hot Seat. It was *Millionaire*’s policy to rectify factually flawed questions, but they were getting sick of it – they’d had to do it many times. During our briefing, a contestant asked the executive producer what to do if we thought we got a bad question. A contestant had, very shortly before, gotten a bad question. The EP said, “Don’t worry about bad questions. Just play the game. If a question is wrong, we’ll look into it and make it right.”

In my case, they thought they could weasel out of it by claiming a non-straightforward and non-traditional interpretation of the question. The flawed multiple-choice question was:

“What capital city is located at the highest altitude above sea level?”

with the possible answer choices of Mexico City, Quito, Bogota, and Kathmandu. Because of faulty writing and fact-checking, *Millionaire* failed to include the actual correct answer of La Paz, Bolivia. (For people who’d like to quibble, Bolivia has two national capitals, and La Paz is one of them. It’s about four kilometers – two-and-a-half miles – above sea level.)

Millionaire tried to avoid responsibility for their error by arguing that they meant “Which of these four cities we gave you is the highest?” This interpretation goes against common sense and standard practice. I looked at 110,000 questions from productions of *Millionaire* in the U.S. and throughout the world, and their standard practice, as well as any other reasonable quiz show’s standard practice, is, if you mean “Which of these?” you write “Which of these?”

Since 1987, I've worked on a bunch of quiz shows, writing more than 10,000 questions. I co-created a quiz show which ran for a season on VH1, was co-head writer of the show, edited all its questions, and acted as a judge. Quiz show questions are my business. (Additionally, I've tutored the SAT and related multiple-choice tests since I was a teenager and have looked at more than 40,000 SAT-type questions. Multiple-choice questions are also my business.) I'm probably the person most likely and qualified to take a dim view of *Millionaire's* ad hoc, disingenuous, self-serving, lazy and dishonest interpretation.

I concur with standard practice and common sense. No writer or producer would reasonably expect a contestant to know the relative altitudes of four arbitrarily chosen capital cities. It would be more reasonable to imagine that a contestant might have heard of the world's highest capital city, but that city was absent from the answer choices.

The writer of the question (who'd never before written for a quiz show and who didn't last very long) built the question from a list of altitudes of 30 random world cities in the *World Almanac*, apparently failing to realize that the omission of 96% of the world's cities from the list might be a problem.

During legal proceedings, I saw *Millionaire's* fact-checking notes on the question, which indicate that they wanted the highest capital, didn't realize they didn't have it, and fact-checked only the altitudes of the cities they did have. Someone noted that he or she thought that Ecuador might have two capitals (that would be Bolivia), but this wasn't further pursued. Not knowing about La Paz, they had no knowledge of any quibbles about La Paz being a *de facto* capital – their research wasn't anywhere near that thorough. (Currently, a Google search for the phrase “La Paz is the world's “highest capital city” returns 97,800 results, while “Quito is the world's highest capital city” returns just 7 results, a ratio of 13,970 to one. Of course, back in 2000 when *Millionaire* was fact-checking the question, Google wasn't the go-to research tool.)

(And another thing – world cities have no official point from which altitude is measured. Quito's city limits extend down into river gorges and up the side of a volcano. Altitudes found within its city limits vary by a couple miles. Miles! From *Today in Ecuador*: “The Metropolitan District of Quito (DMQ) covers an area of 422,802 hectares (almost 1,050,000 acres), with altitudinal ranges from 500 to 4,800 meters above sea level.”

Quito has a single altitude like Olympic athletes have a single height. The facts behind the altitude question are messy and ambiguous at best. Had *Millionaire* done a better job researching the question, they would've been forced to throw it out before it ever got to a contestant.)

If *Millionaire's* writers and researchers, with all their resources and unlimited time to check their work, can't come up with the correct answer, then they shouldn't expect some schmuck alone in the Hot Seat to be able to come up with the answer. That schmuck should be invited back (and many contestants were invited back, until I came along).

Eventually, I sued them, but no one has ever won a lawsuit against a quiz show. After I sued, *Millionaire* changed the official rules so that they're no longer obligated to come up with the correct answer. Contestants must choose the best answer from those offered, even if the

correct answer isn't among them. Nice!

Discussing soccer, the executive producer of *Millionaire* said that people need to accept bad calls from judges and referees, in soccer and on game shows. This is a lousy parallel to draw. A call in a World Cup match would need to be reviewed immediately (with just a few angles captured on video). Changing a call after a game could affect the rest of the tournament, not just the teams but also billions of fans, so it's impossible to undo a call hours or days later. But a bad call on *Millionaire* affects just one person in the Hot Seat and his family. And researching a faulty question isn't like reviewing a soccer call – you're not looking at video in the middle of a soccer game – you can take time to do adequate research. It doesn't change anything for anyone else to rectify a bad quiz show call for one person. You don't even have to televise it.

Jacobsen: What would rectify the situation to you?

Rosner: This happened more than 14 years ago. The past 14 years haven't been the greatest for the world. Next to it all, the *Millionaire* thing is nothing. I can continue to be annoyed by it, but I would be a big baby to still be crusading for rectification.

Jacobsen: You have mastered multiple intellectual fields, especially with respect to having earned 12 years of university credit in one year at Excelsior College. In fact, you did this through a little-known system of taking tests, which continues your long-experience with the obsession of IQ tests into the domain of tests of general and specific knowledge. How did you discover this method of earning credit? Why did you pursue this means of earning tertiary educational credit rather than traditional classroom-based forms of education?

Rosner: In high school, I wanted to go to Harvard. (I almost certainly would've gotten in. My SATs were in the top 1% of Harvard applicants, grades were excellent (until my senior year meltdown), was student body co-president, came from a geographically underrepresented part of the country, and back then, Harvard admitted about 18% of applicants, compared to about 6% today.) Then I freaked out, scuttled my application, and ended up attending my hometown school, the University of Colorado, which I didn't take very seriously. Did well in classes I liked, blew off classes I didn't, so lots of As and Fs. Didn't graduate.

Years later, I'm underemployed in LA. My wife is working at a fancy company in Santa Monica. She comes home and talks about the flashy clothes and jewelry worn by the other women who work there. Can't afford to buy her jewelry from a store but I do some research and find out that jewelry is marked-up like crazy – sometimes 500 or 1,000 percent. Start making jewelry for my wife – the individual components are affordable. But I need access to equipment. Turns out CSUN, a local university, offers a jewelry-making class. I go back to college to make jewelry.

At CSUN, I think, "I'm in my 30s and more mature and would probably be a better student this time around." So I decide to sign up for real classes – astronomy, advanced stats, econ, group theory – and get my degree. Turns out I still hate sitting in a classroom, plus CSUN has a bunch of general education requirements I don't want to deal with.

About this time, someone in the Mega Society tells me about schools that let you test out of

subjects, which leads me to Regents College of the University of the State of New York (now called Excelsior University), an accredited school that awards credit in a subject if you get a high enough score on the GRE test for that subject. (The GRE is the SAT for grad school.) The GRE comes from ETS, the same company that does the SAT, and I've always done well on their tests.

So I go on a rampage. There's an ETS testing center in Pasadena that offers GRE subject tests once a month. For a year, I take a test a month, studying for each test while working as a doorman at a bar called Mom's Saloon in Brentwood. (The loud music doesn't bother me – I used to study for *Jeopardy!* while bouncing.) I get good scores, earning a year's worth of college credit in each of 12 subjects and fulfilling the requirements to graduate with eight majors.

Jacobsen: Not limited to the academic domain, you have entered, somewhat haphazardly, into other domains of inquiry and human endeavor such as acting and physique building. In particular, you have some short films featuring you, directed by J.D. Mata. What compelled entering into yet another domain of work?

Rosner: I've always been a pretty decent actor but just didn't have the fortitude to go through all the rejection that usually accompanies trying to be a professional actor. (One key to acting is not going overboard with emotional intensity. Most moments aren't moments of extreme emotion.) Plus, I'm not overly photogenic. I act on the infrequent occasions when someone offers me the chance. (I've always hoped to sneak into acting by becoming famous enough to be cast in cameos as a curiosity or inside joke.)

Jacobsen: Furthermore, based on your work in nude modeling, and so on, you have years of experience with bodybuilding and sculpting. However, this seems to have come attached to a downside of Obsessive Compulsive Disorder (OCD). How many times do you go to the gym every week and month? How much circa 10 years ago?

Rosner: Currently go to five gyms a day. They're in a circuit, with a mile or two between each gym. Luckily for me, L.A. has a lot of gyms, and I have cheap membership deals. Takes about two hours to do the circuit, which includes 80 to 100 sets. At my most OCDish, I was averaging nearly eight workouts a day, with a long streak of working out at least 50 times a week. At earlier, less-obsessed times, I averaged about ten workouts a week.

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Three)

2014-10-22

*Part three of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1990-96), and writer. He discusses the following subject-matter: arguing for reinstatement of metaphysics into physics, their present estranged relationship, necessary relationship between logic and metaphysics, formal argument for the derivations from logic to physics and connection to metaphysics, unsuccessful attempts at metaphysical thinking, ancient Greece's lack of experimental science, the opposite trend today with much experimental science, the depth of understanding the business transactions of the universe on a macro scale, possible purposes for these transactions for the universe, brief overview of the universe's development, related objectives of organisms, purpose of laughter illuminated by George Saunders, and effective economy of thought for a possible grounding for the universe; methodology of science, derived facts from the methodology, and constructed systems of knowledge, a determined universe, free will as an internal sense of willing something, compatibilist and non-compatibilist free will, quantum mechanics, moral axiologists, free will and ethics implying moral accountability, considerations of this with an increased understanding of the world through science, framing the appropriate question for an accurate answer to the free will question, some peoples' arguments for the ability of free will based on quantum indeterminacy, impetus behind free will appearing to be not wanting restrictions "by genes, by creeds or institutions, by mental limitations," a better question for understanding the free will issue, evolved creatures not necessarily constructing the most accurate views of reality, evolutionary examples of hijacked thought, Plato's Cave, the 'freakout' over determinism based on Newtonian mechanics, technical rather than transcendent aspect of thinking, and lack of determinacy of the universe based on quantum mechanics; free will intrinsic to an individual consciousness, free will for the penultimate armature of the universe, derived-from-armature free will for an individual consciousness (or set of them), the more important angle of informed will, and targeted thinking; and set of mainstream physicists considering the universe to exist in 11-dimensional hyperspace in string theory, constraints of the universe's structure based on the specification of dimensions, implied limitations of a three dimensional universe, analogy of Donald Rumsfeld and Errol Morris' *The Unknown Known*, origin of the phrase with John Wesley Powell, John Keats and Robert Browning mentioning the phrase too, the universe as an optimized information map, commonalities of the universe exist close to one another while those far apart have less in common, 30% of the speed of light (.3c) of objects moving away from us equating to ~4 billion light years away, forming a sphere of that radius about twice the radius of everything moving away at 15% the speed of light (.15c) away from us with four times the area, further considerations and calculations with the reciprocal Lorentz factor from special relativity, redshift and information in common, Big Bang universe, size proportional to age of universe (look farther away, the universe appears smaller because younger, or larger because older), Hubble redshift, a non-Big Bang universe having lack of uniformity with an active and burned-out center with collapsed outskirts clustered to $T = 0$ (Time equates to zero or absolute beginning of the cosmos), inverse-square law, and an economy of dimensions likely defeating an 11-dimensional universe posited out of string theoretic constructions.*

Scott Douglas Jacobsen: You think metaphysics needs to be reinstated into physics. Yet, they have an estrangement. You mean physics and metaphysics together. Indeed, I would reason much further than this. Metaphysics needs logic; logic needs metaphysics. Furthermore, mathematics derives from logic, physics derives from mathematics, and hence – for a more comprehensive framework – physics needs metaphysics and vice versa. At root, we have a deep relation between physics and metaphysics. This estrangement seemed temporary before someone directed appropriate attention to the need for conscious reunification of the two.

Rick Rosner: Compared to science, metaphysics has been very unsuccessful, to the extent that few people, scientists included, do much metaphysical thinking. Science has helped us build the modern world. Metaphysics can't even definitively answer its own questions. Pondering "What is being?" doesn't bring us Apple products. Our era is kind of the reverse of ancient Greece, which was all "Why is everything the way it is?" and not much for doing experimental science. The Greeks should've performed some experiments. It's hard to do effective metaphysics if you don't have sufficient information about how the universe works. It's like solving a crime without evidence.

But perhaps by now, we have almost enough information, via physics, to come up with a system which has some "whys" as well as "hows." We've learned a lot of "hows" about the universe: how it transacts much of its business – on a macro scale, via fields and long-distance particles such as photons and neutrinos. We should be able to use our knowledge of these transactions to propose theories of how the universe might benefit from these transactions, asking "Why? – What does the universe gain?"

Via these processes, the universe becomes simpler in some ways – over billions of years, stars boil down – and more complex in others – across billions of years, life arises. The universe becomes more stable in some ways – matter accretes into galaxies and stars which are cradled in fixed orbits and gravitational wells and the universe clusters on a range of scales, adding to stability and informational compactness. As my friend Dave Dameshek likes to ask, "To what end? To *what* end?!"

Take a look at a business model for a system with "whys" – with goals we kind of understand – thought.

Thought has several related objectives – manage an organism's normal activities, look for exploitable regularities, and avoid error, all within the context of constructing a model of reality. The brain has a finite capacity, so it wants to compress information to reduce the chance for error and make room for more information. The brain likes finding analogies and shortcuts – they help compactify information.

Thought involves risk. If the brain can figure out how to make knowing fewer things as helpful as knowing more things, it can know those few things with greater certainty and less distraction and chance of confusion. Think of it in terms of sending a message – if you have a 15-word message but can compress it to 5 words, better to send the shorter message 3 times to increase the likelihood the message gets through.

I view laughter as delight at finding a shortcut and as a signal to other people that a shortcut has been found. George Saunders has the same theory. “Humor is what happens when we’re told the truth quicker and more directly than we’re used to.” — George Saunders, *The Braindead Megaphone*

So we have a rough idea of the brain’s informational priorities and procedures. Similarly, we can speculate about what the universe is up to with regard to information.

The universe does what it does, which I believe is information processing – thinking, even – within some context. It’s grappling with – thinking about – some world beyond itself – a world that includes the physical structure that makes the universe’s information-processing possible. We can assume that the universe has objectives in that world. We can assume that the universe has an economy of thought – that its thinking is effective because some rules of information are in place. We can try to figure out those rules, dagnabbit.

Jacobsen: You think that people may be better able to answer philosophical questions today than in the past because of more accurate depictions of reality through the methodology of science, derived facts from the methodology, and constructed systems of knowledge: quantum mechanics, particle physics, chemical sciences, biological sciences, psychological sciences, and economic sciences onward with inclusion of every relevant discipline and subdiscipline. Of note, traditional ‘great’ questions can have placement in complementary scientific frameworks. For instance, in a determined universe, freedom of the will, ‘free will’, does not exist because determinacy reigns supreme. Either branch of determinism, compatibilist or non-compatibilist, bears little or no proper fruits. Why? Quantum mechanics shows either deterministic branch of the tree to be barren. Therefore, zero factual streams to hydrate and nourish the roots. Unless individuals defy the larger systemic laws (they would not) behind the hypothetical determinate universe. Furthermore, in an indeterminate universe, free will does not exist due to 1) no genuine point of contact for free will and 2) any utility of free will dissipates into meaningless randomness and noise. Peoples’ ability to freely will represents the fulcrum for each stream of reasoning, which makes intuitive and immediate experiential sense. Our universal, internal sense of willing something, of choosing one thought or act over another. Moreover, free will implicates ethics, morals, and legal systems, which binds upon bearers with the ability to freely choose right over wrong. Moral axiologists connect “right over wrong” to value systems. Value systems found in theological and non-theological contexts. Therefore, an important question for most people to consider with due ratiocination. In short, free will and ethics implies moral accountability. With increased understanding of the world through science, what do you think of this issue? What evidence and argument most convinces you of this answer/these answers?

Rosner: We can use physics to start to address whether we’ve even been asking the right metaphysical questions, such as, “Is there free will?” Free from what, exactly? From being trapped in determinism? Thanks to quantum mechanics, we know that the world isn’t pre-determined. (However, it’s easy to imagine that, even with quantum indeterminacy, our thoughts in any given situation could pretty much be pre-determined (unless we explicitly build in randomness just to be contrary). I don’t think that quantum indeterminacy has much to do with whether we think one thought or another. Other people disagree.)

“Free will” can mean “thought that is independent from material constraints.” Under this definition, if thought takes place in the material world, then it’s materially constrained. Material constraint doesn’t bother me. I believe a more important question is, “Can we make decisions free of unconscious biases?” Are our conscious minds running the show, or are we puppets of our selfish genes? And can we overcome this puppetry?

In the past, some people thought there was ordinary matter, the tangible stuff that comprises the world and there was mind-stuff – special, as-yet-undetected twinkly stuff that does your thinking. (But even with two forms of stuff, there’s still the question, is this mind-stuff free of material constraints? Are we free to think what we want to think without the material world constraining our mind-stuff?)

I think today, the situation is clearer. Our thinking consists of the information in our awareness and how we manipulate it with our hardware – our brains. We are our information. There’s no mind-stuff that freely thinks independent of information.

When you ask the question, “Why am I me?” the answer turns out to be, “Because all of your information pertains to you.” All your information came into your head, was processed by you, and pertains to you (if only because you perceived and processed it.) You can imagine jumping into someone else’s head, Quantum Leap style, but in that case, you’re taking your information and your mental history and the ways you process information into somebody else’s situation. You’re not taking some abstract mind-stuff that’s free from information with you – you are your information and your mental tendencies.

So there’s not free will (as I understand the question – there are other interpretations of free will) because there’s no mind-stuff judging from afar, independent of information. To be clear, information is not matter, but neither is it independent, free-floating, twinkly mind-stuff. Information in this context is representations of things presented in such a way that we can think about them – they’re part of thought – they’re mentally manipulable in our mind-space. This space isn’t made of or facilitated by a special form of matter. Information is tightly coupled to and facilitated by our brains, which are concrete and material.

I’m vastly oversimplifying, but the impetus behind the interest throughout history in free will seems to be concern about whether thought is to some extent a sham – whether we have exalted powers to stand apart and above from the grubby, clockwork stuff of the world, and beyond that, whether can we avoid having our thoughts controlled – by genes, by creeds or institutions, by mental limitations.

We would want free will because that would mean we’re not the beyotches of the pedestrian, earth-bound material world.

But the better question is, “Can we be in charge of our thinking?” That is, can we think without bias? Consciousness is always playing tricks on us, because consciousness is a product of evolution, not a pure product of a desire to give us the most complete and accurate view of the world. (But we don’t need to be products of evolution for our brains and biology and consciousness to have hidden agendas. The biases are there, regardless of what put them there.

Just ask any grad student in psychology about what must be thousands of experiments which show that consciousness gives us a highly filtered and biased and monkeyed-with view of the world. Each of us is our own Fox News.)

There are a bunch of parasites that transact business by messing with the brains of their victims – parasites that make mice attracted to cats (toxoplasmosis) or bugs attracted to light – so they get eaten and pass on the parasite to the next host in their life cycle. The hosts' brains have been hijacked. To some extent, everyone's brain is hijacked by what our genes want us to do. Reproducing often runs counter to the well-being and continued existence of individual organisms, but the process that made us is based on reproduction, and it tends not to be denied. We are greatly manipulated by our sexual thoughts and drives. It's so crazy how fascinated we are with boobs and butts and symmetrical, easy-to-read faces, but all those things carry information about reproductive fitness that we're hardwired to scrutinize.

We can make and are making progress in understanding our thought processes. Figuring out the limitations and biases of our thoughts and perceptions and how to overcome them are how we slowly extricate ourselves from Plato's Cave. We can never get all the way out of the cave – never see and understand existence exactly as it is – but we can make unlimited progress, stacking up level upon level of scientific, philosophical, aesthetic and moral understanding. (If thinking entities are common throughout the universe, then not only scientific understanding is necessary. Thinking entities have narratives and morality.)

People freaked out over the idea of determinism which got a big push from Newtonian mechanics. They didn't like the idea of being locked into a perfectly predictable machine universe which seems to make consciousness unnecessary. How can we really be thinking and why do we need to think if our brains are just molecules bouncing off of each other in a completely predictable way? But thinking shouldn't have to be and isn't transcendent – it's a technical process involving considerable amounts of information simultaneously shared among a bunch of specialized subsystems. Doesn't matter if it's just electricity and bouncing molecules – the mental chatter is an unavoidable aspect of the processing. While not transcending mechanics, thinking, as an inescapable aspect of high-level information processing, may be the frame for all of physics (since the universe engages in high-level information processing), which makes thinking kind of transcendent, after all.

The universe turns out not to be deterministic – quantum events are, within their probability functions, perfectly unpredictable. (Future quantum events (which includes everything, really) precisely follow probability functions. We don't know the outcome of a quantum event. But we do know the probability curve that decides the outcome. That is, once we've narrowed down the possible outcomes as much as possible, what's left – the unpredictable, indeterminate part – is completely, inherently unpredictable except in terms of precisely defined probabilities.)

But this isn't good news for free will, because quantum unpredictability doesn't liberate thought from being a mechanistic process.

Consciousness is a technical thing, not a mystical in the realm of angels thing – it's a property of high-level information-sharing via bouncing molecules, etc. – not necessarily in a completely

predictable way, but also not in a way that thought can bend or defy physics through thought itself.

Consciousness creates an information space (or mind-space) that owes itself to the physics of the brain but isn't comprised of the atoms of the brain. (It's as if your brain is running a video game environment which contains representations that come from (processed) sensory information and from imagination (generally not the Willy Wonka kind). It hasn't built a physical world – a scale model of the outside world like a model train set – but rather a system that allows the mind to envision and manipulate mental representations. As we think, we don't see neurons firing – we see what is represented by patterns of neurons firing.)

But hey – if you have your mind-space – an abstract arena for the information in your awareness – why so serious about the physical foundation of the space? Your brain is made of stuff – get over it. Legitimate concerns related to free will include not being in charge of what gets to enter your mind-space, how information has been sharpened, simplified, amplified or otherwise tweaked on the way in, and unconscious glitches in your information-processing.

There's the ass-covering, bogus storytelling nature of consciousness. Your unconscious or some specialized subsystem pulls the trigger on a decision, followed by your consciousness telling itself a story after the fact about why it made the decision. Happens all the time. Your consciousness is always telling you, "It's cool – got it – I'm the boss." Sure you are, consciousness – you're the boss like Donald Trump or Michael Scott is the boss – you can be a blowhard with an exaggerated sense of your own skills.

If you observe carefully, you can spot some of the mechanics of consciousness and watch your thoughts being assembled. One small example – when there's a name on the tip of your brain, sometimes you get clues – it's five letters, it starts with a B or an M. You can glimpse some of the mental landscape where the little ball of inquiry is rolling around, trying to drop into the pit that's the answer. But now you've thought about it too much – you've scrambled the landscape – you have to forget your inquiry and let it settle. Come back to it a little later, and often, the answer is right there for you.

In addition to constraints on thought, there are constraints on existence itself. Our thoughts are fairly tightly bound to reality, and reality seems bound to some pretty inflexible principles of existence. Creatures that are the result of evolution in a natural (un-engineered) cosmos probably all live in three spatial dimensions with linear time and rules of physics which are fairly consistent among all the different possible universes. (I don't believe that the universe can take on any crazy dang form, with physical constants and number of dimensions at the mercy of 12-sided dice, and not just because the special effects department only has the budget to cover a couple of extras in blue body paint. There are reasons for gravity and 4D space-time, etc.) Whether advanced civilizations can circumvent these somewhat uniform conditions and construct truly weird universes remains to be seen.

Evolved creatures are persistent creatures – they've evolved to persist by propagating offspring across time. If the general scheme of the universe is decipherable – if we can decode its physics and metaphysics – then advanced civilizations (at least those which retain the will to persist that

they evolved with) will figure out the universe and be forced to address it on its terms (which we have to anyway, even without understanding it). Every civilization cooks from the same Mystery Basket – the universe.

So civilizations are locked into a template – they react to the conditions of existence, constrained by their persistent characteristics and by physics, resulting in a limited range of possible paths for civilizations. You hear people say, “There are only seven basic plots for movies.” Well maybe there are a limited number of basic plots for civilizations. Some might be empire-builders. Though maybe not – in the words of Enrico Fermi, “Where are they?” It might be more efficient to stay close to home and exploit local resources for computing power – turning nearby planets into Dyson spheres and the like. Some might fall into decadence. Some might devote themselves to figuring out what the universe means and wants. Some might become artists, engaging in grand feats of beautiful, frivolous engineering. Maybe your standard advanced civilization is a mix of all the major reactions to existence, kind of like a TV lineup – comedy, drama, glitzy excess, hedonism....

The rules of existence will turn out to be fairly mathematical – not ordained from above, with God saying, “This is the precise and perfect Number One. It’s the basis of counting,” but hemmed in by slippery, iron-clad but fuzzy and evanescent tautological necessities such as non-contradiction – something can’t both exist and not exist (except when it can because of quantum uncertainty) – with existence entailing space and time and matter and their delineation via interactions – a big, messy ball of bootstrapped logic. (Numbers seem inherently exact, but that’s how we define and use them. We’re really borrowing an infinity of information (about the relationships among numbers) to do so. Numbers are as bootstrapped as everything else, but they’re amenable to procedures which hide that.)

Given that we’re constrained by math-like rules, it’s not unreasonable to think that we’re math-like entities, with our existences boxed and bound and constrained by having to belong to the set of all possible things.

Imagine, for example, the mind-space of a sponge, which has no neurons but which can respond to stimuli. (A sponge can sneeze when it gets filled up with schmutz.) It has a tiny-to-the-point-of-nonexistent, fuzzy mind-space – a pretty close to minimum-possible mind-space – which could probably be replicated with a simple mathematical model. Then there are roundworms with 302 neurons. It would take a much more complicated model, but you could still build one, once the math of mental spaces is understood, which would encompass all possible roundworm mental states. Which means that the mind of a roundworm is a mathematical entity.

Now imagine the brain of a chicken. The (always reliable) internet suggests it might have 100 million neurons. Hard to imagine precisely and accurately modeling a chicken’s mental space. But on the other hand, it’s a chicken. We’ll eventually be able to do this. We could build Chicken (and Pig and Cow) Heaven. Sorry we keep killing and eating you, chickens, but we’ve replicated all possible chicken mind-spaces in this computer. You’re in there somewhere, having what passes for a great time for a chicken.

There’s no way we won’t, in the next 50 years, try to build the mind-spaces of Abe Lincoln and

Jane Austen and Shakespeare. “Have you read *Joy and Jealousy* by Jane Austen 3.3? Way too much sex.” Yes, *Star Trek* Holodeck, I can see you. You can put your hand down. Characters in video games will have their own mind-spaces. People who freeze their heads might find themselves brought back to fight World War Two over and over in *Shell Shock 4* for the Goopple PlayVerse.

But we’re saved from our constraints by infinity. Assuming (which we may never be able to prove) that possible universes can be of any finite size, and that the number of universes of any given size is proportional to the size raised to some exponential power, there’s an infinity of possible worlds and destinies.

Jacobsen: Free will might operate beyond present explanatory powers. It may exist intrinsic to an individual consciousness, or set of POVs, in the universe overriding/incorporating quantum indeterminacy or exist based on an intrinsic characteristic in a larger system. For instance, an armature of the cosmos beyond present explanatory powers. What of this armature for the universe? What if free will for the universe inheres in this armature? Intrinsic freedom of the cosmos. In other words, what if conscious creatures relate to such an armature and have derived (intrinsic to them or derived from armature) freedom of the will?

Rosner: [Asked in a Seinfeld voice] What’s the big deal about free will? I’m not overly concerned about free will; I care about *informed will*. Consciousness can function to somewhat optimize mental resources, with the objective being, the better the model you have of the world, the better your understanding of that model and the more angles and tactics you can deploy based on that understanding, the better your chances are of achieving your goals.

This is not free thinking. This is targeted thinking, based on where and what we are in the world. We’re not free – we’re part of the world, and we have to think about it. We can think freely about philosophical issues – about whatever we have the mental chops to think about – but even this kind of thinking is some kind of strategic reaction to the world. I would rather think well than think free. Freedom comes from knowing what’s up and being able to react effectively to it. But you’re still anchored to what’s up.

And about the universe’s armature – I think the universe is thinking about the world that the armature is part of – the outside world that contains the mind or mind-like thing that is our universe. The universe’s information processing or thoughts pertain to – are anchored to – its outside world. Everything that thinks is thinking about a world – it’s thinking in an anchored context.

Jacobsen: Out of another set of mainstream physicists, even while some claim lacking direct observational evidence, arises the possibility of additional dimensions as postulated in, for example, string theory with everything in existence operating inside of 11 dimensional hyperspace. How do these conceptual and mathematical frameworks hold in your view?

Rosner: It takes information to build and specify dimensions. Where does the information contained in 11-dimensional hyperspace come from? Does the universe contain enough information to have all these extra dimensions? Maybe so, if the dimensions are small enough to

not contain much information at all. But on a macro scale, the universe barely has enough information (from observing itself) to hold open three spatial dimensions.

I don't love string theory. Maybe if I knew enough math and physics to work with it, I'd like it better. But in my current ignorant state, it seems unnecessarily complicated. I hope there's a simpler explanation for the way the universe works, with string theory being one of a variety of helpful ways to conceptualize physics. I'm hoping we develop a toolkit consisting of a number of different but consistent angles on physics and the universe, each being handy for certain operations, and acting as cross-checks and sources of insight for each other. It would kind of suck for string theory to turn out to be the simplest way to understand the world.

Why does the universe have three dimensions? I think we live in a Rumsfeld universe. Donald Rumsfeld famously said, "...there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns — the ones we don't know we don't know." (Errol Morris, who made a great-as-usual documentary interview with Rumsfeld called *The Unknown Known*, traced the idea of unknown knowns and known unknowns back to the explorer John Wesley Powell. He also notes that John Keats and Robert Browning also mention the "known unknown.")

Suppose that the universe is an optimized information map (of itself, the same way we could imagine an information map of the mind, which when optimized would be a map of itself), with the distance between objects roughly based on how much information they have in common. Parts of the universe with almost everything in common will be very close to each other. (By "in common," I mean shared information — they've been exposed to largely the same history — belonging to the same group of active galaxies — as the universe unfolds.) Parts of the universe with very little in common will be distant from each other (and red-shifted and time-dilated). (Dormant galaxies which are distant from and mostly uncorrelated with each other can be hauled into stronger correlation with each other by bringing them into the active center (kind of like popping open windows on a giant glass touch-screen on a cheesy *CSI*-type show).)

In an information-map universe, it takes information to hold space open. The number of dimensions depends on the amount of information available to specify the relationships among objects in these dimensions.

Every part of the universe at the same distance from us has about the same amount of information in common with our neighborhood. Say, for example, that we're looking at parts of the universe that appear to be moving away from us at 30% the speed of light; they're about 4 billion light years away. Everything that's four billion light years away from us forms a sphere of that radius, about twice the radius of everything that appears to be moving away at 15% the speed of light, with four times the area.

Just for fun, say that the amount of information in common with us is approximately (at low v) the reciprocal Lorentz factor from special relativity: the square root of $(1 - v^2)$, where v is the redshift velocity (how fast that part of the universe seems to be moving away from us). For $v = .15$, information would be about 98.9% in common, or 1.1% not in common. For $v = .3$,

information would be about 95.6% in common, or 4.4% not in common. For low redshift velocities, information not in common is proportional to the ratio of velocities squared.

This sets up a locally three-dimensional universe. At each redshift radius v , information not in common with our neighborhood takes up a region proportional to v squared, or the surface of a sphere of radius v . (Each redshift velocity corresponds to a (Hubble relation) distance from our galaxy.)

I've left out multiplying the information not in common by the information in common. The less information in common, the less you can distinguish the spatial relationships among distant objects, and space at that distance as we see it shrinks proportionately.

So here's a Rumsfeld way of thinking about the dimensionality of space. Distances from us are the known known – we know how much information we have in common with other neighborhoods and objects in space. Spatial relationships among *other* objects shade from the known unknown to, at higher redshifts, the unknown unknown. We know a lot about neighborhoods with almost all information in common with us, but, having almost all information in common, they don't spread out across a lot of space. The less information neighborhoods have in common with us, the more information space they could occupy, but the less we know about them, the less we know about their spatial interrelationships and the less we can see those relationships, and space at large cosmological distances is effectively shrunken (and smeared out as we look at it).

In a Big Bang universe, we can see across nearly 14 billion light years. (Microwave background radiation has spent nearly the apparent lifetime of the universe reaching us.) But we're not looking at a sphere 14 billion light years in radius, because the background radiation comes from a very small, young, recently exploded universe. (There's a maximum radius we can see as we look across greater distances and farther into the past. Beyond that radius, we're seeing increasingly smeared-out images of our universe when it was younger and smaller. Of course, every image we see is of a younger universe, but it's usually only younger by a few billionths of a second – the time light takes to cross a room.)

If we could see to infinity, we wouldn't see Big Bang space as completely filling three-dimensional space. Looking farther and farther, we'd see the universe getting smaller and smaller (because younger and younger), until it's a point at $T = 0$. But that's just because we're looking back in time. Though we can't see it because of the finite speed of light, a Big Bang universe can be a fully three-dimensional surface of a hypersphere.

But I don't think we live in a Big Bang universe. Due to the nature of an information-space universe, it looks quite a bit like a Big Bang universe, and that it started with a Big Bang is a natural first conclusion to reach, based on general relativity and the Hubble redshift. Note that the idea of the Big Bang – space exploding from an initial point – while seeming indisputably established, is less than 100 years old, and has been the predominant theory of universal structure for less than 50 years.

A Big Bang universe is nearly the same everywhere – the result of a uniform outward expansion.

But a universe that doesn't blow up all at once isn't the same everywhere. It has an active center and burned-out and collapsed outskirts clustered close to what looks like $T = 0$. This universe may not be perfectly three-dimensional – space is highly curved and riddled with collapsed stuff near the apparent origin, which may mean that space is effectively less than three-dimensional at great distances.

If space doesn't extend outward from any given point – if, on the outskirts, it tucks into itself – maybe it's lacking dimensionality. (Or maybe the scale of space is (relativistically) collapsed, allowing for space to be squeezed into less space. On the outskirts, you might be able to have an unlimited number of neighborhoods separated by high apparent relative velocities, because you can add relativistic velocities forever without reaching the speed of light – stuff just gets more contracted.) If the outskirts are less than three-dimensional, this might explain large-scale gravity not falling off according to the inverse-square law.

(If there's an actual collapsed outskirts not just a visual ghost of the early universe, can you build a rocket and travel close to $T = 0$? Probably not. For one thing, it's a many-billion-year trip, even at the speed of light. For another thing, space filled with collapsed stuff may have a smaller scale and contain even more distance than we can see from here. And there would be heavy radiation including lots of neutrinos.)

To get back to your original question about string theory and 11 dimensions – I think there's an economy of dimensions. Self-defining systems of information don't have enough information to hold open a space greater than three dimensions (not counting gravitational wells) (and maybe not even three dimensions over great distances).

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Four)

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*Part four of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1990-96), and writer. He discusses the following subject-matter: information processing as the basic operation of universe, 'transactional information processing', isomorphic operation and traits of humans and universe, operation through time, self-consistency and information processing as the traits, creation of a new field of endeavor called 'informational cosmology', and implications of informational cosmology; scientific study of the linkage with established scientific techniques, applying physics to thought and understanding of the mind to universe, mathematicising consciousness as a step to digitizing consciousness, implications of storable and transferable consciousness, the destiny of civilizations to make this linkage, and human civilization being one of them; calculated information-in-common/information-not-in-common based on various velocities (.15v and .3v), gravitational lensing across ultra-deep cosmic time, self-consistent and information processing areas of universe equating to subsystems and therefore consciousness, black holes not existing, "blackish holes" existing, considerations on consciousness of largely independently processing blackish holes, and complexity of the universe possibly taking the form of advanced civilizations; current theory of universe composed of ~4.6% baryonic matter, ~24% non-baryonic/exotic 'dark' matter, and ~71.4% non-baryonic/exotic 'dark' energy, argumentum ad verucundiam, theories with correct or incorrect nature based on the reasoning and agreement with the evidence; allowance for recycling of galaxies, young galaxies populating the expansive center of the universe (older galaxies on the outskirts), old galaxies as neutron heavy ("cooked"), and recalling of old galaxies to the center of the universe; élan vital, possible analogous ideas such as dark matter and dark energy, dark energy as a tweak on the inverse-square law of gravitation, steady scale of universe over billions and billions of years, "self-observing, self-defining universe" having flatness and in-built constant size, self-definition of universe maintaining a constancy of size, one cross-section of time or one moment and associated probabilities of history and possible futures; considerations on gravity; thoughts on the necessity or non-necessity for gravitons to have gravity; preliminary review of informational cosmology and interrelated concepts, commentary, calculations, and arguments for the field; discussion on informational cosmology and entropy; discussion on informational cosmology and subatomic particles; further extrapolations about black holes; linking the variegated concepts and arguments of the theory; the essential meaning of these linkages; discussion on informational cosmology and space & time; discussion on informational cosmology and the principles of existence ('laws'); concrete calculation about the age of the universe relative to the accepted canon age of the universe at ~13.77 billion years old, calculations based on estimations of human thought, unfolding of galaxies, structure for the universe, multibillion-year unfoldings of universe, and the derivations up to concluding of the universe not being only ~14 billion years old; and the extension of informational cosmology to two new complementary fields called 'informational cosmogony' and 'informational 'eschatology', information internal to universe arising external to it, and thoughts on such an armature external to universe.*

Scott Douglas Jacobsen: You describe information processing for universe's substrate of

operation. This implies transactions. For precision, this means ‘transactional information processing’. I would like to plumb the well of reasoning. For example, ubiquitous information processing within and by universe. Consciousness emerges from self-consistency and information processing. Humans have self-consistency and information processing, and thus have consciousness. Therefore, we can extrapolate to universe based on isomorphism in operation *and* traits. Operation through time. Traits of self-consistency and information processing. An isomorphic geometry of universe and minds in universe. By extension, universe possesses localized and globalized consciousness. In addition to this, if we could provide an absolute measure of the degree of 1) self-consistency and 2) information processing capabilities of individual localized consciousness, then we could provide an absolute measure of global 1) self-consistency and 2) information processing capabilities of universe. Precision of this metric limited by information quality, computational capacity, and efficacy of calculation methodology. Therefore, we might both 1) consider universe reposed with consciousness at the fundamentals and 2) provide a metric of universe’s degree of consciousness. You call this “informational cosmology.” In a way, mind/brain sciences become physics/cosmology, and vice versa. A metric for the mind/brain could extrapolate – within reasonable consideration – into a metric of universe. Only differences in magnitude. Where else does “informational cosmology” lead us?

Rick Rosner: Informational cosmology smashes together two big areas of study – the mind/brain and the universe – in a way they’ve never productively been smashed together before – they’re the chocolate & peanut butter, the Han Solo & Chewbacca, the mac & cheese, the Lennon & McCartney, the Key & Peele, the Beavis & Butt-head, the Spock & Kirk, the Mulder & Scully, the Felix & Oscar, the Holmes & Watson, the Thelma & Louise, the Jonah Hill & Channing Tatum of tough things to think about. Three hundred years ago, Bishop George Berkeley said something like, “The universe is an idea in the mind of God,” but this didn’t lead to anything. There wasn’t yet enough scientific knowledge to work from.

But that was then. Now, linking information maps and thinking and the universe allows you to apply established scientific techniques across the linkage. We can apply physics to thought and information in the mind. We can apply understanding about the purpose and mechanisms of thought to the universe. We will soon be able to give mushy, loosely defined terms such as consciousness a solid mathematical basis.

And mathematicizing consciousness (developing a mathematical model of information processed in awareness) is the first step to digitizing consciousness (translating moments of consciousness into numbers) – to making it recordable, preservable, and transferable. That is a huge step – maybe the hugest step – towards saving our species and the planet. Storable, transferable consciousness eventually – within 100 or 150 years – frees us from the confines of our biological form. This is a big deal, if earth isn’t going to become a giant dump suffering from the effects of a 23-billion-person population. Science fiction writer Charles Stross imagines a future where, among many other things, most people/semi-people/robots are only three feet tall. Half-height people use less than half the resources – maybe less than a quarter of the resources – of full-size people. You can cram a lot more of them on the planet, if that’s what you want to do.

But that won’t be all that we might want to do. Like-minded people might meld or marry minds and literally live as one. Many people will want to live almost exclusively in cyberspace, renting

bodies when they need to go out into the real world. Population growth will slow. Maybe your rich grandma in a failing body offers you \$50 million to let her consciousness ride piggyback on yours. (Steve Martin made a movie about something like this 30 years ago – *All of Me*.) These are pretty unsurprising ideas in science fiction – people who think about this kind of stuff are expecting things to get weird. Even if my attempt to join thought and the universe doesn't gain traction – even if it takes someone else theorizing similarly, years from now, it's still coming – it's pretty much our destiny. It's the destiny of civilizations to make this connection and figure out the universe. (Just about every civilization figures out that its planet orbits its sun, that it's part of a galaxy, that there are other galaxies, that life evolved, etc. Figuring out that massively shared information-processing is essentially thought is another one of those things.)

There will still be plenty of normal human life. We'll still have the same drives (for sex, food, status, slightly taboo information), until we start messing with them. And then we'll have slightly more efficient and exalted drives, but nothing too terrible – ethical values will survive. People who want to live old-school will still be able to do it. But the drift will be towards control of our destinies via understanding ourselves and the universe – we'll improve consciousness, making it (and us) more informed and more complete, with fewer hidden biases. It'll be weird but also mostly great, and it's where we've been heading without knowing it since apes started using twigs to fish ants out of anthills.

Jacobsen: You calculated the information-in-common/information-not-in-common based on various velocities (.15v and .3v). We can symbolize them: I_c/I_{-c} . Gravitational lensing across ultra-deep cosmic time could form pockets beyond expected, i.e. calculated, arithmetic mean of derived spheres from I_c/I_{-c} at .15v, .3v, .45v, and so on. Insofar as calculated I_c/I_{-c} spheres with extensive radii in excess of .3v, multiple dispersions of information might converge on pockets of uneven areas of universe (and sufficiently large to make the empirical point) for statistically significant outliers of calculated information with expansive distances from one another. In an information theoretic framework, areas of self-consistency in an information processing universe might count among other subsystems. Units of sufficient individuation with self-consistency and information processing. Indeed, you have mentioned black holes, but “blackish holes.” You have said this for over 30 years. Moreover, you consider blackish holes universe's memory. If we fuse these arguments, we have outlier subsystems with capabilities for self-consistency and information processing called ‘black holes’ at present. Self-consistent and information processing subsystem equates to consciousness. Therefore, we have the possibility for sound consideration of consciousness emergent from blackish holes in universe.

Rosner: If blackish holes are (largely) independently processing information, then there's the strong possibility that conscious entities are doing at least some of the processing. Perhaps a place for civilizations or advanced beings to survive galactic cycling would be in the massive million-solar-mass blackish holes at the centers of galaxies. The universe is huge, ancient, and unavoidably complex (in part because every star with orbiting planets is an open system that can shed excess energy, which works against entropy and disorder). Some of that complexity probably takes the form of long-lived structures and entities and civilizations (or whatever civilizations tend to turn into).

Jacobsen: In the current theory of universe composed of ~4.6% baryonic matter, ~24% non-

baryonic/exotic ‘dark’ matter, and ~71.4% non-baryonic/exotic ‘dark’ energy, your theory would shirk the current weight of astrophysical consensus. Although, we cannot disprove or by necessity deny the validity of the theory based on *argumentum ad verucundiam*, even authoritative authority. In addition to this, we cannot agree or disagree with the theory based on various high intelligence test scores, or credentials or lack thereof. Either correct or incorrect based on the reasoning and agreement with evidence. With these in mind, what do you make of dark matter and dark energy? Do they exist? How would your theory supersede present explanations?

Rosner: I think the universe isn’t inherently unstable in size, with overall stability being a characteristic of an information-based universe. That is, though parts of it can expand and contract, the universe isn’t going to keep flying apart to some cold, thin oblivion or collapse into an infernal dot. (At least without some outside agency acting upon it. The loss or degradation of the physical structure which supports the universe would result in the loss of the information within the universe. As the universe loses information, it would become less well-defined, which might look like a collapse and heating up of the universe – a big bang in reverse.) The scale and size of the universe should be roughly proportional to the amount of information it contains (with local scale and size depending on the information/matter distribution as viewed from each particular neighborhood).

Are dark matter and dark energy needed to help with the gravitational bookkeeping of an inherently flat universe? I don’t know. I’m more inclined to believe in dark matter than dark energy, with the dark matter made of non-exotic stuff – mostly old, burned-out, collapsed stars, many of which, I guess, would be orbiting on the fringes of galaxies, largely invisible except for their effect on the galactic rotation curve.

(Burned-out stars closer to the centers of galaxies could orbit the galactic center, largely undetected, or might collide with other stars (possible falling towards the massive black hole-like object at the galactic center), or during early-galaxy star formation might accrete enough hydrogen to light up again for awhile. I don’t know how old stars mixed into a young galaxy would mess with the dynamics of galactic formation. Wikipedia says there might be 10^8 neutron stars in the Milky Way, compared to 10^{11} regular stars. Red dwarfs, which have extremely long lifespans and are hard to detect, might make up three quarters of the stars in the Milky Way.)

What I’m saying is, if you allow for galaxies to recycle – to go through star formation, light up and burn out, over and over again – there’s room and reason for there to be lots of non-exotic, hard-to-see dark and dark-ish matter in and around galaxies.

Jacobsen: How would a burned-out galaxy be recycled?

Rosner: Young, active galaxies occupy the expansive center of the universe. Old, burned-out galaxies find themselves in more collapsed neighborhoods on the outskirts of the universe, due to subsequent expansions (in which they don’t participate). Old galaxies are neutron-heavy – they’re cooked – they’re done.

But conditions on the outskirts cause some old galaxies to become proton-rich again. Maybe an old galaxy gets flooded with neutrinos, which will be found in more profusion on the collapsed outskirts of the universe and which convert neutrons into protons. Maybe the hotter, denser outskirts have more free-floating hydrogen to accrete. Maybe the increased curvature of space in the collapsed outskirts reduces the depth of the gravitational wells which keep neutron stars under pressure, allowing the surface layers of these stars to decay back into protons. Maybe collapsed structures can reignite themselves, based on their own information and processes or when detecting information that they specialize in (that may not be visible to the rest of the universe – collapsed galaxy as smoke detector).

The outskirts of the universe are hotter, denser, more spatially curved, more bombarded with neutrinos streaming from the active center. Here, it's harder for neutrons to remain neutrons. Here, I'm guessing that the crusty, neutron-heavy surfaces of the stars in an old galaxy can be eroded into protons, like a Lifesaver in your mouth. A galaxy that gets hit with enough proton-producing forces is rejuvenated and can become part of an active, expansive galactic center. Perhaps most of the collapsed matter on the outskirts exists in a hair-trigger state, ready to light up again on a moment's notice (with that moment being billions of years long).

An information-processing universe can reactivate old, settled galaxies, recalling them to the center, where they participate in new processing. The processing in the center helps but doesn't exclusively determine which galaxies will be next to be recalled. (The galaxies in the active center co-evolve over a rolling cycle. They form a bubble that might merge with other bubbles. The active center is probably more balloon than neck. That is, most galaxies would experience themselves to be roughly at the center of the universe, the way every galaxy is central in a Big Bang universe.)

Jacobsen: Science history presents examples of widely accepted substances. For a trite example, *élan vital* to explain the knotty operations of life. Time proved their possible veracity more or less false. Do you think dark matter and dark energy have analogous existence to older ideas like *élan vital*?

Rosner: Some of the finer points of dark energy will go away – for instance, I doubt the universe is undergoing accelerating expansion.

Dark energy can be seen as a tweak to the inverse-square law of gravitation (or at least there are theories which account for large-scale phenomena by tweaking the inverse-square law). I believe that over a sufficiently long time scale, the universe as a whole experiences very little net expansion – that the size of the universe is proportional to the amount of information it contains, and on the timescale of a few 14-billion-year cosmic blinks, the universe doesn't gain or lose that much information. I suppose the active center of the universe can vary in size quite a bit, but I doubt this is accomplished via dark energy.

Given that the overall scale of the universe should remain steady, the inverse-square law has to be violated – there's no stable solution to general relativity without throwing in a cosmological constant. According to GR, the universe can't just hang in mid-air (or mid-space-time continuum).

But in a self-observing, self-defining universe, flatness and constancy of size are built in. I believe that the universe observes and defines itself quantum mechanically. It's as if the universe is an enormous gunfight – every particle in the universe helps figure out where every other particle is by all the particles shooting particles at each other.

Imagine a uniform universe consisting of regularly spaced particles (all shooting at each other). Over time, the wave functions of the particles spread out, as the universe itself spreads out (because the specifications of space itself are uncertain). There's not enough information from the gunfighting particles to keep them absolutely pinned down in space – they're fuzzy, and they get fuzzier. BUT the rate at which the particles get fuzzier is proportional to the rate at which the universe spreads out, so the scale of the universe – the ratio of the particles' fuzziness to the size of the universe stays constant. There's your stable universe, hanging in mid-air.

The universe defines itself, and, by defining itself with a constant amount of information (proportional to the number of particles in the shoot-out and the complexity of their relationships), the size of the universe remains constant (or grows or shrinks gradually as it gains or loses information).

(What collapses the wave function (if that's the way you want to talk about it)? Probability. Wave functions are either collapsed by observation or not. (I guess – it'd be nice if I'd studied advanced QM, but oh well.) Observation is done by the matter within the universe. (Sometimes people make the observations, but we're not particularly special in that capacity – we're part of the universe.) At each moment (as experienced locally, so you don't have simultaneity problems) particles are all in their various states, with their probabilities of interacting with each other or decaying or whatever else particles do. Subsequent moments reflect the playing out of these probabilities.

To be clear-ish: you have a moment, with its probabilities. This moment implies a set of possible subsequent moments, consistent with the information contained in the moment. Each subsequent moment (that is, an actual moment, not just a possible many-worlds moment) reflects the probabilities in the history that led up to it. But each moment is random and arbitrary to the extent that the universe has finite determinative information – a limited capacity to define the future. Every moment predicts the future, but not all the way. Each new moment has information that is filled in, not from out of nowhere, but from outside of the universe's determinative information. Like this – an hour before the end of a football game, your personal information space determines that the game will almost certainly have a final score. But your information space – your mind – can't determine that score. It can assign probabilities, but the moment that contains the final score includes information that was previously unavailable to your information space and had to be filled in from outside.)

Jacobsen: What about gravity?

Rosner: In our evenly spaced universe, there's no experience of gravity – everything's hanging in mid-air. But move a couple of objects closer together. You've raised the mass density in their region above the universal average. (Been thinking about gravity a lot and have managed to confuse myself a little bit, but...) By being closer together, they're not seeing as much of the

energy flux that holds space open (or something). The space between them will expand considerably less than between the evenly spaced objects, and hey! – you’ve got gravity (when the overall expansion due to uncertainty (and photon flux?) is cancelled out). (Given that the average mass density of the universe is about one proton per cubic meter, two protons separated by a meter (in our hanging-in-mid-air universe) should experience no net gravitational attraction. Good luck testing that – the force or lack of force is more than 10^{40} times smaller than the smallest force ever measured.)

Jacobsen: Do we need gravitons to have gravity?

Rosner: There are arguments from quantum field theory in favor of gravitons, but if gravitation is an effect of the scale of the universe being information-based, gravitation might be entirely mediated by other forces and particles. Gravitation might be bookkeeping – other forces conduct their business, with the scale and shape of space (which includes gravitation) being a collective net result of this business. What I’m asking is – does the shaping of space require special space-shaping particles, or does the shape of space result from all other physics business? I guess this is the same thing as asking, “Does all the other business transmit all the information without the help of gravitation?”

This leads back to your question about dark energy. Dark energy seems like a spring-loading of empty space to make the universe conform to observation. I doubt that dark energy is a thing beyond that everything comes from the scaling of space based on information. In most of our observations, we see this as an inverse-square effect of gravity. But this doesn’t make inverse-square the law – it’s just the most observable effect. Overall, the universe probably stays roughly the same size over shortish periods of time (billions of years), which it couldn’t under universal inverse-square gravity. Effectively, there’s a cosmological constant. And there are probably a bunch of other tweaks to inverse-square gravity. But inverse-square and its tweaks all come from the same thing – the shape and scale of space being defined by the information it embodies. So, instead of a computationally very simple inverse-square law as a foundation, you have this principle that information shapes space which is probably computationally a pain in some of its aspects. In everyday situations, you can simplify it to inverse-square. In other situations, maybe it’s helpful to do the math as if there is dark energy or a cosmological constant. Does that mean that dark energy actually exists? Could be that it doesn’t – could be just a mathematical convenience.

Jacobsen: Let’s go through a few questions that have been prompted by your answers to previous questions. What would you call a field which links the structure of thought with the structure of the universe?

Rosner: The idea that the universe is describable by information (is a humongous information processor) is called digital physics. I like “informational cosmology” better. (But suggesting a discipline be renamed is kind of a douche move.)

Jacobsen: What about entropy?

Rosner: In the words of a tweet from Christopher D. Long, “People shouldn’t expect phenomena

at scales and energies far outside normal experiences to be analogous to those experiences.” We don’t have an understanding of how entropy might work for the universe as a whole. I think that the universe has ways to dump or hide or attenuate energy-depleted, high-entropy volumes. As a formerly active part of the universe burns out, it collapses and gets pushed to the side as other parts of the universe light up and expand. The effect is no overall increase in entropy. (The pushing to the side is a relativistic rotation out of the active center. I like thinking of relativistic shifts as rotational. Objects with a high velocity relative to you aren’t fully participating in your space-time frame, according to the equations of special relativity, which are trigonometric.)

Relativity, both special and general, has to do with information. Matter that (as information) has reduced relevance (that is, I guess, reduced information in common) with the matter observing it is relativistically rotated – shortened, time-dilated, red-shifted. The Hubble redshift acts like a correlation quilt across the universe. Neighborhoods that are highly correlated with each other are close to each other, with low relative redshifts.

Which kind of leads to inertia. Mach’s Principle says that inertia is due to the stellar background. (That is, movement relative to all the galaxies in the universe – at the time Mach was writing, the existence of galaxies beyond ours wasn’t well-established. And way before Mach, someone else who kind of thought this was Bishop Berkeley, the “Universe is an idea in the mind of God” fella. That guy was good.) What if inertia is due to gravitational attraction being relativistically attenuated, so that an object in motion is less attracted to the matter in its immediate neighborhood and more attracted to the neighborhood whose apparent velocity matches its own? (A friend of mine asked Feynman about something like this, and Feynman said it didn’t work – the calculation ended up with a sign-reversal – a plus where a minus should be, or something.)

Jacobsen: What about subatomic particles?

Rosner: Of the dozens of subatomic particles, only five – the electron, proton, neutron, neutrino, and photon – can last for a long time and travel across large distances. I consider these the workhorses of the universe and all the other particles their helpers. Protons and neutrons encode information and shape space, with protons opening up space and neutrons collapsing it.

Not all information in the universe can be in play at the same time. The universe doesn’t have enough processing capacity, and most parts of the universe are highly uncorrelated with each other – they’re in neighborhoods that are vastly separated (in distance and Hubble redshift). But even when not in play, information in collapsed neighborhoods may help define the universe, perhaps with their gravitational vectors acting as 4D tent pegs, helping hold the whole universe open.

If you examine the contents of your awareness from moment to moment, you don’t know that much stuff at any given instant (the moment you wake up, for instance), but you don’t panic, because you feel that you can recall just about anything you need to know almost immediately (and because it wouldn’t make sense to be in a constant panic – you’re used to always almost knowing things). There’s all this knowledge on the tip of your brain – it’s imminent – ready to go and perhaps providing structure without being fully in your awareness.

The universe could be set up the same way, with shadow information – collapsed neighborhoods on the outskirts – providing structural support and helping define space and the matter it contains. Maybe in a very low-information universe – young, hot, fuzzy – the ratio of the proton mass to the electron mass is closer to one-to-one rather than our 1,836-to-one.

Could be that neutrons, acting as closed-off variables, serve to increase the precision with which matter is defined. Protons are free to act on other matter via electric charge – they're active. Neutrons are decided – they're locked into fixed correlations in a nucleus or in gravitationally collapsed matter. They can't interact with the universe via charge. But by being fixed (generally for the many-billion-year time being) they can provide a stable background – a framework of frozen, decided (for the long now) issues – against which the active center of the universe can work out the issues in play. The frozen background is the framework of assumptions that more precisely define the terms in play. The terms in play are the protons in the active center, made heavy, small and precise (because the heavier the particle, the smaller the DeBroglie wavelength) by all the collapsed matter in the background. The proton-electron mass ratio is proportional to the amount of collapsed, neutron-rich matter on the outskirts of the universe compared to the amount of proton-rich matter in the active center. It's an old universe, with a lot of collapsed matter.

The frozen framework can be brought back into play, but only a small fraction of it can be in play at any one time. It sits, waiting, an array of imminent knowledge – things resolved and removed from active consideration until needed. (Your mind pings against its frozen background, warming it up just enough to give you the feeling of being at home in yourself.)

Jacobsen: What about black holes?

Rosner: Black holes. I don't believe in black holes as objects that must necessarily crush themselves into singularities. Instead, matter moving towards black hole status is a ball of information/matter which, as the matter collapses, increasingly correlating with the matter within its own sphere, shares less and less information with the outside universe. But the information it contains doesn't have to be crushed out of existence. Circumstances can vary, and a blackish hole's information should usually be retrievable.

The information within collapsed matter has to generally be repeatedly retrievable as parts of the universe cycle from active to burned-out/collapsed and back to active. The crushing forces of gravitational collapse might be countered by a shrinkage of the scale of space within a sphere of collapsing matter, with the matter growing heavier and smaller until stasis is achieved, with shrinkage of space equaling energy gravitational gained, so that matter and the scale of space largely define themselves through interactions among the collapsed matter. The interior of blackish holes could be organized, which we couldn't see much of from the outside, or information could be lost, as the matter falls back into primordial chaos. (Wouldn't want too much of that. The universe would be losing its memory/framework.)

Jacobsen: How does this come together?

Rosner: Non-velocital redshift is an indicator of information not-in-common (I_c) with the

observer.

(On my birthday in May, 1981, when I first got the idea of mental information maps (in the Libby Hall dorm cafeteria at the University of Colorado (may have been eating cubes of red Jell-O – I liked my Jell-O), I imagined that the ease with which something can be recalled depended on the geometry of the information to be remembered. Are there a bunch of angles from which it can be accessed, or is there just one angle – only one set of associations which can be combined to get to it (which means you can't get to it at all if you can't come up with those associations)? Then I realized that an optimal mental information map might look like the universe itself.

And then I imagined a mental map of what you know about how you and other beings go to the bathroom. (It's just where my brain takes me – sorry!) You know a lot about how you go to the bathroom – that's at the center of your map. Close to the center, you may know (too much, even) about how family and friends go to the bathroom. Further out, you have generalized knowledge and assumptions about how Americans and Canadians go to the bathroom. Way further out (and redshifted), is how they go to the bathroom on other continents, such as China and Japan. You've heard about holes and places to put your feet – you don't really want to know any more than that. And then way, way out in zero-knowledge land is how they go to the bathroom on other planets. I suppose a more mature person would've simply pictured the classic March 29, 1976 New Yorker cover, which is kind of a Manhattanite's mental map of the world.)

Go ahead and figure information in-common (I_c) equals the square root of $(1 - v^2)$, where v is the apparent recessional velocity over the speed of light. (It's a term from special relativity.) Everything in the universe is a mixture of information I_c and I_{-c} with us. The farther a galaxy is from us, the greater its apparent recession, the less information it has I_c and more I_{-c} with us. I think the proton-electron mass ratio is proportional to the I_{-c} - I_c mass ratio. In a young, small, nearly information-less universe, the proton-electron would be a lot smaller – possibly not one-to-one – a proton is much more complicated than an electron – it's a knot in space, while an electron is a twist in space. But the ratio would be much closer to one-to-one.

Information I_{-c} is stored information – it's memory, not retrieved in the present moment. The universe has limited information-processing capacity – it can't know everything it knows all at once. (You don't know everything *you* know all at once.) Every galaxy, active or collapsed, in the universe has a combination of information I_c and I_{-c} with us.

The cosmic microwave background radiation – the oldest, farthest-traveling radiation in the universe – has a z , a redshift, of nearly 1,100. A galaxy's redshift z is proportional to its I_{-c} - I_c ratio. This is ballpark for a I_{-c} - I_c -dependent proton-electron mass ratio of about 1,836. The picture is like this: near $T = 0$, you have a bunch of collapsed galaxies that aren't sharing much information with the active center of the universe. These blackish galaxies have I_{-c} - I_c ratios of 1,000 and higher, and there are enough of them to raise the I_{-c} - I_c ratio for the entire universe, as seen by us in the active center, to 1,000 or more, bumping up the proton-electron mass ratio.

To go into a little more detail – imagine a grid of galaxies with an apparent velocity of half the speed of light between adjacent galaxies.

(I first imagined this while posing for an art class in 1988 – gave me something to do while sitting naked, trying not to move. Instead of galaxies, I imagined spaceships piloted by the Brady Bunch. Greg pilots a ship going .5C away from earth. Marsha's ship goes away from Greg at .5C. Bobby's ship travels away from Marsha at .5C, and so on. I told my boss, Mike Armstrong, at *Remote Control*, the quiz show I wrote for, about it (because I'm weird). He said, "That's a whole new type of question!" and Brady Physics was born. We asked contestants to tell us the result of dangerous hypothetical experiments performed on the Bradys.)

When you add the velocities of a series of objects moving at half the speed of light relative to each other, you never reach the speed of light relative to the stationary observer (to any observer). The observer on earth sees ships moving at higher and higher fractions of the speed of light – $\frac{1}{2}$, $\frac{4}{5}$, $\frac{13}{14}$, $\frac{40}{41}$, $\frac{121}{122}$, $\frac{364}{365}$, $\frac{1093}{1094}$... To get a I_{∞}/I_c ratio of more than 1,000, you need an apparent velocity within one two-millionth of the speed of light, which takes a string of 14 spaceships. (You run through all the Brady kids and parents, Alice, Tiger, Sam the Butcher....)

So you have a grid of galaxies, with the most distant nearly redshifted into invisibility, but still providing scale and structure, in part by making protons fairly massive. Remember how the universe is in a big gunfight with itself? Well, all the particles accumulated mass from all the bullets shot at each other over an incredible amount of time.

Now, all those collapsed galaxies with the huge redshifts should be black holes, according to current understanding. But I don't think so. I think they're blackish, not black, in that they still exchange some information with the rest of the universe. They also have inner structure, hidden from us. A blackish galaxy has cooked down, blasting away extraneous matter/information, until it's a largely self-informing, nearly closed-off system. If it's on the outskirts, it's not currently relevant and is nearly frozen in time – it's memory or an app that's not currently needed. If it's closer to the center, it might be a specialized system that's currently relevant but can largely do business independently – behind a blackish curtain. Seems as if most galaxies have million-star-sized black(ish) holes at their center. These might be specialized systems or recalled memories, with galaxies' 10^{22} shining stars being the visible broadcasters – the active center's universe-spanning mega-processor.

But there's another step. In the active center, space is expanded – particles are very small in relation to the scale of space. Something must be precisely defining matter within space, and that something is photons. As long as protons are cooking down into neutrons and releasing fusion energy, space is expanded. When protons run out, the flux of photons that fills space peters out (over billions of years – it takes photons awhile to cross the universe), and space deflates gravitationally (up to a point – objects might still have some leftover orbital energy, there's still redshift segregation, and scale invariance kicks in before particles can crush themselves out of existence).

Photons are fighting gravity – they specify space, making it fluffy. Without this specification, space contracts. Fluffy, expanded space facilitates large-scale information-sharing among active galaxies. Collapsed space tends to be opaque, making it tough to share information. (It's not like the universe was intentionally designed to have a transparent active center. Lucky accident?)

Seems doubtful.)

What would happen if all the galaxies burned out, and there were no active center? You'd have no widespread information-sharing/processing – no large-scale cogitating – and the universe would effectively be asleep. (Or at least something like this happens during certain stages of our sleep. And to a lesser extent when certain drugs are taken. LSD, for instance, seems to interfere with the normal functioning of systems that help interpret the world. For example, our software that processes faces is hampered, and you see half-processed lizard faces or semi-wire-frame polygon faces. Very annoying, not fun.

(Kids, don't do drugs, particularly LSD. It lasts for like 15 hours, and only the first hour or two is at all fun or interesting. You've broken your brain for an entire day, and you can't even sleep it off, especially if the LSD has been cut with something. If you absolutely want to slightly break your brain to see how it works, a light dose of shrooms is much better. Lasts like a third as long, isn't as debilitating, doesn't make you worry as much that your brain is gonna stay like this. Make sure you have babysitters to keep you calm and to make sure you don't do anything stupid. But just don't do drugs in the first place. Better to observe your thoughts using your intact, non-broken brain.)

Anyhow, the universe is asleep (that is, it could be at some point). Little or no active center, not overly conscious. So what happens? It can wake up, just like we do. Something wakes it – could be external, could be internal – the effect is the same – galaxies are turned on, space expands around them, they form an active center.

Which brings up another thing – it takes hundreds of millions of years for clouds of hydrogen to coalesce into stars and light up. With not necessarily any stars lighting up the just turned-on galaxies, where's the energy flux that expands space? The thing is, you can get energy from both neutrons decaying into protons and protons fusing into neutrons. Hose down some burned-out galaxies with neutrinos, turning neutrons into protons, you're gonna release a bunch of energy. Half a billion years later, when some of those protons, now in stars, start fusing back into neutrons, they're gonna spit out more energy. Shweet!

Jacobsen: What does this mean in a nutshell?

Rosner: Collapsed galaxies on the outskirts of the universe (and, to a smaller extent, collapsed matter in the centers and on the outskirts of active galaxies) give scale and structure to the universe by adding mass to protons and neutrons.

Collapsed galaxies are the universe's memory and currently unneeded apps, able to recalled when relevant.

Energy from protons fusing into neutrons expands space in the universe's active center (making space transparent and widespread information-sharing possible).

Jacobsen: What about space and time?

Space and time are self-assembling according to some minimizing and maximizing principles. Space seems to be arranged to minimize the aggregate distance traveled by photons. Things that are going to interact a lot should be close to each other – space shouldn't be any bigger than it has to be. Minimizing distance maximizes the rate of interactions; time is as full of events as it can be. (Of course, events don't happen *in* time, as if time is this independently existing thing to be filled – the sequence of events *is* time. But still...) this probably means that information is maximized over time and that information is the engine of time.

(Here's where I further confuse myself.) The present moment is when information is gained through events which resolve probabilistic situations. (Time is a news-gatherer.) Time maximizes causality and the predictive power of correlations among matter.

Jacobsen: Why these principles of existence ('laws')?

Rosner: There's a tautological aspect to the principles of existence. (Why principles and not laws? Because laws seem like rules delivered from on-high, while principles can be emergent – nebulous until made tight and precise by the statistical behaviour of large amounts of organized matter.) Things that exist have to exist – they can't both exist and not exist (except when their existence or not is incompletely specified quantum mechanically). Right there, you have a principle, but not a very useful one until you draw some conclusions from it. A conclusion might be that existence includes duration – that for every existent moment, there's at least one related existent moment which can be seen as a subsequent moment.

Somehow out of this, you get the fairly tautological principle that persistent structures or processes are persistent – that they create a bias towards their own continued existence.

You get things which work like Leibnizian monads – little correlation engines whose main job is to be correlated with other engines at various times. These correlations pull the universe tight, giving it structure in space and time. I believe that protons (and the electrons which go with them) are the correlation engines. They're each like a little spatial axis – a dimension – and the variable that lies somewhere along that dimension, all in one. But the dimension doesn't extend to infinity – it fades – it only extends as far as it needs to for the correlations it's involved with, like a street. Streets only exist for their own limited length.

Protons are knots in our locally three-dimensional space. The knot in space is rectified by the point-wise inversion in space (kind of a cross-cap) which is the electron. Without an electron for every proton (but without electrons being assigned to specific protons), space doesn't work topologically.

Neutrons are locked-down dimensions. Proximity is like correlation – two protons coming close enough that they turn into a proton-neutron pair means that they're so correlated that two dimensions (or variables) can function as a single dimension (or variable). The universe prioritizes compactness – it stores dimensions/variables it doesn't need within neutrons.

Over billions of years, a star boils down a big ball of hydrogen – a stew of protons and electrons – into a bunch of neutron-heavy elements. It's a correlation machine – it links protons together,

locking them down into closed-off neutrons. And the fusion energy it emits helps define and expand space in the active center as light streams across the universe.

Jacobsen: Let's make a concrete calculation along the dimension of time, your novel framework for the structure of universe may gain clarity from such calculations. Using the accepted canon age of cosmos at ~13.77 billion years old as the referent, by your own theorizing and within your framework, how might we calculate universe's age? What age would the calculation produce?

Rosner: If you didn't know how brains worked, and you saw a half-second PET scan of a thought unfolding across a brain, how would you estimate the age of the brain? It would be really tough. You might be able to assume that this processing of a thought isn't a one-time thing – assume that this is a function of the brain and, as such, happens again and again. But it would take a lot more knowledge to have any idea how many times it happens. (How many times *does* it happen? Estimate three thoughts a second. (How long does it take for your attention to shift and a thought to form? At least a tenth of a second and not more than two-thirds of a second. Observe your thoughts – see what you think.) Three thoughts a second is about 10,000 thoughts an hour times 16 waking hours a day times 80 years comes out to a human brain having about 5 billion thoughts in a lifetime.)

What if the universe is an apparatus that does what it does again and again – unfolding over and over, sending stars and galaxies through their life cycles, with those galaxies burning out and being squeezed to the outskirts by new unfoldings, where they wait to be part of a subsequent expansion?

If the universe is an information-processing entity (It is!), from within the universe, we're seeing only the information, we're not seeing the structure that supports the information-processing. Analogously, the mind is the moment-to-moment unfolding of information within consciousness, while the brain is the physical structure which supports this interplay of information. When we look at the universe, we see the interplay of information; we don't see the physical structure which supports it. This makes it even harder to guess the age or lifespan of the universe.

We don't know the purpose of the universe. (We're so far from knowing that even asking seems a little preposterous.) We can't decode the information in the universe. (We're made out of it, but we can't read it. As we make our way onward, maybe we'll pick up some clues, perhaps from civilizations that have been around longer.) As we learn more, perhaps we get to participate in the business of the universe. The universe processes and stores information at all levels of complexity. Civilizations would be part of this). We don't know anything about the physical structure that might support it. So it's hard to guess how old it is.

(Imagine that in the future, we find out with reasonable certainty that the universe has a purpose – to process information to help the universe's supporting structure or entity achieve its objectives in its external world (the world perceived and modeled by the universe). One way of dealing with this discovery would be to get with the project – to figure that we're all in this together – that if the universe prospers, we prosper. I'd guess that many entities within the universe are part of the program. Maybe the really advanced ones run galaxy-sized neutrino hoses that can reactivate dormant parts of the universe. (I know that seems goofy, but we don't

know anything yet.) Maybe there are nihilistic or hedonistic civilizations that figure, “Everything’s so big and old and, in a way, virtual, it doesn’t really matter what we do.”)

There might be some clues to the universe being older than its apparent age. If the universe undergoes repeated multi-billion-year unfoldings, there should be lots of stuff that’s older than the apparent 14-billion-year age of the universe. That stuff won’t necessarily be in our immediate neighborhood – we’re new – we came into being as part of the current unfolding.

Via repeated cycles (not cycles of the entire universe expanding and contracting – not an oscillating universe – more like a rolling boil) of galaxies lighting up and burning out, the dark matter we’re looking for (to explain gravitational anomalies such as the outer rims of galaxies rotating faster than accounted for by the distribution of visible stars) might be a bunch of neutron stars and near-black holes. If anything could survive repeated cycles without being completely ablated away, it would be near-black holes. (Don’t really believe in fully black holes.) A universe which has gone through a zillion cycles might have generated a bunch of burned-out junk (or, in an informational sense, massive settled or solved (for the moment) equations or clumps of correlations or memories or independent processors whose operations the wider universe doesn’t much participate in/isn’t very conscious of) hanging around on the outskirts of galaxies.

A brand-new universe – one that’s unfolded after a single big bang – doesn’t have much opportunity to form a bunch of collapsed matter. But a universe at a rolling boil – that is, a “continuing series of little bangs” universe – would generate lots of junk. It’s that house with all the trashed cars and plumbing fixtures scattered across the front yard.

Just for fun, we could multiply the 14-billion-year apparent age of the universe by the 5 billion lifetime cycles of the human brain. There’s no reason to assume that the universe goes through 500,000 or 5 googol rolling cycles. But anyhow, 5 billion times the apparent age of the universe gives you 70,000,000,000,000,000,000 years. That’s based on not much. What if the expected duration of a self-contained system of information (in terms of rolling cycles) is proportional to the complexity of the system? What if the complexity, like the average distance from the origin of a random walk, is proportional to duration squared? The universe could be *really* old.

No way the universe unfolds just once. No way it’s only 14 billion years old.

Jacobsen: If I may extend the implications of informational cosmology, the discipline implies two complementary fields: informational cosmogony and informational eschatology. In your worldview of the universe’s life cycle, how would the universe – if indeed the world corresponds to such a model – begin (Cosmogony), develop (Cosmology), and end (Eschatology)?

Rosner: In my view, the information space that is the universe arose through processes external to the universe. There’s a material framework – an armature – which provides the structure that allows the information-processing to take place. If the universe is the mind, then this armature is the brain. Our brains/minds exist within the context of the outside world. We can speculate or even assume that the universe similarly exists because of and within an outside context. Of course, we know nothing about any armature for the universe, but if it exists, its fate determines

the fate of the universe.

We're used to our brains being able to store a steady stream of information over many years. An information-space model of this would look like a universe becoming more complicated, perhaps expanding like a Big Bang universe (but over a long series of rolling cycles, not just a single original push plus various inflationary add-ons) with more and more matter gradually falling into visibility from the farthest reaches – the outskirts close to $T = 0$, the apparent beginning of time. But as we age, we can lose information. Instead of our information space becoming bigger and more complex, with the primordial background radiation spreading out and getting cooler and cooler, the information space would heat up, becoming smaller, hotter, and less complex. Information melts away, lost in background noise. As information drops to zero, we have an information space that's hot and fuzzy, with a short horizon.

An information space is dependent on the integrity of its armature. There are statistical arguments to be made on the future size of the information space, based on its current size, but that math doesn't exist yet. And that math is just a statistical bet about conditions in a world external to the universe that we, as yet, know nothing about. (How might we learn about this external world? Perhaps by making contact with older civilizations which have had more time to suss out what the universe is up to. Scary. I suspect that old entities who know what's up might be found at the galactic center. Eventually, our strategy might be to tiptoe towards the galactic center to take a look, but very stealthily, so as not to get our asses kicked. But really – how would we outsmart entities that might be billions of years old? Will Smith and Jeff Goldblum with a computer virus won't do it.)

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Five)

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*Part five of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1990-96), and writer. He discusses the following subject-matter: mathematics and physics, logic and metaphysics, mutual interrelationships, digital physics and “informational cosmology,” consciousness grounded in informational cosmological definitions of “self-consistency” and “information processing,” identification of minds within universe with consciousness, interrelation between minds and universe, subcategorizations of self-consistency and information processing based on interpretations and definitions, Georg Ferdinand Ludwig Philipp Cantor, logic, Law of Identity, Law of Non-Contradiction, Law of the Excluded Middle, Plato, Theaetetus, The Republic, Aristotle, Metaphysics, “laws of thought,” Wilhelm Gottfried von Leibniz, Leibniz’ Law, Law of Reflexivity, Law of Symmetry, Law of Transitivity, set theory, Kurt Friedrich Gödel, Saint Anselm of Canterbury, On Formally Undecidable Propositions of Principia Mathematica and Related Systems (1931), incompleteness theorems, Boolean Algebra (foundational for digital electronics), George Boole, “Boolean Heresies,” An Investigation of the Laws of Thought (1854), physics, Novikov Self-Consistency Principle, time-travel, computer science, database management systems, Jim Gray (1981), ACID or ‘Atomicity, Consistency, Isolation, and Durability’, “self-consistent” or “self-consistency” as “system without self-contradiction,” information theory, Claude Elwood Shannon, A Mathematical Theory of Communication (1948), Warren Weaver, The Mathematical Theory of Communication, examples of information processing, application of information theory to information cosmology, reflection of the deep equivalences, clarification of armature of universe and universe, and the rich refinement of digital physics into informational cosmology; definition of universe as the entirety of matter and space; definition of the interrelation of mind and universe based on a personal query from 1981, each mind having structure and rules akin to universe, different manifestations of the same structure at vastly different scales for universe, and the non-mystical/technical nature of the definition; informational cosmogony, cosmology, and eschatology apply to origins up to the present until the resolution of universe, construction of a metric for individual local and global consciousness, mathematical operation of universe with a quote from Eugene Wigner, armature of universe, speculation on descriptors of armature for universe, a response to Wigner quote with Einstein, and speculation on external universes and respective armatures from our universe; thoughts on the disparaging nature of the commentary on consciousness; survival advantages of consciousness, commentary on evolution and consciousness, and the possible role for consciousness in evolution; statistical likelihood of localized consciousness within universe and globalized consciousness of universe, and the ‘Statistical Argument for Existence’, and further commentary on it; thoughts on reactions to grand claims made about the structure of thought and universe, and brief comments; Aristotelian foundational empiricism, natural philosophy, methodological naturalism, rationalism, empiricism, inductivism, Ockham’s Razor, consilience, falsificationism, verificationism, hypothetico-deductivism, Bayesianism, and epistemological anarchism; reflections on religious/irreligious conceptions of an afterlife such as reincarnation (with/without karma), heaven and hell, oblivion, nirvana, union with the divine, and the whole suite of possibilities for an afterlife, and in particular their truth value; and general thoughts on religion.*

Scott Douglas Jacobsen: We discussed mathematics and physics, logic and metaphysics, consciousness and its subcategories, and these conceptualizations' mutual interrelationships. In particular, refinement of digital physics into "informational cosmology."

Furthermore, in informational cosmological nomenclature, your definition of consciousness divides into and emerges from two broad ideas: self-consistency and information processing. In brief review, we have identification of minds within universe with consciousness, universe with consciousness, and the interrelation of mind and universe based on isomorphic function and characteristics. What beyond this introductory realization of the equivalence? I observe multiple arenas of common discourse – let me explain.

From an informational cosmological foundation, the hyphenated term "self-consistency" and phrase "information processing" divide into further subcategorizations. These subcategories have constraints from definitions. "Self-consistency" and "information processing" contain various definitions because of differing interpretations, but technical and concrete definitions hold most import here.

As a general primer to "self-consistency" – which might have less decipherability than "information processing," we can begin with this informational cosmology expression "self-consistency." German mathematician and founder of set theory (fundamental theory for mathematics), Georg Ferdinand Ludwig Philipp Cantor, defined self-consistency as the inability to derive both the statement and negation of the statement at the same time. Cantor argued, if deriving the statement and its negation, the derivation would self-contradict. (One *can* transform this into more formal set theoretic language about elements contained in sets – or the language of mathematics, self-consistency holds great weight for mathematicians, and logic, see *Law of Non-Contradiction* below.)

Self-consistency does have other theoretical universes of discourse in addition to multiple practical and applied venues of human venture: logic, set theory, mathematics, physics, computer science, and many others.

In logic, the *Law of Identity* (A equals A), *Law of Non-Contradiction* (A cannot equal not-A), and *Law of the Excluded Middle* (For all A: either A or not-A) all introduced – informally & implicitly by Plato in *Theaetetus* & *The Republic* and formally & explicitly by Aristotle in *Metaphysics* – in ancient Greece. Sometimes called "laws of thought." These delineate facets of self-consistency expressed in the formalisms and vernacular of logic. For one similar vein, Gottfried Wilhelm von Leibniz derived *Leibniz' Law*, ' $x = y$ ': if, and only if, x contains every property of y, and vice versa. Moreover, he derived sublaws from *Leibniz' Law* such as the *Law of Reflexivity*, *Law of Symmetry*, and *Law of Transitivity*. For one example, *Law of Reflexivity*, ' $x = x$ ': everything is equal to itself. This mirrors the *Law of Identity* of Athenian philosophers – Plato and Aristotle. Patterns – Platonic Forms and Ideas even – of concepts arise in repeated episodes of the historical timeline – groping towards some unitary definition.

In set theory, Austrian-born American logician, mathematician, and philosopher, Kurt Friedrich Gödel, had additional fame for formalization of St. Anselm's *Ontological Proof* for the existence of God. In addition to this, Gödel published *Über formal unentscheidbare Sätze der Principia*

Mathematica und verwandter Systeme or *On Formally Undecidable Propositions of Principia Mathematica and Related Systems* (1931). Tersely, an axiomatic system capable of describing natural numbers (e.g., 1, 2, 3...) held within it: 1) cannot be both consistent and complete, and 2) if consistent, the consistency of the axioms cannot be proven within the system. He, and modern specialists, call these two *incompleteness theorems*.

In mathematics, English logician, mathematician, philosopher, and founder of *Boolean Algebra* (foundational for digital electronics), George Boole, continued the ancient Grecians work in a facsimile of the earlier laws of thought with some extensions in mathematical language. I call them “Boolean Heresies” for fun. Boole laid these out in *An Investigation of the Laws of Thought* (1854). The primary extension from Aristotle became the extension of the three classical laws of thought into mathematical symbolisms, formalisms, and terminology. For one example, the ‘=’ or ‘equals sign’ signals synonymous meaning with the *Law of Identity* or the *Law of Reflexivity* between things. Things labelled ‘A’ in the *Law of Identity* and ‘x’ in the *Law of Reflexivity* discussed earlier.

In physics, applied to time travel – the *Novikov Self-Consistency Principle*, ‘laws’ of physics must remain self-consistent at a global level in the real universe to prohibit any paradoxes with respect to time travel. In this application, time-travel scenarios must disallow violation of universe’s global laws.

In computer science, at least in database management systems, the acronym ACID equates to principles for operation of database transactions. “ACID,” from Jim Gray (1981), means ‘Atomicity, Consistency, Isolation, and Durability’ with the importance of ‘consistency’ meaning “the transaction must obey legal laws.”

In broad definitions provided by Gray (1981) about the “general model of transactions,” he states, “Transactions preserve the system consistency constraints — they obey the laws by transforming consistent states into new consistent states.” As noted, Boolean Algebraic (Boole) systems operable in computer science too.

One can see the pattern in numerous fields. Therefore, “self-consistent” or “self-consistency” within informational cosmology means “system without self-contradiction.”

“Information processing” will have an easier time of comprehension because of living in the computer age, digital age, or information age. American mathematician and cryptographer Claude Elwood Shannon’s article, *A Mathematical Theory of Communication* (1948), represented information theory connected to communication. A short paper, experts consider this article foundational to the field of information theory, which allowed many of them to decree Shannon the father of the information age.

American scientist and mathematician, Warren Weaver, republished *A Mathematical Theory of Communication* (1948) and expanded on Shannon’s work in a coauthored – with Weaver – book entitled *The Mathematical Theory of Communication* (1949). Specialists remember Weaver for pioneering work in machine translation. Shannon and Weaver laid the framework for information and communication theory up to the present day.

In it, if we take a human interpretive view of the work, he showed the degree of “noise” – entropy/disorder introduced into the message – entering between the “information source” (brain₁/mind₁) & “transmitter” (voice/speech) and the “receiver” (ears) & “destination” (brain₂/mind₂). Noise enters between the transmitter and receiver to decrease the quality of the message from the information source to the destination.

For an everyday example, if you whisper from a mile away, your friend will have trouble understanding you – too much “noise” preventing clear receiving and interpretation of the message; if you whisper next to your friend’s ear, the message will more likely have appropriate receiving, decoding, and arrival at the destination for your friend’s comprehension.

Not clear enough – think of a computer, how does it process information? It processes information according to input, process, and output. You type a symbol on the keyboard – input, the machine runs internal mechanics – process, and produces the appropriate (if functional) symbol on the monitor – output. Hence, the foundation of information theory in informational cosmology.

Input becomes any decipherable piece of data to the system. Process becomes the algorithm for managing the information. Output becomes the final product of input and process. Likewise, this applies to everything in informational cosmology at local and global scales.

In current vernacular, we ask, “What if the contents of the universe equals input, process equals laws plus time, and output equals transformations of the contents (e.g., particles, fields, forces, and so on) of the universe?”

In informational cosmological parlance, we ask, “What if bit units of universe equal input, process equals principles of existence plus time, and output equals transformations of bit units of universe?”

These reflect deep equivalences. As noted by 21 year old Rick, all theories of grandeur and great import start with big equivalences. You shifted the perspective. Subsequent information processing equates to observed universe. Simply put, we need an armature by necessity, but do not observe the armature based on externality to universe.

Armature of universe equates to material framework or processor; universe equates to information processing or processing. We observe the information processing. We call this universe. We do not observe the material framework, but by necessity require processor based on isomorphic geometry between universe and individual localized minds.

Individual localized minds operate from brains, and therefore universe must have an equivalent of a “brain” – aforementioned armature. This deals with information and universe at the largest scales. In this, we have the rich derivation, i.e. refinement, of digital physics into informational cosmology.

Since universe does have some characterization in relation to subsystems within itself based on isomorphic properties, what would count among other subcategorizations? In other words, what

other manifestations exemplify the definition of self-consistency or information processing? How do you define these ideas in more colloquial terms?

Rick Rosner: Consciousness is the vivid, emotionally charged, moment-to-moment sharing of processed sensory input, memories, and simulated/imagined self-generated content among brain systems which receive a wide-angle flow of information. By wide-angle, I mean not a linear relaying of signals from A to B to C but instead, sharing of information with many other brain systems, so that each system knows what's going on in the rest of the brain (within the limitations of its specialty). Systems can pop into and drop out of consciousness, depending on the brain's moment-to-moment processing needs.

Each pertinent subsystem adds its angle on what's currently under consideration in the mind, possibly triggering further associations. Memories are pretty much locked until they're unlocked by being pulled into the conscious arena. Most people have memories which they've remembered so many times that the original memory has been all messed around by being rewritten over and over in the conscious arena. (Do we need to fully light up a memory to remember/mess with it?)

The entire mind needs to speak the same language of representation, so there's probably a lot of recursion, where subsystems of the brain have to be able to identify stuff that's not their specialties. Some systems can be less clued-in than others. Our sense of smell seems to be kind of distant from other systems. You smell something, it's familiar, it's on the tip of your brain, but you can't quite pull up the specifics of when you've smelled that smell before. (If you were a dog, you could pull up everything about that smell. When humans and dogs teamed up, humans took over strategic thinking, and dogs took charge of smelling.) Language probably makes pulling up associations easier and more efficient. Hanging a word on something is a kind of shorthand (that maybe takes up less space than a full description and makes it more retrievable).

Anyhow, the same way every part of your brain knows what's going on in every other part via the conscious mind, every part of the universe is clued in to every other part (via long-distance particles – mainly photons in the active center and neutrinos traveling to the deeper structure on the outskirts). The conservation laws – momentum, energy – and the relative constancy across space and time of physical constants help the universe maintain informational consistency.

I also think that much of our understanding is virtual, where, in any given moment, our awareness doesn't contain much, but by shifting attention around, we build a virtually complete picture of the world. It's similar to how our eyesight functions – we have precise vision for only about 15 degrees out of a total visual field of 200 degrees. We can't precisely see an entire painting or TV image all at once. Our eyes wander around the image, and we build a more-or-less complete picture in our mind. Our awareness probably works the same way. Our brains can only process so much in any given moment. Whatever's under consideration gets analyzed in some ways and then in others, but not in all possible ways at once. We never see or comprehend anything completely in an instant but through sequential processing build up (over a short period of time) what acts like fairly complete understanding.

It's like trying to look at Macy's 50-by-100-foot American flag in a storage closet. You can only

spread out 20 square feet of it at a time, but eventually, by looking at different parts of it, you can develop a picture of the whole flag.

So a thought isn't just some parts of the brain lighting up all at once – it's a whole chain of parts of the brain lighting up until you eventually (but in a short period of time – fractions of a second) have the semblance of a complete thought. The universe probably works the same way – galaxies keep lighting up while other galaxies are fading away. A thought isn't just the 10^{11} galaxies lit at any one time – it's a whole chain of lit galaxies, like an animated, moving display of Christmas lights. Thoughts – things under consideration – fade into each other. We have a more thorough understanding of things than what we understand at any instant. And the universe is more precisely defined than just by the relationships among matter in the active center.

In both the mind and the universe, you need consistency. Galaxies don't wink in and out of existence just because you've shifted your point of view. A galaxy exists no matter where it's viewed from (though if you go far enough away from it, it'll look Hubble/relativistically/informationally redshifted). Same thing in your mind. If an event definitely made itself known to some part of your conscious mind – red traffic light – that light isn't red according to some parts of your mind and green according to others. You can have ambiguous events where you're not sure what happened, but if you have deep disagreements about established facts between different parts of the brain, that's trouble.

Jacobsen: All representation of the information sharing of the material framework of universe equates to universe in informational cosmogony, cosmology, and eschatology. More elements have inclusion here. How do you define universe?

Rosner: The universe is the entirety of matter and space – everything that has interacted with or could interact with us. It's an information space – an arena for the sharing, processing and storing of information (for the universe, not directly for us), with the scale and curvature of space determined by the rules of information and its distribution and correlations. (That is, the distribution of matter.) The location (and velocity) of matter has almost everything to say about its correlations as information.

Jacobsen: Insofar as mind and universe have propinquity – kinship in nature; a structural relation between individual localized consciousness within universe and globalized consciousness of universe. How do you define their interrelation?

Rosner: Back in 1981, I asked myself, “What if the geometry of information within consciousness is the same as the geometry of the universe? (And how can it not be?)” The optimal structure/map of the information within each individual mind has the same general structure and rules as the universe and its physics. It has 4D space-time, atoms, the whole deal (with allowances for the universe having about 10^{80} particles and our brains having 10^{11} neurons, which, though I don't know how many particles in a mind-space this might translate into, can't be many more than 10^{16}). The mind and the universe are different manifestations (at vastly different scales) of the same information structure. We see the universe from the inside – as part of it – so we don't see it as information (except that quantum mechanics is the rules of behavior for matter about which there is incomplete information – we can see that

matter is information by catching it behaving as incomplete information, as in the double-slit experiment). And we each embody our own mind, so we see only its information and not the mechanics of it.

People suspect that you might be a wacko when you try to assign consciousness to anything but people and higher animals, as if you're talking about a fancy, mysterious transcendent realm of rocks and trees and butterflies sending thinky vibes to each other. But no – consciousness is a technical thing, not a mystical thing, associated with broadband sharing of real-time information among brain subsystems plus emotionally linked value determinations. (Emotions and values amplify the personal importance of what's happening in your life. We have evolved to care about our lives. Apathy and absence of judgment aren't the best survival characteristics – if you can't be compelled to care about yourself and choose favourable courses of action, you're in trouble.) When a bunch of specialized systems in your brain are exchanging information including emotions in real time – when every part of your brain knows what's going on, more or less, in every other part of your brain, and you have feelings about it, that's consciousness – a technical property associated with global, pervasive information-sharing. (The subsystems need to understand the information they're getting hit with. Most parts of your brain understand fire or the color fuchsia or birds (in ways pertinent to each brain system's function, with some parts understanding some things better than others, consistent with their specialties).) It's not mystical – not connected to some divine or exalted domain.

Jacobsen: Informational cosmology describes the self-consistency and information processing of universe. We might construct a metric for individual local and global consciousness. Universe operates under mathematical principles of existence (laws). Eugene Wigner's stock quote about the "unreasonable effectiveness of mathematics" seems apropos to me – not in presumption about either side of the ledger. Universe's armature might operate within other principles of existence.

By an informational cosmological definition, anything internal to universe operates according to mathematical principles of existence (mathematical laws). Anything external to universe operates in mathematics containing universe's mathematics, or in some novel considerations about the nature of mathematics. Universe's armature exists external to universe. Therefore, universe's armature must operate in mathematics containing universe's mathematics, or in some novel considerations about the nature of mathematics. Any speculation about this? What does this imply?

Rosner: You talk about constructing "a metric for individual local and global consciousness." I think that, in terms of increasing brain complexity, consciousness becomes well-rounded – feeling like a fully-rendered experience of the world – pretty fast. It's not clear how deeply insects feel, but fish and reptiles feel and think, though they can be pretty boring as companions. I had a genius goldfish that figured out how to call me to feed it by noisily blowing bubbles at the top of the tank. Even with their tiny little heads, birds feel and think (and can be kind of dickish – read about Alex the parrot). And of course mammals think and feel. Darwin, who was above all an excellent observer, knew that animals feel, writing the book *The Expression of the Emotions in Man and Animals*.

I think of subjective degrees of consciousness like the number of sides in a polygon. With increasing numbers, they become close to perfectly round pretty fast. A tire shaped like a regular triangle or square would give you a very bumpy ride, but this quickly gives way to the near-circles of 12-, 15- and 24-sided regular polygons. Tires in the shape of 24-sided polygons would give you a pretty smooth ride. Fifty- or 100-sided polygons are barely distinguishable from circles.

Consider a dog's consciousness as a 15-sided polygon – reasonably close to circular. Doesn't have all our bells & whistles – language, ability to rotate objects in our mind. (On the other hand, we don't have the world of smells dogs have.) And consider our consciousness as a 100-sided polygon. Lots of ways to analyze and mentally manipulate things – when we look at something, we feel as if we're really seeing it. Our lives feel deeply substantial and authentic to us, but they probably don't feel a whole lot less real and immediate to dogs. If we suddenly had the awareness of a frog or alligator or lizard, we might think, "Wow – this is kind of a half-assed representation of the world." (Or maybe not – alligators must have some precise sensory systems.) Seeing the world with a bug's awareness might be like being in a 1980s video game – rough, not detailed, not very fleshed-out, not a lot of analytic tools.

As long as we're messing around in this direction, let's guess at the size of a thought, in terms of the total number of events in mind-space that might make up that thought. (A mind-space event might be the equivalent of the exchange of a photon or the fusion of a pair of protons with the emission of a neutrino plus a photon.) We have about 86 billion neurons and up to a quadrillion synapses. Assume, just to make sure we're not underestimating, that 10,000 mind-space events contribute to the firing of a neuron. Figure a neuron might fire up to eight times during a thought. So a thought might consist of nearly 10^{16} mind-space events, but it's probably a lot less, because not every neuron's firing like crazy, and there probably aren't 10,000 discernable mind-space events that led up to a neuron firing. (But a neuron firing may not be a single event – it may light up a lot of stuff. Or it may not be an event at all. The formation and breaking of dendritic connections might be events. The network of connections – the associative landscape – might be a framework that tacitly informs the processing of information. The layout of the landscape might provide a virtual context for the information being actively processed, the way collapsed matter might provide context for active matter. Could be like compressed digital information – to send a compressed video, you only specify the pixels that change – you get a series of complete pictures without sending complete pictures. Similarly, the active center of the universe may be only part of the picture the universe is painting for itself. For the (long) moment, it's the only part that's in play, but it's not the whole picture.)

So let's take a look at the universe, which I theorize is a mind-space thinking a 20- or 30-billion-year thought or part of a thought (in a long-ass string of thoughts). The active center has about 10^{80} particles, mostly in stars. Each particle has maybe 10^{11} interactions a second times about 3×10^7 seconds a year for maybe 3×10^{10} years. So a thought by the universe might consist of around 10^{109} events. That is, of course, enormous – you couldn't count that high in a year. Or in the apparent lifetime of the universe. Or in a billion apparent lifetimes of the universe for each particle in the universe. So don't even try.

Why such a big number? Well, if every size of universe less than infinity is allowed, then there's

no limit on size – bigness comes cheap. Normally, I don't like the anthropic principle, which says the universe is the way it is because we're in it, but we do need a universe that's big enough, detailed enough, old enough for us to come to exist in it.

And you asked about Wigner's "unreasonable effectiveness of mathematics" quote, which asks why math is so good at describing the universe. I'd counter that with the well-known Einstein quote, "God is subtle, but he's not malicious." I think another way of saying that is "The universe is only as complicated as it needs to be." I'd argue that numbers are about the simplest non-contradictory system (that's unlimited in size). (Godel proved that numbers might contain hidden contradictions, but we haven't found any yet, and even if we did, they wouldn't be serious enough to stop us from using numbers.)

The universe is only as complicated as it needs to be to exist. (There's probably an argument to be made that more-complicated-than-necessary forms of existence, unless artificially supported, are unstable (or improbable) and break down into simplest-possible forms.) A simplest-possible universe will include simplest-possible components and structures, which can be characterized by numbers, which are themselves part of a simplest-possible system.

You asked about a universe external to ours that contains the universe's armature. I think that universe can be characterized by the same mathematics that characterizes our universe. The principles of existence keep a fairly tight leash on the forms that universes can take, which includes number of dimensions, types of physical forces, and being characterizable by math. Of course we have no evidence of a universe external to ours.

Jacobsen: You made disparaging and denigrating statements about consciousness. Your thumbnail sketch and corporeal definition of self-consistency and information processing does not by necessity implicate such negative commentary. Why the occasional harsh tone on consciousness? Any positive statement about consciousness while on the topic?

Consciousness is more helpful when you have time to think. Obviously, you come closer to having free will when you have time to consider a situation and can weigh everything you know, including, perhaps, knowledge of your own biases. You can run a thought a few times and see what associations your brain pulls up. Consciousness is helpful in new or complicated situations – it can help recognize patterns and put together essential details, finding exploitable regularities in your environment.

Consciousness lets you talk to yourself. Assigning words to things is powerful when trying to retrieve information from your own memory or from outside sources. (Key words are useful even in your head.) Consciousness lets you run simulations – what would happen if I did this? In the future, advanced versions of us might constantly be running very detailed projections of a range of near-futures – what might happen in the next few seconds or minutes – so we can choose the best course of action. We'd be living in our own near-futures and choosing among them. This might be the closest we come to side-stepping the one-dimensional flow of time.

Consciousness is necessary for interacting with other people. It takes many integrated brain systems to engage in effective human interaction. When the requisite systems don't function

together smoothly, you can end up with autism spectrum challenges.

Sometimes, consciousness seems like more trouble than it's worth – as when you're aware of how miserable you are. (Of course evolution only cares about our happiness to the extent that it helps us produce and raise offspring that are themselves good at reproducing. Too much misery would make us ineffective, but so would being happy all the time.) But it's like me nagging my wife to always keep two hands on the steering wheel in case of sudden and unpredictable danger. Maybe we don't need consciousness during every waking moment, but it needs to be running for those unpredictable moments when we really need it – when it's better that we're not just a bunch of reflexes.

One more thing – say your life really does pass in front of your eyes during moments of extreme danger. Maybe this is a survival mechanism, or is at least an indicator of a survival mechanism. Maybe stress triggers thinking, so stressed organisms think more, and think more fluidly, than non-stressed organisms. We seem to know that extreme stress – danger – triggers a temporary increase in the brain's ability to take in sensory information – time slows down, and we're hyperaware of our surroundings. Perhaps really big danger triggers a really big thought reaction – your brain tries to make you think everything all at once.

Jacobsen: Consciousness can offer survival advantages. Can it play a role in evolution? How might this play out?

Rosner: This is a recent excerpt from a book by evolutionary biologist Professor Andreas Wagner on *Salon.com*:

“Selection did not—cannot—create all this variation. A few decades after Darwin, Hugo de Vries expressed it best when he said that “natural selection may explain the survival of the fittest, but it cannot explain the arrival of the fittest.” And if we do not know what explains its arrival, then we do not understand the very origins of life's diversity.”

That is, we know how changes in and variations among animals may allow some animals to produce more descendants, but we don't know enough about how such changes originate and become enduring details in evolutionary history. Not enough consideration has been given to consciousness as an evolution booster. (Obviously, at some point in the development of a civilized species, random evolution is mostly replaced by intentional change. Humans are at this point.) I think that consciousness facilitates evolution in a variety of ways. One possible way – the stress of being ill-adapted triggers increased mental flexibility. Say a nerdy organism has a gimpy leg or something. Maybe there's a mechanism where that organism has a little meltdown, with normally crystallized patterns of behavior becoming subject to conscious consideration, possibly resulting in innovation. (Hey, it happened to me, maybe it can happen to an iguana.) Only to the extent, of course, that the organism has a mental arena – gimpy amoebas won't be doing any thinking. (Though similar-to-conscious mechanisms might still occur in non-conscious beings. A changing environment may prompt inadvertent innovation among amoebas, even though it's happening through chemistry, not consciousness.) Once a successful innovation arises, there's a new niche offering an advantage to organisms that are relatively better at the innovation (assuming that the innovation can be disseminated and perpetuated).

Another way consciousness can increase the likelihood or frequency of evolutionary change might be through a generalization of the “Nerds are compelled to think” principle discussed above. What if every member of a species has some conscious awareness? Every behavior or combination of behaviors in an organism’s conscious arena (entirely or in part), is subject to conscious variation. That is, the organism understands the behavior to some little extent and can put its spin on it. The behavior isn’t entirely unconscious and hard-wired. Conscious variation makes possible a bunch of small potential advantages – on a short-term basis for individual animals, on a medium-term basis from physiological variation that already exists within a species, and on a long-term basis from mutation. Behavioral change can lead to genetic change, not in a Lamarckian sense, but by giving an advantage to those organisms which can best perform the changed behavior. Animals can’t choose their mutations and variations, but, if capable of any thought, are better able to take advantage of them.

Animal thought can make evolutionary transitions more likely and mutations more likely to be exploited (among both thinking animals and the organisms they interact with – cows and corn aren’t great thinkers, but they’ve gained a reproductive advantage via human thought). Genetic changes can be abrupt – there’s punctuated equilibrium, where the fossil record shows relatively fast transitions between long periods of unchanging form; thought can ease such transitions. I dunno – maybe biologists adequately factor animals’ ability to think into evolution, but I kind of doubt it. I guess a test of this would be to see if the pace of evolution has accelerated along with complexity of thought (other things being equal). We had 2.5 billion years of bacteria, a few hundred million years of cell colonies, then – boom – a panoply of life in relatively quick succession – worms, fish, amphibians, bugs, reptiles, birds, lemurs. Flexible behavior facilitates evolution.

The stories of individual organisms must sometimes be crucial to evolutionary history. Gimpy Carla the Crustacean has a weird claw; she figures out she can use it to really get at snails – good eatin’! Her friends learn the same trick – maybe not as expertly as Carla, but enough for snail scooping to become part of Carla’s species’ behavioural repertoire. Skilled snail-scooping turns into an evolutionary advantage, with members of the species that have genes which help make them better scoopers having more reproductive success. Or maybe Gimpy Carla doesn’t find a use for her weird claw; maybe she figures out something else altogether. Or perhaps there’s nothing particularly wrong with Carla’s claws, and she figures out a new behaviour anyway. Maybe she sees an octopus flipping over rocks to get what’s underneath, and Carla’s like, “Hey – I can flip rocks, too.”

Jacobsen: Furthermore, you have spoken on the probability for the existence of both globalized consciousness of universe and individual localized consciousness within universe. We can name these ‘Statistical Arguments for Consciousness’: consciousness of universe (and consciousness of minds within it) cannot not exist.

Indeed, the simple existence of universe could be called ‘Statistical Argument for Universe’: universe cannot not exist. Some state this as a blunt, dull, and passive query, “Why is there something rather than nothing?” What best represents these ideas? How can you state this in formal terms?

Rosner: You can view Descartes' "I think, therefore I am" as a statistical argument. Given the apparently highly organized and consistent information within a human's consciousness, the odds that the existence it reflects isn't real and is instead caused by happenstance is nearly zero.

To put it in a mathematical framework, there must be some measure of the complexity/amount of information within an individual awareness and within the universe. And there's some calculation you could do which represents the odds that such complexity could arise as a momentary random blip that doesn't reflect actual existence. The odds are infinitesimal.

(When saying that the universe "can't not exist," I mean something else – that there's a statistical bias towards existence. Non-existence entails as special a set of circumstances as existence – it's not the default state of things. And given that there's a very small set of non-existent states and a very large set of possible states of existence, there's a probabilistic argument to be made in favor of existence. There might be only one state of perfect non-existence. If there were different null states, then there'd be something to differentiate them. And that something is something that exists, so at least one of those things isn't the null state. (Can't imagine nullity coming in a bunch of flavors.) The more particles you have, the greater the number of possible interrelationships they can have, with that number growing at least exponentially. (Look at video games now compared to video games in the 80s. Complexity allows variety.) Also, if the principles of existence permit existence, there has to be existence – not all possible states all the time, but permitted states (one at a time) operating under (possibly self-arising) rules.

Jacobsen: You're making enormous claims about the structure and function of both mind and universe. Even in general terms connected to their relationship, these arguments might create grounds for individual or collective bafflement, confusion, glazed reading, instinctive ire, reactive dismissal, mockery, scolding, scoffing, offense, prods and epithets about intelligence, furrowed brows, pleas for clarification, misunderstandings tied to wrongful extensions and conclusions of the theory, straw-manned misinterpretations, questioning of sanity, non-sequitur statements, appeals to emotion or authority for disproof, personal attacks at various facets of your personal life – including shallow attacks at family, and awe at ground breaking ideas – let alone thoughts about the interviewer.

Most reactions and feedback welcome. Preference for constructive feedback. However, these have zero connection to the truth or falsity of the theory. We need rigorous scientific methodological constraints. Obviously, and an extraordinarily important note, *this journal is not peer-reviewed*. Any reflections?

Rosner: I've been interviewed before, though never at this length, and am familiar with the kind of comments this could generate. Pretty comfortable being an eccentric clown – it's often helped me avoid being fired. "He's crazy, but he's harmless – just leave him be." Have done a lot of ridiculous stuff, in part because I've thought as long as I'm doing physics in my head, whatever else I do doesn't matter so much. By talking about this theory in depth, I'm hoping for pretty much the first time to eventually be taken seriously.

Even if I didn't have a history of being a goofball, this would be tough. A bunch of people have radical theories of the universe. Many are at least a little crazy; most are wrong. There's a fun

test by John Baez called “The Crackpot Index,” which gives a craziness score for your theory and yourself. I score about 20 out of a possible 641, putting me on the low end of crazy. But I write jokes for TV, have been a stripper, don’t have a PhD or have ever worked in academia, my theory isn’t peer-reviewed, it has very few equations. Making it legit will be a long haul.

I’ve postulated a lot of stuff here; some of it will turn out to be true or closer to true than currently accepted theories. It feels consistent with what we know and has a kind of poetic rightness. But that’s just how I feel. Could get some credit, or could be like Fritz Hasenohrl, who, a year before Einstein, came up w/ $E = 3/4 MC^2$. So close.

Gonna use social and other media to try to get my stuff out there, hoping that the current culture of foolishness finds me foolish enough to embrace and that the attention prompts legit people to ponder my BS.

Jacobsen: Modern science developed many explicit and tacit boundaries along the trajectory of development. From an ahistorical and more conceptual consideration while acknowledging the rough-and-tumble development of modern science, some bounds include Aristotelian foundational empiricism, natural philosophy, methodological naturalism, rationalism, empiricism, inductivism, *Ockham’s Razor*, consilience, falsificationism, verificationism, hypothetico-deductivism, Bayesianism, and epistemological anarchism.

Undoubtedly, quarrels exist around the appropriate weight and inclusion of these – and unstated others. I state the description of them in the upcoming format for sake of concision. Far too much to cover here. Many, many books written at length on the subjects alone and together. I will cover each in their presented order.

Originating from a single mine of human endeavour, science forged from the base metals of Aristotelian thought. Aristotle, the smithy, even invented the – still used – biological taxonomical distinctions of *animalia* and *plantae* in the 4th century BCE. Aristotle shifted the dominant philosophy from the Platonic to the empirical – suiting for a strong student of Plato in *The Academy*.

English alchemist, biblical scholar, mathematician, occultist, and philosopher, Sir Isaac Newton, from *The Mathematical Principles of Natural Philosophy* (1687) becomes the transition between the era of natural philosophy and natural science. In fact, some would consider the simple definition of studying natural causes by natural means sufficient to explain a foundational principle of science: methodological naturalism.

Rationalism and empiricism tend to oppose one another. Pure rationalism defines knowledge from the human mind alone (*a priori*); pure empiricism defines knowledge from experience alone (*a posteriori*). Pythagoras, Parmenides, and Zeno of Elea represent early rationalism culminating in Plato with the candle kept alight by René Descartes, Benedict (Baruch in Hebrew) de Spinoza, Gottfried Wilhelm von Leibniz, Francis Herbert Bradley, Bernard Bosanquet, Josiah Royce, Noam Chomsky, and other ancient and modern exemplars.

Sophists represent early empiricism coming afire with Aristotle with the torch taken by the

Stoics and Epicureans, followed by Saint Augustine of Hippo, Saint Thomas Aquinas, Roger Bacon, William of Ockham, Francis Bacon, Thomas Hobbes, John Locke, David Hume, Voltaire, John Stuart Mill, William Kingdon Clifford, Karl Pearson, Bertrand Russell, Sir Alfred Jules Ayer, and other ancient and modern exemplars. For some preliminary reading, René Descartes defends rationalism in *Discourse on the Method* (1637); John Locke defends empiricism in *An Essay Concerning Human Understanding* (1689).

1st Viscount St. Alban, English jurist, philosopher, and statesmen, Francis Bacon, founded the Baconian Method in *Novum Organum Scientiarum* or *New Instrument of Science* (1620), synonymous with *inductivism*. Where Aristotle represents the major transition from dominant rationalism to some form of empiricism, Bacon represents the metamorphosing of empiricism into more *modern* empiricism.

Science does not give proofs. Mathematics produces proofs. As founded by Francis Bacon under the appellation empiricism and enunciated by Scottish economist, empiricist, historian, and philosopher, David Hume, science amasses evidence for probabilities of theories. Weight towards theories and arguments based on quantity and quality of evidence. Sometimes echoed in the oft-said – to the point of boredom – phrase of Carl Sagan, adapted from Marcello Truzzi, for extreme cases, “Extraordinary claims require extraordinary evidence.”

English Franciscan friar, and scholastic philosopher and theologian, William of Ockham, proposed *Ockham's Razor*, or the principle of parsimony, meaning do not multiply assumptions/premises (“entities”) past the point of necessity. In other words, among competing hypotheses choose the one with the least assumptions.

English polymath, historian of science, Anglican priest, and theologian, William Whewell, brought “consilience” into consideration with *The Philosophy of the Inductive Sciences, Founded Upon Their History* (1840). Of great importance, Whewell – in addition to other work by John Herschel – formalized the modern methodology of science with *History of the Inductive Sciences* (1837) and *The Philosophy of the Inductive Sciences, Founded Upon Their History* (1840). Whewell’s efforts with the term consilience faded in philosophy of science until revival in the late 1990s. His lasting mark continues with the modern methodology and refinement of the title “natural philosophy” to “science” and “natural philosopher” to “scientist.”

With great acumen for synthesis (and conceptual resurrection), American biologist, naturalist, and sociobiologist, Edward Osborne Wilson reawakened the philosophy of science term “consilience” with *Consilience: The Unity of Knowledge* (1998). However, Wilson attempted to bridge the division between the humanities and sciences adumbrated by Barron Charles Percy Snow from *The Two Cultures and the Scientific Revolution* (1959). We can leave considerations of humanist convictions possibly driving the thrust of Wilson’s efforts while sustaining the content of the text, argument, and term from philosophy of science. “Consilience” means convergence of evidence from multiple disciplines; a confluence of evidence from multiple fields, subfields, researchers, and laboratories.

Insofar as methodological science concerns itself with absolutes, Austrian-born British

Philosopher, Sir Karl Raimund Popper thought science falsifies. Some call this criterion falsificationism. Popper meant this to solve problems of induction and demarcation. Of course, this proposed solution/answer to two problems/questions (induction and demarcation) non-arbitrarily excludes certain disciplines from scientific analysis.

Problem of Induction asks, “Does inductive reasoning lead to knowledge?” “Inductive reasoning” means evidence for support of premises without aim of absolute proof (particular to general); as opposed to deductive reasoning meaning premises logically imply conclusion of the argument (general to particular).

Problem of Demarcation asks, “What distinguishes science from non-science?” According to Popper, with respect to one instance with the *Problem of Demarcation*, non-science fails at adherence to *falsificationism*. For example, astrology, Freudian psychoanalysis, and metaphysics seen through the lens of falsificationism – and skepticism – become non-science, and therefore equate to pseudoscience within this single constraint.

Although, not set firm, Popperian discussions continue, e.g. some might argue for verifiability over falsifiability. “Verifiability over falsifiability” meaning the theory must have verification rather than the possibility of falsification.

Dutch physicist, mathematician, and astronomer, Christiaan Huygens, built the original scaffolding for the hypothetico-deductive methodology. A procedure for building a scientific theory accounting for results of observation, experimentation, and inference with the possibility of further effects being verified/not verified. For a concrete example, hypothetico-deductivism might use Bayesian analysis based on *Bayes’ Theorem/Bayes’ Law/Bayes’ Rule*.

Reverend Thomas Bayes died and one friend, Richard Price, edited and published *An Essay towards solving a Problem in the Doctrine of Chances* (1763), which contained the theorem. In brief, *Bayes’ Theorem* deals with the mathematics of conditional probabilities. Some applications and utility in calculations for real-world scenarios in drug testing. Bayesianism took the throne of inductivism (which Popper rejected) or became the adapted equivalent of inductivism in the modern day, especially with the utility in the ascendance of modern medical testing.

Austrian philosopher of science, Paul Feyerabend, proposed epistemological anarchism. Epistemology means the study of the nature and scope of knowledge. In this sense, within the confines of scientific discourse, epistemological anarchism means science’s attempts for fixed boundaries appears too optimistic and eventually detrimental to science itself, and therefore the search for universal boundaries of operation becomes an impossible ideal.

History presents one tangled, messy narrative filled with disagreement, dialogue, and debate, even petty feuds. At bottom, we need predictions and tests. What does your theory predict? How could we test the predictions of informational cosmogony, informational cosmology, and informational eschatology?

Rosner: Some possibly testable questions:

Can my theorizing reasonably be made to agree with well-established observational evidence? For instance, I say there's a bunch of blackish collapsed (but non-exotic) matter, located mostly in what appears to be the early universe and probably around the outskirts of galaxies (as well as at the center of galaxies, but that's been established). Can this work in terms of galactic dynamics? The greatest observed Hubble galactic redshift is about 12; I say there's a bunch of blackish stuff with redshifts of 1,000 or more. Very convenient – all the stuff that makes the universe work is nearly invisible.

For my theory to work, black holes have to be more accessible and reversible than they're currently thought of as being. This can work if the matter in collapsing bodies creates additional space for itself by shrinking. (A house or a collapsing star is a lot more spacious if you're only two feet tall.) This makes sense informationally. Not only is the matter in a collapsing body defined by its interaction (gun-fighting) with the rest of the universe, it's additionally defined by all the additional gun-fighting going on within the body. With so much matter clustered so close together, the particles can zip bullets back and forth among themselves at a much faster rate than in non-collapsed matter, defining themselves in space much more precisely. You still have tremendous forces, but they're not enough to inexorably crush matter beyond the resistance of any other force. (You can still lose information in a blackish hole to noise/heat, if the ability of the universe to store information isn't perfect.)

Blackish holes which have less crushing power than they're traditionally understood to have should be able to coexist with non-collapsed matter without relentlessly consuming it. If galaxies cycle over and over, there's gonna be some collapsed matter left around. Maybe new stars sometimes coalesce around collapsed bodies. Maybe some collapsed bodies can open back up from the heat generated near the center of new stars. In general, gentler new-school blackish holes create less havoc than unstoppable old-school black holes. We should be able to mathematically model galaxies that contain a bunch of collapsed non-exotic matter (including modeling various ways old galaxies get lit back up). There's a study released just a few hours ago which suggests that up to half the stars in the universe might be found outside of galaxies. This seems possibly consistent with a very old universe with parts of space that repeatedly puff up and shrink down, do-si-doing into and back out of the active center. Stuff's gonna get tossed around.

Can information-based cosmology fit in with well-established laws of physics? When I edited *Noesis*, I received articles from people claiming to have disproved Einstein. Disproving Einstein is a major indication your thinking is likely flawed. Einstein's theories show that space and time and matter are up for grabs, lacking Newtonian solidity, which brings out the theorizing in some people. Einstein didn't disprove Newton. He put Newton in a larger context. I don't want to disprove well-established physics – I want to put some of it in a new information-based context.

Can this be mathematicized? Seems like it – it has some math in it already. It sounds a little like what legit guys like John Wheeler and Ed Fredkin sound like when they talk about a universe that's built from first principles. Scientists who come up with biggish theories often talk about looking for elegance or simplicity or divine symmetry – indications that the deep rules governing the universe are particularly nice – non-arbitrary, explaining a lot with a little, having a pleasant

orderliness without being a complete buzzkill. Do my principles and the big equivalence between mind-space and physical space have the right poetry, the right irony, the right we-should've-known? Do they give us and the universe a destiny that makes sense?

Is what I'm claiming consistent with what we know of the mind and brain, of the phenomenology of thought?

Do the general principles mesh with the specifics – have I come to the right conclusions in going from an information-based universe to the five persistent particles being the major players in it?

Do the two structures – mind and universe – inform each other in what seems like a reasonable way? Do memories in our heads really pop into our awareness like galaxies lighting up? Can blackish holes be seen as storing information for later retrieval? Can efficient, three-dimensional information spaces be constructed? Does it make sense that a nexus of information would coalesce like a galaxy? Are words and concepts and people and things represented in our mental maps by things that look like stars and galaxies? (Hey, how else would they look? – not like frickin' file cabinets.) Can we eventually find connections between brain activity and structure and mind-space activity and structure? Are stars and galaxies the best way to cluster related information? How does gravitation decide what information clusters into stars and galaxies, forming concepts and representations? Why does a concept end up in one galaxy rather than another? (Though everything's related to everything else, choices still have to be made about which things are clustered with each other – you can't have just one big cluster.) What do orbits and angular momentum mean in terms of information?

By the way – I love Bayesian analysis. When working as an ID-checker in bars, I created a Bayesian system which assigned points for everything not quite right about a potential customer's ID and presentation. At its most refined, the system and I could catch 99% of fake IDs with only one or two false catches a year. (This was back when going to bars, not going online, was probably the number-one way to try to hook up. Having a fake ID was a big deal back then.)

Jacobsen: With regards to traditional religious/irreligious conceptions of an afterlife such as reincarnation (with/without karma), heaven and hell, oblivion, nirvana, union with the divine, and the whole suite of possibilities, do you consider any of them to have any truth value? If so, which one(s)?

Rosner: I think in the not-too-distant future, we'll have technical resurrection – technologically created conscious entities which can be seen as approximating the continuation of specific humans' awarenesses. Eventually, we'll understand and synthesize consciousness. (Some disappointment may accompany the understanding of consciousness – once dissected, it may not hold all the wonder it currently does.)

As to whether the universe has non-human means for continuing or resuming human consciousness – could be. If there are high degrees of infinity of worlds that can and do exist at some point, then finite beings such as ourselves (or close approximations of ourselves) could pop up. But this pop-up existence seems unlikely out-of-context.

By out-of-context, I mean that we are born into a world which seems to operate via natural processes. For us to pop up, out-of-context, in a constructed world, there would need to be a constructor. I don't see a lot of evidence for some outside constructor preparing a world for us beyond our natural existence. I think we humans will have to help ourselves (and any possible Creator) by building our own afterlives.

Jacobsen: Based on the last response, any thoughts on religion?

Rosner: Religion remains a matter of faith. Science continues to turn up more evidence for scientific explanations of the world. There's room for God in this, but a God who's deeply in the background, intertwined with the beautiful symmetries of the universe, not an actively intervening God. The world's religions have a pretty consistent view of what they'd like God to do – provide fairness, abundance, an afterlife. In the absence of definitive evidence that God provides these things, it's not unreasonable, nor should it be against God's wishes, to help Him out. Isaac Newton and many other scientists have thought and continue to think that figuring out the universe is doing God's work.

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Six)

2014-11-15

*Part six of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1990-96), and writer. He discusses the following subject-matter: organizations devoted to the moderately gifted ability sectors of the general population, few with provisions for the high, profound, exceptional, or 'unmeasurable ability' sectors, the possibility of proactive work by individuals and organizations, comparison with his own childhood to his daughter's childhood, and extensive discussion on giftedness, giftedness in Los Angeles, and social guidance for the highly gifted; methods for the adult and senior gifted set to inculcate prosocial values in the young, commentary of Capitalism and failure of communism, and technological booms on the horizon with examples of 3D printing and biotechnology; increased awareness and commentary on bullying; message for kids undergoing bullying and general reflections on personal experiences and considerations of adaptive active approaches to the problem of bullying; active approaches with respect to parents, teachers, administrators, authority figures, and the wider community for support and encouragement; possible passive approaches and consolation; assisting others in their struggle with bullying; extreme cases of abuse for girls and boys, young men and women, and words for those feeling driven to extremes; commentary on the possibility of mean people becoming kind people, First Amendment, and Foundation for Individual Rights in Education (FIRE); possibilities of remaking the educational systems of the world; thoughts on global problems in the United States of America and some possible ways to solve them; interacting political, economic, religious, corporate, educational, and other systems in societies with reflections on the future; associations of the highest levels of ability with world-changing things; and responsibilities of the gifted population towards society and culture.*

Scott Douglas Jacobsen: Many organizations provide for the needs of the moderately gifted ability sectors of the general population, most often adults and sometimes children. However, few provide for the needs of children (and adults) in the high, profound, exceptional, or 'unmeasurable ability' sectors of the general population. Not to argue for the necessary disadvantage of the gifted population based on abilities and talents. A definite benefit over others in life. Even so, some organizations and societies provide forums, retreats, journals, intelligence tests, literature, or outlets for the highest ability sub-populations. No need to bore with a list best left to an internet search engine query. What can individuals, organizations, and societies do to provide for the gifted population? What argument most convinces you of the need to provide for this sector of society? In short, how can parents, mentors, educators, and policymakers assist the gifted population towards the appropriate resources?

Rick Rosner: Based on my childhood compared to my daughter's childhood, I think that things are much better for the highly gifted than when I was a kid. Plenty of parents are on the lookout for giftedness in their children, and organizations will help them nurture it. This doesn't mean that every super-high-IQ kid will be found or well-served. Affluent, well-informed, non-chaotic parents are more likely to notice and encourage giftedness, which still leaves a lot of smart kids who may need to be spotted by other people in their lives.

A nice thing about our current internet-centric culture is that a smart kid can find smart, entertaining things to do without too much effort. All of human knowledge is available via any keyboard (though so is all of human foolishness – the smarter we get, the more sophisticated our time-wasting diversions become).

In the 60s and 70s, it felt like there was frickin' nothing. I should've taken more of the initiative in finding learning opportunities instead of watching endless crappy sitcom reruns, but I shared a certain laziness and complacency with the era. At the time, most people assumed just about everyone would turn out okay, educationally, with regular schooling. Back then, everyone I knew went to public school, and there didn't seem to be pervasive concern over public education. Could be America, exhausted by Vietnam and Watergate and crappy cars and ugly color schemes (orange, brown and turquoise) and the first OPEC crisis, didn't want to look for trouble where there didn't seem to be any.

Today, with schools seeming much more broke and broken, skepticism about whether a kid is being adequately served comes more easily. It helps any kid to have an involved parent. On behalf of my daughter, my wife spent hundreds of hours researching and pursuing the enriched educational opportunities available through the Los Angeles public schools. LA public schools have great gifted programs, but because the school system is financially strapped, they can serve only a very limited number of students. Basically, you accumulate gifted program lottery tickets and hope your name is drawn for a program. We were lucky. Or your kid can get in by scoring 145 or higher on a group-administered IQ test, which is an iffy proposition for a first- or second-grader, no matter how gifted.

To serve very-high-IQ kids, first someone has to notice that a kid is smart. This generally happens when a kid shows extreme precocity or is disruptive in the classroom out of boredom, which makes me wonder if quiet, well-behaved prodigies are sometimes overlooked. (Luckily for me, I was a bored and obnoxious kid. If there had been specialized educational resources to give me, I would've gotten them.) At the very least, teachers and administrators should get a heads-up at some point in their training to be on the lookout for a once-in-a-decade kid. For parents who are wondering if their kid is super-smart, Googling "Is my child gifted?" returns a blizzard of information. A good book for figuring out what's up with your possibly gifted kid is *5 Levels of Gifted*, by Deborah Ruf. But ideally, every kid should be noticed, should have people and systems that understand his or her abilities and interests. Via digital devices, kids do more of their own educating than ever before. An up-to-date educational system, which should include lots of tech-heavy teaching resources, would build upon kids' digital lives and individualize instruction. It's counterproductive that the hours spent in school are the least tech-rich part of students' day.

I know of a couple organizations which provide considerable support for gifted kids. The *Institute for Educational Advancement* has a variety of programs, including the Caroline D. Bradley Scholarship, which covers the costs of four years of school at any high school in the nation. They've just doubled the number of scholarships available, to 30 new recipients each year. You take the SAT and apply during middle school, so it takes some foresight, but it's well worth it. The *Davidson Institute for Talent Development* has a bunch of programs and a directory of gifted resources throughout the country. Parents who think their kid is gifted should network

online like crazy. So should teachers who suspect they have a gifted student who's being overlooked.

In a way, we're all highly gifted children who need guidance. Tech is giving us capabilities unheard of up to now – the instantaneous retrieval of detailed though not necessarily accurate information on any subject, constant communication with a wide circle of family, friends, and acquaintances, access to vast selections of entertainment. I mentioned the Flynn effect, but there's also what could be called the Watson effect. Like Watson the *Jeopardy!* computer, we have access to all the knowledge in the world but need to develop the research skills and discernment to use it well. Compared to a smart person without access to the internet, a person with a smart phone could potentially have an effective IQ of 400. (Imagine Lewis Terman in 1921, testing the IQ of a time-traveling kid from 2032 who has a smart phone built into his head (with an internet connection that works across time). That kid would crush the test.) Of course, people with smart phones don't have effective IQs of 400, because they're tweeting clapping-hands emojis while almost getting clipped by an Audi in a crosswalk. Our entire civilization needs to adjust and embrace its genius, which we will, frustratingly slowly (along with a flood of high-tech foolishness – the greater the tech, the greater the sophisticated, time-wasting frivolity).

Besides intellectual and educational guidance, an ultra-smart kid might need social guidance. Growing up, I desperately could've used an older sibling to clue me in, socially. This is another thing the internet has made better, but there's still no substitute for an older sister saying, "You're wearing *that*? Ewww." (Until high school, my mom helped me shop for clothes. In the *Brady Bunch* polyester 70s, this delivered mixed results. I eventually learned to avoid the wrong pants, at least, by wearing Levi's to school every day, though I did commit a terrible mistake by making my jean cutoffs too long. Back then, they were supposed to cut off within about an inch and a half of your balls. Even the gym teacher made fun of me.)

Jacobsen: From the vantage of the adult and senior gifted set, how might we inculcate prosocial values most net beneficial to both the gifted individual and society?

Rosner: I believe that advantaged people should look for ways to increase equality of opportunity for everyone. We would never strive to completely flatten the playing field at the expense of every other cultural and economic consideration, but there's a level of opportunity that helps entire nations flourish. Many economists say the current level of economic inequality in America is bad for the country, but we seem years away from any effective remedies. Our infrastructure and schools are dilapidated, and anti-science yahoos – social Darwinists who don't believe in evolution – hold many of the reins of power.

We're all a little (or a lot) boggled by tech, and this is only going to increase. We can hope that smart people will come up with smart ways to use tech or at least figure out ways to reduce stupid and dangerous uses.

Capitalism is a pretty good framework for maximizing the benefit of smart people to society. When smart people invent good things, they're more often thinking, "Will people want this?" than "Will this help society?" The near future will be shaped by capitalism. Science fiction of the 1950s and 60s didn't include much economics. Enormous spacecraft traveled the galaxy without

discussion of who was financing the spacecraft. In modern SF, market forces pop up frequently. (Of course, right now in this country, a lot of powerful douchebags are putting a terrible face on capitalism – dicks who argue that taxes and regulations amount to tyranny and who often espouse anti-scientific views which can reduce the U.S.'s chances to continue to be a tech leader. I hope that a wave of tech growth sweeps away much of the current political stupidity. Politics that's specifically designed for and targeted at dumb people is creepy and cynical.)

Regardless of politics, capitalism and investing will have increasing difficulty keeping up with the accelerating pace of change. It'll be tough to invest in market sectors in which companies have life cycles of less than a year. Tech might eventually make some types of consumer goods so inexpensive, they're virtually free. Tech will also reduce the amount of work available for people to do. So the consumer economy will get weird, and money may not have the same motivating force it does today. We won't be living in Idiocracy, but neither will we be ruled by the Gordon Gekkos and Donald Trumps of the world.

Right now, Americans are in no mood to share. For 30 or 40 years, conservative think tanks have been studying how to hammer home the message of rugged individualism and entrepreneurial spirit. Some politicians have been successfully following the strategy of making people think that government doesn't work by making sure that government doesn't work.

The 20th century demonstrated the failure of communism. (Might it work if it weren't in the hands of murderous dictators? Who cares – we're not gonna do it.) So far, this century in America has demonstrated the danger of capitalism when moneyed interests get too much leverage over democracy. (Used to wonder if people voted against their own interests because they thought they were just a reality show away from being millionaires.) But democracy is resilient – we made it through other periods of political rancor and should make it through the current dysfunction, perhaps with the help of a rising tech economy. (Don't even know why I'm going on about this; I have no particular political insight.)

I hope prosperity from tech makes people richer, smarter, more generous in spirit, and less able to be manipulated by the politics of dumbness. Under Clinton, we had a tech boom – we all thought we'd become millionaires via a website or an IPO – and things were good, but not because of politicians. Then the boom turned out to be a bubble. But we have tech booms on the near horizon – more digital stuff, biotech, 3D printing – and we can hope that the vitality they'll pump into our economy will overwhelm stupid politics. Tech will give Americans increased wealth and autonomy if we can keep America educated and prosperous long enough for that to happen.

Jacobsen: Most children have negative experiences. Not to argue for life in shelter from the world – grit counts. Even taking this into account, some experiences should seem across the board uncivil and fought against according to the context. Indeed, some experiences might devastate a child, even though some become more resilient. Bullying does have increased awareness. Individuals, families, authority figures, communities, and organizations work to solve the social issue more than earlier times. Do you have any general reflections on personal experiences with bullies?

Rosner: Looking back on the bullying I received, I have two thoughts. One, it wasn't that bad. I wasn't that much of a wuss, my school wasn't that bad, and I used my smartness to avoid some potential teasing and bullying by letting cool kids copy off of me. And two, I should've punched more people. The summer before ninth grade, I suffered some bullying at Jewish summer camp. Eventually, I realized that these bullies weren't the cool kids at their school – they were just anonymous assholes. I was really offended – I wanted to be bullied by the best bullies, not a bunch of losers. So I decided to start punching anyone who dissed me – crunch! right in the cheek. I punched about half a dozen jerkwad kids. It was very satisfying.

Jacobsen: What message do you have for kids suffering from bullying? What would you recommend for them on an interpersonal level to do for themselves? In short, what count among adaptive active approaches to the problem?

Rosner: My advice to kids who are being bullied is several-fold.

Punch bullies, especially if you're young enough – say, under 14 – to not suffer serious consequences for assault. Practice some punching at home, learn the most painful places to hit people, and then fly at 'em. Go crazy – make them fear you. And don't fear their punches unless they're full-grown thugs. Kids who are afraid of fighting don't realize that it doesn't hurt that much to get punched by a 12-year-old. And even if it hurts, don't stop to consider the pain – just keep punching and kicking. And fight dirty – bend a kid's pinky back until it almost breaks. But only for the kids who really deserve it – the ones who shove your hand in the back or elbow you in the face – not the cute girl who gives you an "Ewww" look or the boy who calls you a spaz.

Look for books, movies and TV shows about abuse and bullying (not necessarily books that are complete downers, like *Lord of the Flies*). (Googling "bullying movies" returns a bunch of lists. A quick look at the movies on these lists reveals that most of them suck. The documentary *Bully* is supposed to be pretty good – haven't seen it.) In many of these, the abuser continues to get away with it as long as the victim is completely intimidated. You can read and watch these things to see how the victim eventually quits being a victim or you can figure out what you'd do if you were in the victim's place. Movies won't offer a quick fix – they just get you thinking. The kid in *Let the Right One In* is bullied, and he makes friends with a vampire. That's not really gonna work for you. (Great movie, though.)

Acquire some social skills – learn to co-exist with stupid dickheads. I had to learn social skills, Temple Grandin had to learn social skills, even people who aren't bullied have to learn how to interact with other people. Depending on your situation, you can try some stuff such as not flinching, staring the bully down, taunting the bully – "Hey, Snagglepuss – still wetting the bed?" (Careful with this – you're gonna get punched. But if you're gonna get punched anyway, might be worth a shot – but only in front of an audience – you want people talking about how you made the bully look bad.) At the very least, make the small, easy moves to reduce your chances of being the target of bullies. Are you the only one walking around your middle school with a 50-pound book-stuffed backpack? Are you still wearing your glasses from second grade that are now too small for your face? Take a look at yourself and fix the easy stuff. I wish I'd had an older sibling to tell me how to be less of a geek. (I had some horribly geeky years in junior high – didn't call it middle school back then – and this was before being geeky was somewhat

accepted.)

Become badass. If you're recalibrating yourself to make your social interactions less painful, there's no reason you have to stop at just fading into the background. You can eventually become someone who's intimidating and/or respected. Again, use your smarts and research skills to figure out the angles. As a smart kid, I tended to turn things into big projects. If that's your proclivity, consider making a project out of turning yourself into a non-bullied person with some possible swagger.

Be aware of your surroundings and situations. Lots of bullying and rape involve hooking up and/or alcohol. Be prudent – be familiar with your hookups. Is he a rapey douche? Does he have a terrible girlfriend or ex-girlfriend who, along with her scummy friends, will go after you? Watch out for the kings and queens of the school – kids who, because of being rich or star athletes or super-popular, get a free pass to screw over other people. This kind of thinking is currently controversial, with people saying, “We shouldn't be teaching people how not to be bullied or raped – we should be teaching people to not be bullies or rapists.” This is valid. At the same time, it's dumb to put yourself at risk to make the point that in a perfect world, you should be free to casually do whatever you want. It's not a perfect world.

Own yourself. Figure out what you like about yourself and embrace it. Doesn't have to be much – could be that someday you'll grow up and will be able to escape all the dickheads in your life. (There may always be dickheads, but at least you'll be able to ditch these dickheads. Maybe what you like about yourself is also getting you bullied. You don't have to change this stuff. You can decide how in-your-face you want to be, or you don't even have to do that. You can simply be aware that you're gonna be who you're gonna be, and the bullies are headed for SadLivesville. You might be aware of *It Gets Better*, which tells LGBT teens that their lives won't always suck because of the jerkfaces around them. This is true for LGBT people, but it's also true for lots of other people. There are entire industries where the majority of people in these industries got a bunch of shit when they were kids – TV, movies, Broadway, fashion, design, video games. These are also industries where people get to have really cool lives.

Call bullies out. Don't keep bullying secret. You shouldn't be embarrassed – the bullies should. Some ongoing abuse depends on the victim keeping his or her mouth shut. Announce to your class what the bully did to you or sent to you. In front of other people, ask the bully why. “Is it because I'm effeminate / nerdy / fat / skinny?” (This is a tricky move. It can backfire.)

Jacobsen: What about active approaches with respect to parents, teachers, administrators, authority figures, and the wider community for support and encouragement?

Rosner: Document the abuse and what was done about it. If you get bruised or bloodied, take pictures. Keep a journal of what's happened to you, along with a record of adults you talked to and what they did about it. If this becomes a “them versus you” thing, you want to be able to prove your case that they're the abusers. Keep a record of online bullying – make a doc with all the terrible stuff in it, take screenshots. If other people, especially teachers or administrators, see you getting messed with, discreetly ask, “You saw that, right?” Clearly tell them what happened and keep a record.

Tattle, if it will get the bullies in trouble and not increase the bullying. If you're in a position to screw over bullies by telling on them, do it! They probably won't learn a lesson, but any punishment they get may make them feel bad for awhile.

Contact local news media. They love a good bullying story.

Sue people. Asshole kids often have asshole parents – make them feel some consequences. And go after lazy, incompetent, know-nothing administrators. There are great teachers and administrators, and there are lazy dumbshits. (One reason is, teaching doesn't pay very well, so some teachers are very skilled and dedicated, with their love of helping kids overcoming the crap pay, while others are too incompetent and sluggardly to do anything else.) Also, this whole bullying thing is new territory for administrators who haven't been paying attention. Often their natural reaction to a problem is to downplay or ignore it. As a group, teachers have about the lowest standardized test scores among all the professions. If you reach out to school administrators about bullying, odds are good that you'll be dealing with at least one idiot. This shouldn't stop you. Idiots can be brought around, and you're helping the idiot do a better job on behalf of the next bullied kid.

Do research. With the internet, bullying is different now – some of the worst bullying is online. I want to tell you to use your smarts to destroy people online – to tell mean girls their futures with horrific specificity, the way the Albert Brooks character cursed bullies with a prediction of their futures in *Broadcast News*. But that's probably not a good move. It leaves a record, and you could be outmaneuvered and made to look like you're the bully or at least an evenly matched opponent. Instead, use the internet to research what other people have found to be effective against bullies. And go online to reach out to other bullying victims and anti-bullying organizations.

Play the victim. Can you make a reasonable case that what's been happening to you has affected you emotionally? Play that card if you think it'll help – people are ready to listen. Visit your school counselor. Ask to see a therapist. Maybe get a diagnosis – PTSD, being on the autism spectrum. (I don't know the politics of this. Seems like a diagnosis of mild autism might help make the bullies look extra bad for picking on someone who's officially handicapped, but I don't know.

Team up. If you're not the only one who's getting messed with, get the testimony of other victims. You might have to build a case to present to ass-covering, confused, overworked, often not-smart administrators. Officials have an amazing ability to not see what's right in their face if it's inconvenient. The more people you can put in their face, the more likely they are to take you seriously. Other people may be reluctant to come forward. Doesn't mean you can't mention them to the administrator, along with the phrase, "class-action lawsuit."

With bullying, there's a lot of stuff you can try, but most of it isn't easy. There are conditions in place which help bullies get away with it. But you're smart – you can examine the situation to see what can be changed and what resources can be applied to make it less easy for the bully.

Jacobsen: What about adaptive passive approaches and consolation over time?

Rosner: Be happy that you're not the bullies. They're probably going to be miserable, dickish people for the rest of their lives. Sometimes the best revenge is not being the people you hate.

Sometimes little dipshits grow up to be fine people. Trying to figure out who truly sucks and will suck forever is tricky, but that's part of what school is for. American schools were designed to be abridged versions of adult life. You don't go to school just to learn academic subjects – you go to learn how to deal with people.

Give it time and put it in perspective. Sometimes what nerds perceive as bullying is perceived by bullies as harmless goofing around, and sometimes the truth is somewhere in the middle.

Analyze your bullies – are they truly malevolent, or do they just have a stupid idea of fun? Are they focusing on you in an evil way, or are they just generally causing trouble? Is there a way for you to join in the stupidity instead of making enemies out of them? I'm not saying to go along with evil, but if it's just messing around, you might be able to work with it. On the other hand, truly evil little assholes are good at disguising their evil as harmless fooling around.

Jacobsen: How about helping others undergoing it?

Rosner: Stand up for other people. Bullies know that giving people shit is fun. If you see someone being a bully, you can give them shit – it's like a free pass to mess with someone. (This is an advanced move. There could be some unpleasant consequences.)

Jacobsen: What about the extreme cases of abuse for girls and boys, young men and women, what do you recommend for them? Any words for people who feel driven to extremes?

Rosner: Don't go overboard (and don't decide to hate everyone). No one ever thinks a kid who strikes back with extreme violence is a hero. They're always thought of as psycho losers, probably even to themselves. People who go on a spree of destruction find no good fame – they're monsters and creeps for as long as they're remembered (which isn't that long, because yuck). There's no joy in over-the-top vengeance – you've let the bullies win by driving you to brutality. You can play the game better than that.

Start over somewhere else, if that's an option. Are you completely screwed in your current situation? Will you never be able to overcome a loser-ish reputation or the enmity of jerks at your current school? Then switch schools before it's too late. (Or you can do home schooling for awhile. It may not stop all bullying, but it'll at least reduce the face-to-face bullying, unless the bullying is happening at home.) I was too chicken to move when I should've, right at the beginning of high school. (Because of my parents' divorce, I had families in two different towns – it wouldn't have been that tough for me to relocate.) Kept thinking I could improve my standing among the kids I'd grown up with. It wasn't horrible for me, but I wanted a girlfriend, and there was little chance, given how nerdy I'd been and how Ryan Gosling I still wasn't. It gets better, but it sucks wasting years in a situation that's not gonna get much better.

Jacobsen: What about in defense of, and reflections on, those capable of changing their socially maladaptive, and abusive, behaviors? In other words, your thoughts on the chances for change. The opportunity in life of the mean becoming kind people. Sometimes definitions of

‘bully’ and ‘bullying’ can seem too elastic in which any behavior of dislike by a purported recipient becomes grounds for claims of bullying.

In particular, many university environments stating the first amendment within your own country seem to fail to live to some of these standards. The *First Amendment* to the American Constitution seems most relevant, which states, “Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; *or abridging the freedom of speech, or of the press*; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.” [Emphasis added] Some organizations, e.g. Foundation for Individual Rights in Education (FIRE) under the Presidency of Greg Lukianoff, assist those in need of advisement. This assists prosecutors and defendants, i.e. those without experience in the litigation process of arraignments, trial proceedings, and verdicts.

An issue clichéd into the initialism ‘PC’ (Politically Correct) becomes the basis for some of these organizations and universities in coarse analysis. Even extreme restrictions, increasingly common, the creation of ‘free speech zones’ on campus for students to speak without restraint or the phenomenon of ‘speech codes’ – sometimes limits in zone area and stipulations on speech to such an extent as to merit laughter, let alone the sheer existence of them.

Forms of ‘benign bullying’ – for want of a better phrase – or norm-keeping can work to build community, sustain professional standards, prevent unwanted advances of sexual harassers and aggressors (men and women), and provide consistent norms along the spectrum of appropriate-inappropriate social behavior. In short, assertive standard setting based on context without violating US citizens’ privileges. Of course, in an academic environment, ideological and intellectual norms need questioning for a vibrant, i.e. meaningful, university education. Likewise and further, this moves into the broader societal milieu.

Rosner: I was bullied sometimes as a kid. In college, an aggressive girlfriend came close to being a bully, and for years, I was the adult recipient from a bully of abuse in the workplace. (It was disheartening to be bullied even though I used to be able to (sloppily) bench press 300 pounds, but of course bullying doesn’t have to be based on physical dominance. Sometimes it comes from a simple willingness to be a dick, especially if dickish behaviour gets you what you want.)

Some bullying I was able to stop, and some I had to live with (at least that’s what I told myself). No matter how long ago the bullying happened, it still makes me mad. (I want to time-travel back to 1973 and body-slam the gym teacher who lined up everybody in class and went down the line slapping us, just for fun. But anger can be positively motivating – I’ve been lifting weights for nearly 40 years.) On the other hand, I’ve been in situations in which everyone gave everyone else (well-intentioned) shit, and it was great – fun and actually helpful, spotlighting areas in which I could do better.

As with a lot of characteristics, people come in a range of niceness, with most people being averagely nice, and a few people being saints or complete monsters. Similarly, the amount of change people can undergo covers a range from no change to radical change. Part of growing up is realizing there’s a chance that any given person could be (or could turn into) a despicable shit

or worse, and defending against that possibility.

After high school, most people eventually put themselves in situations that confirm their worldviews and that don't often challenge them. This lets people think of themselves in positive terms – as smart and good and competent, even brave. People who are in favour of pretty rotten things like tearing down the social safety net in support of Ayn Randian social Darwinism build information bubbles which allow them to think of themselves as rugged iconoclasts making hard but necessary choices. (BTW – don't confuse social Darwinism – every man for himself, devil take the hindmost – with Charles Darwin. Social Darwinism is a facile and self-serving bastardization of his thinking.)

I returned to high school as a student a few times after graduation, and among the reasons were that I think people in high school are generally nice. Yeah, we think of high school as a place of vicious social struggle, but that's more often middle school. In high school, students mostly don't have to support themselves, so there's often less economic desperation than in adult life. (Don't get me wrong – there are plenty of students who are fully aware of their family's desperate circumstances.) And students haven't yet settled into their adult lives and personas and like to think of themselves as good people. Later, adulthood starts kicking their asses. Is it possible for people to become nicer as adults? Sure. But the general trend is to become more politically conservative with age. (When you're young, it's not your money, so yeah – spread it around. When you're older, you turn to Fox News.)

You can look for positive change among people who were part of an aggressive pack – mean girls, jocks – but are now free of the pack. Sometimes the pack contains members who aren't naturally vicious but are just going along. Of course, this doesn't apply to every single pack member – some might be dicks for life.

Jacobsen: If you could, how would you change the educational systems of the world? In particular, how would you change the educational system to provide for the needs of the gifted population?

Rosner: Education needs to become more individualized by using more tech. Hours spent in school shouldn't be the least information-rich hours of the day. Great teachers are still needed, but not all teachers are great, and a lot of school systems are underfunded. (In California, where I live, Proposition 13 limiting property taxes has left public schools strapped for money since 1978. Affluent parents send their kids to private schools or use elaborate strategies to get their kids into limited spots in good public school programs.) Internet-based aids to instruction could be an inexpensive way to help make up for less-than-great teaching.

In middle school, my daughter took an online math course, which kind of sucked. But online courses don't have to suck. Online courses need to look more like what people do online for entertainment. That doesn't mean adding some half-assed animated, talking algebra symbols. I hope that market forces eventually bring good people and good tech to education.

To help gifted kids, we need educational tools that help everyone. Now more than ever, a wide range of people have the potential to be gifted. A kid doesn't need a 160 IQ. She needs some

combination of curiosity, motivation, and ability to find information and other resources. Among the next generations of gifted, successful people will be those who are able to amplify their natural abilities with smart use of tech. Our brains and bodies will become more intimately linked with more and more powerful technology. (People wear fitness bracelets now. In the future, people will wear bracelets which tell them what nutrients to ingest and which will eventually administer drugs as needed. I imagine that a wearable drug-administration system which strictly regulates blood sugar and other factors might slow aging by 30 percent. Google Glass may never take off, but people will eventually have some form of wearable brain butlers to constantly augment their reality with helpful information (and distracting fun stuff).)

Perhaps schools will eventually have navigators who would be like a combination of counselor and teacher, to help guide students through our new world of tech and information. Students are already skilled at social media, typically better than adults. (My wife tells me it doesn't go by "social media" anymore – now it's just "social.") Among other things, navigators could help students adapt their social media skills for learning, researching, and professional networking. (I can see the school navigator being hopelessly behind the times – a walking dial-up modem. But it wouldn't have to be that way.)

How about this? – a tax deduction for online mentoring. Experts in all fields (and some non-fields) make themselves available for online consultation with qualified students and get to deduct \$25 an hour from their tax bill for each hour of mentoring up to a total of 8 or 10 hours a year.

One way to help millions of talented kids would be to build an online college admissions concierge. So many things go into college admissions – grades, test scores and test prep, high school course selection, activities, essays, selecting colleges to apply to, financial aid and scholarships, college tours.... Information about all this stuff often has to be gathered from a bunch of different sources, and often this information is incomplete or comes too late. It helps to have involved, knowledgeable parents and attend a private school with a quality college admissions department. Most kids don't have this.

It wouldn't be fantastically tough to build an online portal (obsolete term) to everything about prepping for college. Kids set up an account towards the end of middle school, entering grades and interests and test scores, and get personalized advice that carries them through high school. Every kid would get basic automated services. More deluxe services could be provided for a fee. Right now, kids obsessed with getting into college (and their parents) share information on CollegeConfidential.com, but it's hit-and-miss and not easy to navigate. There should be something more organized. Rich families often pay an admissions specialist the equivalent of a year or more of college tuition to help their kid through the process. (There's a guy who charges \$600,000 and more to get your kid into a top Ivy League school. If your kid doesn't get in, you get \$200,000 back.)

All talented kids, not just rich ones, deserve some guidance towards college – it's consistent with the idea of America being a meritocracy.

Jacobsen: What global problems do you consider most important at the moment? What about

problems in the United States of America? How would you solve them?

Rosner: A major problem will be how well we can build a workable society around the huge and accelerating changes in tech. There are some signs we haven't been doing so well – our use of devices in dangerous and inappropriate places makes us look like idiots. Via the internet, millions of willfully ignorant people reinforce each other's stupid beliefs and are manipulated by clever, horrible people. But there are other signs that we're adapting to tech and living more intelligently in a smarter, better-informed world. (Just guessing – not sure I see those signs.)

Politically, the U.S. is in bad shape. But our system of government is resilient. A period of tech-driven growth would go a long way towards showing Americans that things don't have to suck and that you don't have to base your politics on accusing the other side of making things suck. It would help if the government would support research and innovation instead of denying evolution and global warming.

At the University of Colorado, I heard Professor Al Bartlett's lecture on the danger of exponential population growth more than once. I agree that many of the world's problems are associated with or made worse by our increasing population. But I don't think this will crash civilization.

It's easy to imagine an impending apocalypse, in part because they're easy to imagine. So many lazy TV shows and movies are set in a future post-apocalyptic world. Post-apocalyptic landscapes are cheap and don't require much imagination. It's much harder to try to picture a non-apocalyptic future in all its aspects. Only a few authors are any good at it – Neal Stephenson, Charles Stross, Cory Doctorow.

The world isn't getting worse. It's easy to imagine current problems exploding into disaster, and there will be localized disasters and worldwide challenges that verge on catastrophe. But standards of living are rising, and our understanding of the world and our tools for dealing with it are getting better. Social media makes it harder for criminal regimes to hide their crimes and easier to organize in opposition. Wider access to information and communication is a powerful force against ignorance and for helping people decide that they have a stake in the modern world.

The rate of population growth needs to decrease, which it's been doing, going from more than two percent per year in the 1960s to just over one percent today to a projected half-percent a year by 2050.

I'm hopeful that, by the end of the century, the world will transform into if not a technological wonderland, then at least a more livable place for most people, rather than the squalid dystopias of *Blade Runner* also hopeful that economics and tech will be the agents of positive change, rather than having to rely on people not to behave selfishly and stupidly.

With that in mind, it would be great for the U.S. to be a more tech-friendly place. I'm hopeful that Americans are largely tech-friendly, and anti-science dolts are getting disproportionate media coverage.

Over the next century, I suppose our most urgent task is not to let people stay stupid. (This includes learning to manage the rising flood of information and nonsense bombarding us.) There are more than 40 million adult Americans who are in the bottom 20% in intelligence, and some very creepy people have spent a lot of time and money learning how to manipulate them.

Right now in America, gerrymandering is a huge problem, making for some of the worst politics and politicians since the Civil War. (And it doesn't help that two Supreme Court justices are crazy dickheads with an apparent vendetta against regular Americans.) We can hope that demographics and sheer revulsion at the current political situation will gradually fix this. And government will gradually become less important as tech increases individual autonomy. But we have 320 million people in this country, and we need some government. We deserve roads that don't destroy our cars and schools to which we're willing to send our kids. Not suggesting any radical new form of government – just saying it would be nice to have the government work the way it did before it was broken.

Jacobsen: Generally, many interacting systems operate in societies: political, economic, religious, corporate, educational, and so on. If you could build and run a society, how would you do it?

Rosner: I'm not cut out to tell people how to run the world. (About 2,500,000 internet trolls are eager to provide advice.) But I will suggest that we look for ways to minimize the turmoil of rapid technological change. That includes making it unattractive to join tech-phobic reactionary forces that would rather tear down the world than embrace change. The benefits of technology need to be convincingly presented to people in all societies, along with the message that they can share in its benefits rather than be screwed over and exploited by it.

My general, not-well-thought-out feeling is that if we can keep the world from getting too pissed-off, economically and politically, for the next 50 to 80 years, advancing technology and increasing standards of living will make life better for just about everyone. (Food, clothing and other necessities and non-necessities should continue to get cheaper – 1901: food and clothing use up 60% of US consumers' income; 2002: 17%.) Poor countries have to feel they're participating in tech-driven economic boom. Which means, among other things, we have to avoid undue influence by short-sighted, psychopathic pricks who think that any money not going to them is theft from them – the everyone for himself, except for tax breaks and subsidies for me, Ayn Randians.

People aren't good at thinking about the future, which made sense back when the world didn't change very much. Your parents were farmers, you're a farmer, your kids and their kids will be farmers. Not anymore. (1790: farmers are 90% of US labor force, 1860: 58%, 1900: 38%, 1940: 18%, 2000: 1.9%) Now vast changes take place within single lifetimes and even within half-decades; in 2009, only teen girls were texting obsessively. Movies and TV shows consistently get the future wrong. The movie *Her* (the one where Joaquin Phoenix falls in love with Scarlett Johansson the cell phone) seems to present a pretty reasonable future, mostly because it kept its scale and the time-jump small.

We should be doing a lot more thinking about the next 50 to 100 years. Many of us will still be

alive a century from now, due to new tech (and if we're not, it might also be due to new tech). Our entertainment should strive to present less lazy, more thought-out versions of the near future, not just robot cops.

Jacobsen: Individuals might associate the highest levels of ability with certain specialized activities. For examples, construction of a grand theory of everything (e.g., Albert Einstein, *General & Special Relativity*, Sir Isaac Newton, *The Universal Law of Gravitation*), a great discovery in genetic science (e.g., Francis Crick and James Watson, Double-Helix Structure of DNA), the solution of a major mathematical problem (e.g., Andrew Wiles, *Fermat's Last Theorem Solution*, or Grigori Perelman, *Poincaré Conjecture*), musical compositions (Johann Sebastian Bach, *Goldberg Variations*, Ludwig van Beethoven, *Symphony 6, 7, and 9*, *Hammerklavier Sonata*, *Missa Solemnis*, Richard Strauss, *Till Eulenspiegel's Merry Pranks and Burleske*), creation of a new field of research (John Von Neumann & Oskar Morgenstern, *Game Theory*), a revolution in medical science (Edward Jenner, Vaccinations), foundational scientific theories in biology (Charles Darwin, *Origin of Species*), comprehensive works of philosophy (Bertrand Russell, *History of Western Philosophy*, and coauthored with Alfred North Whitehead, *Principia Mathematica*), foundational research in linguistics (Noam Chomsky, *Syntactic-Structures*), revolutionary production on philosophy of language (Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*), mastery of performance arts (Richard Pryor, *Richard Pryor: Live in Concert* (1979), *Richard Pryor: Live on the Sunset Strip*, and *Richard Pryor: Here and Now*, Leonard Alfred Schneider AKA Lenny Bruce, George Carlin, *FM & AM*, *Jammin' in New York*, and *Life is Worth Losing*), work in cryptography and computer science (Alan Turing), work in espionage (Mata Hari AKA Eye of the Day), virtuosity with classical European musical instruments (e.g., Yehudin Menuhi with Violin, Glenn Gould, Martha Argerich, and Evgeny Kissin with Piano, Russell Oberlin with voice, Mstislav Rostropovich with Cello), great lyrical productions (Lauryn Hill, *The Miseducation of Lauryn Hill*, Shawn Corey Carter AKA Jay-Z, *Reasonable Doubt*, *The Blueprint*, or *The Black Album*, Nasir bin Olu Dara Jones AKA Nas, *Illmatic*, and Eric Barrier & William Michael Griffith Jr. AKA Eric B. & Rakim Allah, *Paid in Full*), theological productions (Saint Thomas Aquinas, *Summa Theologica*, and Saint Augustine of Hippo, *The City of God*), or foundational theological arguments (Saint Anselm of Canterbury/Aosta, *Ontological Argument*), the creation of a massive social movement (Mahatma Ghandi, Revolution Devoted to Non-Violence), an obsession in a single intellectual sport (Bobby Fischer, Chess), a major work of literature (Johann Wolfgang von Goethe, *Faust*), major works in ethical, political and social philosophy (Plato, *The Republic*, and John Stuart Mill, *On the Subjection of Women* and *Utilitarianism*), a great work of art (Leonardo da Vinci, *Mona Lisa*, Pablo Picasso, *Guernica*, Michelangelo, *Pieta* and *Sistine Chapel*, Vincent Van Gogh, *Cafe Terrace at Night*, Jan Vermeer, *The Girl with a Pearl Earring*, Caravaggio, *Inspiration of St Matthew*, and Claude Monet, *Water Lilies*), earning tremendous amounts of wealth (Bill Gates, *Microsoft*, or Warren Buffet), adumbrated work in media theory (Herbert Marshall McLuhan, *Understanding Media: The Extensions of Man*, *The Medium is the Message: An Inventory of Effects*, and *The Global Village: Transformations in World Life and Media in the 21st Century*), revolutionary psychiatric work (Timothy Leary, LSD in Psychiatry experiments and *Concord Prison Experiment*), engineered inventions (Bucky Fuller, Geodesic Dome, Dymaxion Map and Car, and *Synergetics*), calculation and extrapolation of technological trends (Raymond Kurzweil, *The Law of Accelerating Returns*), dual Nobel Prizes (Marie Skłodowska-Curie, John Bardeen, Linus

Pauling, or Frederick Sanger), or some other revolutionizing idea/production/practice. Provided these and many other unstated examples, do you consider the association accurate? What about the tendency of underachievement or underutilization of abilities in the gifted community? What can people do to alleviate this?

Rosner: Smart people want to do world-changing things. Many get side-tracked. It's like sports – not everyone who wants to play in the NBA gets to.

Starting early in life, people do a lot of self-selection based on perceived skills. With nerdy people, sometimes there's a nice agreement between geniusy interests and skills, almost as if in compensation for social awkwardness. (Not telling you anything new; everybody's familiar with the awkward, brainy nerd type.)

The sidetracking of smart people into intellectual enclaves might serve to make society more stable. What if every supergenius suddenly decided to go into real estate? It's likely normal real estate practices would be highly disrupted, and non-supergenius Realtors might have a hard time keeping up.

A combination of factors nudges nerdy people towards mentally demanding activities – having appropriate the skill set, the pleasure of being good at something, other people's expectations (“You're so tall – do you play basketball?”), the desire for recognition, curiosity, a tendency towards mental flexibility and introspection prompted by not being perfectly at home in the world. Who's gonna be more creative – the perfectly adjusted straight jock, or the gay guy who had to strategically think his way through every day of the mine field of middle school? (This isn't entirely fair – there are plenty of wildly creative straight jocks – Matthew Barney and Jeff Koons come to mind – but still....)

Social skills are kind of the icing on the cake of mental development. If everything goes well, you end up with a kid who can fairly easily learn the demanding task of social interaction. But if any of a hundred things goes wrong with brain development, various mental subsystems aren't adequately integrated, and you don't get easy social understanding. Come to think of it, this suggests that consciousness – thorough mental integration – is especially important in interpersonal interaction. This doesn't mean that people on the autism spectrum aren't conscious. But it may suggest that the components of their consciousness are weighted differently from Frat Boy Joe's.

Having smooth social skills might be at the expense of profound gifts. There are many well-known examples of people with social challenges who have astonishing eidetic memories or math skills or sculptural ability.

Everyone's familiar with stereotypical Asperger's behavior. I think the entertainment industry in which I work is packed with people who have *reverse* Asperger's. They have highly developed social skills, which can exact a price. When you can always make friends or hook up or get what you want with charisma, you might not value relationships and may leave a trail of burned bridges. Because social success comes so easily to people with reverse Asperger's, they may have never learned to do hard things – telling people “No,” for instance. (People in entertainment

are notorious for not saying no straight out – it’s painful to disappoint someone. Instead, it’s a “Yes, maybe,” followed by a declining rate of returned phone calls.)

Now, about underachievement or under-utilization of abilities in the gifted community – humans’ evolutionary niche is to spot exploitable regularities in the world. (It’s every animal’s niche, but we really specialize in it.) Some humans are better at spotting patterns than others. Some are more obsessed with and sidetracked by pattern-spotting, sometimes at the expense of real-world skills such as career and relationship success.

Plus, the unsuccessful smart person is a media trope. “Hey – look at the genius who lives in weird squalor.” Schadenfreude. Success isn’t perfectly correlated with intelligence. There are plenty of not-traditionally-successful people at all levels of intelligence. It’s just more exciting to see the smart ones.

What can we do to help make gifted people more successful? Show them the landscape, and let them make informed choices about whom they might like to try to be. We’ve talked about informed will being more important than free will – gifted people should know their options. Growing up, I desperately needed an older sibling (which I didn’t have) to tell me what’s what in junior high and high school. My stepdad tried, but I didn’t respect him until much later, and he didn’t help me understand the social benefits of doing normal guy things.

Back when I was pitching TV shows in the 90s, one of my ideas was a makeover show for nerds. In each episode, an expert panel would help a nerd to examine his life and decide what he wants to keep and what he wants to get rid of in the interest of social success. Keep the room full of pristine Star Wars action figures, but maybe drop 50 pounds and get some new clothes. But it’s not 1998 anymore, and it’s much more acceptable to be a nerd. Nerds and nerdettes are hooking up all over the place without being made over. It’s a little frustrating – I could’ve used some nerd acceptance back in 1974.

Jacobsen: In turn, what responsibilities do the gifted population have towards society and culture? Why do you think this?

Rosner: I don’t think gifted people spend much time thinking about what they can give to society (and may not even think of themselves as gifted or at least pretend they don’t). Many highly gifted people are compelled to single-mindedly pursue their visions and objectives at the expense of almost everything else. I don’t know about telling art to behave for society’s sake – don’t think it works like that.

However, I do think that gifted people don’t get a pass to act like dicks just because of their giftedness. Many gifted people have terrible behavior, but so do many non-gifted people. Often, the fame associated with their gifts gives them increased opportunity to engage in bad behavior. And sometimes their gifts have made them a little nuts.

But it’s really stupid to act out sexually in an era with virtually unlimited internet pornography. Having affairs, especially with terrible people – and affair-having is correlated with being terrible – generally doesn’t turn out well. Sending pictures of your penis to women never works

out, unless your objective is to be ridiculed and punished and have your life reduced to a shambles. Messing around extracurricularly with people in the flesh just seems so old-school, so 68-year-old Senator dumping his second wife.

What I'm saying is, if you're in a marriage or long-term relationship that doesn't have major problems, make do with the images you can find online. Don't scuttle everything for a half-dozen intimate encounters with some asshole. And don't tell yourself that being true to your gift doesn't leave you with sufficient control over the rest of your behavior to avoid trouble. But this is coming from a guy who's always had such lousy game with women that such opportunities never come up.

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Seven)

2014-11-22

*Part seven of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1990-96), and writer. He discusses the following subject-matter: The United States of America leading the world in science, technology, and innovation, strange situation for the 21st century, possible continued decline of America, example from Britain in the 1930s, news sources and liberal leaning, and possible contexts for the continued flourishing of the United States; descriptive capacity of the principles of existence, functional truth of principles of existence, and speculation on their inhering in reality; philosophers' idea of logical possibility mirroring self-consistency, extrapolations of nested universes, the possible limit to minds/mind-spaces and their respective armatures, universe's ability to handle contradiction, correlation establishment between two particles through close proximity and emission of energy, widespread contradiction would appear as loss of information, "spooky action at a distance" of Einstein, consideration of an infinity of mind-spaces, assumption of no maximum-possible size for an information space, constrained perspective akin to Plato's Cave, possibility of universe finding way to communicate with "its minions," thoughts on writing a "big ol' space opera-ish SF novel," 10^{80} particles in active center of universe (with possible multiplication by 10^3 for all collapsed matter at $T = 0$), a hypothetical 10^{10} step down each rung of the mind-space ladder making our universe 8 rungs from the bottom of an infinite ladder, possibility of blackish holes being the visible outputs of larger processors, and considerations of the universe containing itself acting as its own armature; Frank Drake, Drake Equation, extensions of the Drake Equation, contents of The Milky Way galaxy, Matrioshka brain out of a Dyson Sphere thought, Fermi Paradox; thoughts on Goldilocks Zone for universes existing with caveat of Occam's Razor; infinities in informational cosmology, metric of minds, and metric of universe, lack of infinities in information cosmology, and list of possible metrics; modern cosmology, common sense, and informational cosmology on 'empty space'; formulations of modern cosmology and informational cosmology in relation to bidirectional time and the arrow of time, and a scenario for a time-asymmetric process; other scenarios of a time-asymmetric process; summarization of discussion on informational cosmology with respect to equivalence of minds and universe, and complementary fields of informational cosmogony and eschatology; informational cosmology in relation to particles, dark matter and dark energy, gravitation and collapsed matter, and additional elements; blackish holes equal universe's memory with thoughts on possible functions of other astronomical objects such as solar systems, gas giants, galaxies (e.g., Barred spiral galaxies, Elliptical galaxies, Irregular galaxies, Lenticular galaxies, Ring galaxies, Spiral galaxies, and so on), galaxy filaments, galaxy clusters, galaxy groups, galactic superclusters, quasars, blazars, seyfert galaxies, stars (e.g., A-type, B-types, F-type, G-type, K-type, L-type, M-type, O-type, T-type, peculiar, barium, neutron, hypergiants, and so on), stellar groupings, variable stars (e.g., cataclysmic, eclipsing binaries, eruptive, pulsating, rotating, and so on), circumstellar matter, accretion discs, star systems, meteoroids, interstellar medium, comets, satellites, stellar streams, asteroids, planets, intergalactic space, dwarf planets, cosmic microwave background radiation, proplyds, open/globular clusters, nebulae, and voids; discussion on derivative fields of information-based cosmology including chemistry, biology, psychology, economics, and other fields amenable to the information-based*

program of research, and influence on education and entertainment; and everything related to informational cosmology in context.

Scott Douglas Jacobsen: The United States of America continues to lead the world in technology, science, and innovation. America persists in its descent relative to other nations on the world stage with respect to these three domains too. In part due to the disjunction between the level of scientific literacy of the general populace and scientists, not limited to any particular area, this trend persists across scientific disciplines with representative statistics and data collected, collated, and presented by organizations such as the Pew Research Center and *Smithsonian* magazine. Moreover, this pattern appears to have continued at about the same rate for many, many years.

We have a strange situation. In the 21st century, nations with the desire to thrive need their populace capable of critical thought without restriction to particular domains. Some countries will not warm to this prospect. Information does have easy access. Some countries' leaders work towards active suppression of this activity – to deprive the populace of basic information. Others will have increased probability of flourishing with allowance of free-flow of information and education. No doubt expedited by internet and computers.

Some interesting emergent ideals in society with increased information. Information for self-education turned into superficial knowledge – not by necessity deep knowledge-based networks of comprehension. Although, the possibility for such self-education might develop more general algorithms for critical thought – more important than base knowledge. With many countries inundated with information such as the United States, I suspect some resentment from the scientific community on this matter of the general populations' scientific ignorance with public outreach partaking of the more positive side of concern in this statistical phenomena.

Not an easy task for a whole populace to develop sufficient skills, faculties, and knowledge, it might lead to a modified form of anarchy with implied continuous dismantling of unjustified authority. Some might welcome the prospect; some others might not welcome it. Insofar as the trajectories of collected information might predict the future with increasing accuracy based on the nearness to the present, these do not, and especially in further, and further, extrapolations, mean fate or destiny of a nation. If aware and proactive, positive itineraries for society can continue with many negatives avoided or circumnavigated.

Flash back to the 1930s, one could argue for Britain's decline due to the great minds entering into disciplines of finance rather than sciences. Rather than generating new wealth through innovations in technology and science, smart people funneled into finance. They dealt with existing money rather than generating wealth through innovations in technology and science. America's decline appears to reflect this in some ways.

If innovation grinds to a sufficiently slow pace, America seems geared to become a technical nation with technology – plenty of technical support work – while lacking innovation into new frontiers through scientific machinery, methodology, discovery, and subsequent application for new machinery and methodological refinement – at least in prime leadership status with regards to these aspects of nation building and wellbeing. How best to stop this possible historical

pattern of societal innovatory decay connected to dissolution of the US?

Rick Rosner: Fixing society isn't really my field. Plus, you should know I watch a lot of MSNBC (balanced a little by CNBC) and read HuffPo, Salon, and Slate and only occasionally Drudge. I lean liberal. At the same time, I'm not stupid. (Though maybe not as smart as I'd like to think.)

A great strength and a great vulnerability of the United States is our population of nearly a third of a billion. Only China and India have larger populations (much larger). Our population, our standard of living and our level of education give us the resources to innovate. But on the other hand, a large population means we have tens of millions of yahoos. And for the past 30 or 40 years, cynical conservative think tanks have studied and learned how to mobilize low-information voters. There's always been a strain of angry dumbness in American politics, but the size of our population, the persuasive power of the internet and TV, and the amount of money devoted to persuasion have made dumbness in politics a more potent force than ever before.

Plus, the pace of change is genuinely weird and scary. If you're conservative or if you're old or even if you're not, you find the world an increasingly strange place. The world hasn't gotten so crazy so fast since the run-up to World War II. But WWII ended – the current acceleration of change won't.

Here are some things that could happen which would help the US continue to lead in innovation:

Science-denying conservatives lose political power. This could happen as a result of demographics and/or growing disgust. Roger Ailes, who runs Fox News, is 74 and fat. What, if anything, happens when he's no longer able to run it?

Competition with China and India heats up. During the Cold War, competition with Russia drove science education and quite a bit of publicly funded scientific innovation. Or we could productively partner with China or India.

The means of innovation continues to decouple from governmental support. The more people can innovate on their own, the more it doesn't matter if government continues to suck.

There's a biotech revolution. As biotech becomes more effective, providing people with extra decades of (healthy) life will become the biggest industry on earth. And the US has the largest group of consumers able to afford it.

Damage to the planet becomes an urgent concern.

So what can people do to help the US remain competitive?

Stay current – understand and embrace technology and change. The world's gonna change with or without you. Be part of it, even if it's scary. Because even scarier is living in some change-denying backwater and dragging down the rest of the country with you. Make reading about new technology part of your daily routine.

Sell the positive. Conservatives sell fear to people who are intimidated by change. Win people's hearts and minds with cool, fun tech.

Be healthy and don't die. Change-avoiders and the ignorant have unhealthy lifestyles, don't educate themselves about healthy change, and die off sooner. Don't be them.

Jacobsen: We discussed the descriptive capacity of the principles of existence ("laws"). All describe an aspect or function of universe. Functional truth provides confidence for operational utility. What about deeper? Principles of existence describe universe. They must inhere in it too. Why "must" they inhere in universe? Plain and simple: principles of existence describe universe's operation. They map reality. They must map *onto* it because of operating *in* it. Correspondence warrants containment. Otherwise, an inaccurate map. How do principles of existence inhere in reality?

Rosner: I suppose, without knowing the math of the quantum mechanics behind it, worlds that can't exist – that are self-contradictory – decohere – expand into nothing. I'm guessing that in a quantum computer, only the consistent solutions are coherent – they exist. Universe probably works the same way. Things that can exist, do, thorough consistency (and only get blurry to the point of non-existence at the edges). Which I guess is the same way of saying that universes are pockets of deep consistency.

But it's not as if rules were set up at the beginning and the universe was built like a Lego set. It's more like what turns out to be consistent gets to exist and enjoy an increased likelihood of continued existence. And it turns out these consistent worlds embody consistent systems, which don't exactly pre-exist the universe but which are highly consistent across universes. The universe defines, reveals and refines the principles of existence as it goes along. These principles are mostly the same across universes. But they're not used to build universes. It's just that universes that don't have them can't exist. It's bootstrappy and at the same time reflective of some unavoidable principles.

Jacobsen: Philosophers have an idea of utility here: logical possibility. "Logical possibility" parallels "self-consistency." Logical possibility comes from philosophy; self-consistency from pure mathematics and derivative fields – as preliminarily discussed in Part Three and Part Five.

Conceptual or generalized self-consistency entitled logical possibility. Opposed by self-inconsistency and logical impossibility. Banal examples of logical impossibility include a "married bachelor" or "square circle." Either a bachelor or married, but not both; either a square or a circle, but not both. You see the point – generalized consistency.

Universe contains self-consistency, and therefore pertains to logical possibilities. It exists. Translation: universe does not net self-contradict. Net self-consistency equates to logical possibility meaning allowance for universe to exist. A circuitous path to hyphenated terms "self-consistent" or "self-consistency" once more.

It sharpens the construct of "universe's armature." Universe's framework must have logical possibility. Same for universe, minds' material frameworks (brains), and minds in universe. All

require self-consistency in an information-based perspective.

Self-consistent structures derive from logical possibility because of logical possibility applied internal to them. “Logical possibility applied internal to them” means “intrinsic components and interrelationships remain logical.” Part Five’s definition of “system without self-contradiction” – broadened in Part Seven to “system without net self-contradiction” – harnessed technical and concrete definitions.

Far from blunting the definitional lapidary tools of this gem. We further refined as proper artisans. “Logical possibility” equates to maximal generalized definition of “self-consistency.” It applies the most general system of reason: logic. Logic consolidates dominance of one discipline: philosophy. To the consternation of some, it reigns here. All else derives from it.

Additional issues pertain to brains and minds with self-consistency and self-consistent relationships – likewise for armature and its universe. Furthermore, the self-consistent nature of the four major conceptualizations in informational cosmology at present – armature, universe, minds, and brains – converge to less and imply more.

Convergence of four major conceptualizations. Brains necessitate minds; armature necessitates universe. No brain, no mind; no armature, no universe, minds emerge from brains and universe emerges from armature. Each reflects the other. Brain means armature; mind means universe.

Insofar as definitions and isomorphism permit, the four primary objects of informational cosmology converge brain into armature and mind into universe with differences in capacity. Four objects reduced to two. Correspondence to such an extent to permit the convergence of two pairs of ideas with implication of an emergent or necessary construct. One structure-pair, brain and armature into armature alone; another function-pair, mind and universe into universe alone; necessary construct of mind-space from armature/universe.

Ergo, informational cosmology contains two major conceptualizations: armatures and universes. Four reduced to two major conceptualizations with emergent respective mind-spaces from armatures and universes. All net self-consistent – without net self-contradiction – and information processing.

Implication of nested relationships with the possibility of an infinite vertical regress of mind-spaces. A simple nested system of self-consistency with armature and universe connected by information processing. An informational cosmological nested system with primacy of structure from armature, primacy of function from universe, and primacy of construction from mind-space. Armature produces universe; universe derives from armature; and mind-space constructed from respective armature and universe. All connects to argument for universe as consciousness endowed system or mind because of net self-consistency and information processing.

In conditionals: if isomorphic geometry between brains/minds and armature/universe, and if brains imply minds, and if armature implies universe, then these equate in definition and differ in

magnitude. Implication of universe as mind bound by armature further extrapolating into another armature and universe, or brain and mind. These mean nested systems and interrelationships among these systems.

Insofar as our universe operates (and other universes of logical possibility operate) within principles of existence equating to mathematical descriptors (symbol systems) and respective evidential bulwarks (symbol systems mapped to scientific evidence), armature for universe external to universe equates to *nested universes within respective armatures*, within further universes within respective armatures *und so weiter*. Armature and universe contain self-consistency and information processing.

If I may, this recapitulates earlier arguments with important extrapolations and subsequent adjunctions. Minds within universe and universe have identities with one another based on isomorphic geometry. By implication, universe contains operation and traits analogous to individual localized minds within itself, and therefore – and further – universe equates to a mind in philosophic *and* scientific terms (as an aside).

Evidence from cognitive neuroscience would bequeath reasonable grounds for extrapolation about universe. This defines the new disciplines. Informational cosmogony, informational cosmology, and informational eschatology describe the beginning, development, and conclusion of universe and other universes of logical possibility. Study of every logically possible armature/universe relationship, interrelationship of all armatures/universes, and their respective mind-spaces for each.

Furthermore, universe represents operation of an armature; all minds (consciousness endowed subsystems within universe) have containment within universe. If localized minds and universe have isomorphic operations (through time) and traits (self-consistency and information processing), and if localized minds (consciousness endowed subsystems within universe) have armatures (brains), then universe must have an armature (unknown equivalent of “brain”).

Moreover, this validates contemplation on armature for universe too. You know the likely apocryphal yarn of the woman stating, “Turtles all the way down.” Nested universes and respective armatures mean the prior argument extended into an indefinite number of iterations without grounds for reasonable cessation.

In more formal terms, if brain/derivative armature equals A_1 , its mind equals M_1 , armature for universe equals A_2 , universe equals M_2 , and if these have isomorphic operation – through time – and traits – self-consistency and information processing, and if A_1 and M_1 have containment in A_2 and M_2 , then A_2 and M_2 should have containment in an unknown A_3 and M_3 , and these in A_4 and M_4 , and so on. Each A_n and M_n constructing their respective mind spaces, S_n . Charles Lutwidge Dodgson (Lewis Carroll, *Alice's Adventures in Wonderland*) would smile.

What does this mean for an indefinite iteration of minds/mind-spaces? What else do you argue for informational cosmogony, cosmology, and eschatology? How far does the regress of minds continue? In other words, how far does the proverbial ‘rabbit hole’ persist with respect to minds/mind-spaces and their armatures?

Rosner: First, about contradiction – the universe can handle quite a bit of it. Processes in the active center – fusion, the creation of life – involve the creation of information and order, the emission of energy and the settling down of protons, neutrons and electrons into lower-energy states. The active center is reshuffling and compactifying itself by finding relationships among particles.

When two particles establish a relationship/correlation by coming into proximity and emitting energy, the emitted energy serves as a contradiction check with the rest of the universe. Say an electron is captured by a proton, or an electron already in orbit around a proton falls to a lower orbit. A photon is emitted. As the photon traverses space, it's announcing, "There's been a status change," and asking, "Does this necessitate a change in the status of other particles?" If the photon is absorbed by another particle, that says the initial change in status required a change elsewhere. If the photon isn't absorbed locally, it travels farther and farther, losing energy to the curvature of space, which means it's losing the ability to create change elsewhere. As it travels across billions of light years to the edge of the active center, it's lost almost all ability to cause a status change in another particle or set of particles. It's as if it's performed a universe-wide contradiction check. Its energy has been lost to space, slightly increasing the precision with which space is defined. 1. Status change between particles with the emission of a photon, asking, "Everybody cool with this, or is it gonna cause a blip?" 2. Photon crosses space – blip of absorption if this necessitates a status change elsewhere – a mini-contradiction – no absorption if no problem. 3. After traveling for billions of years, photon has lost almost all energy to space, and a little bit of additional order has been created.

Widespread contradiction would look like the loss of information. Blasting a part of the universe with a bunch of energy would destroy its order and information. Information lost in a leaky blackish hole would be lost to heat energy – matter would collapse, heat up as in a Big Bang run backwards, and relationships among particles would be cooked away. An entire universe that's losing information is doing so by heating up. It shrinks, the Cosmic Background Radiation increases in temperature, making it more disruptive. Information and order are lost.

We could also look at "spooky action at a distance," as Einstein called quantum correlations which apparently travel faster than light. A photon emission and capture is a handshake between the present and the future, (Except for the photon itself – photons, traveling at the speed of light, never see any time pass. They exist in an eternal present of zero duration.) (The Einstein-Podolsky-Rosen experiment – a thought experiment prompted by Einstein's loathing of "spooky action" is a linked pair of handshakes between present and future.) The history of the active center of the universe is, in part, the systematic arrangement of these handshakes to minimize their duration (a minimization in time and space). Cause-and-effect, non-contradiction, space itself and time itself might be consequences of or at least accompaniments to this systematic arrangement. Every handshake is a contradiction and a link in a mesh of cause-and-effect, a mesh that tries to maximize the handshakes' localization and predictability.

Now for the infinite stack of mind-spaces. If every mind-space requires an outside armature that is itself located in another mind-space, then this implies an infinite chain of mind-spaces and armatures. (The chain can terminate at the small end – you can have a mind-space that's so small that it doesn't include the armatures for any smaller mind-spaces.) Infinities are troubling, but at

least the infinities associated with mind-spaces are aleph-null, the lowest degree of infinity – the infinity of the counting numbers. This assumes that each mind-space can be described finitely – that it doesn't have unavoidably infinite gradations of anything.

I'm assuming that there's no maximum-possible size for an information space and that everything that exists does so as part of (or all of) an information space. These are big assumptions, but fine for a short discussion. If there's no limit on size, then there's no immediately apparent insurmountable problem with an infinite chain of mind-spaces within mind-spaces.

It's not like we'll ever see all the way up the stack of mind-spaces. (Our constrained perspective make's Plato's Cave look like a view of a 100-inch high-def flat-screen slice of raw, unmediated reality itself.) But it's not unreasonable to imagine that the universe might figure out a way to communicate with its minions in its mind-space and tell them what's what. It'd be nice to know what the universe is the mind of, and it might be helpful for the universe. Most likely to know are the ancient civs possibly hanging out at the centers of galaxies. They might officially be working for the universe, helping it do its mental business (with greater precision).

If I were going to write a big ol' space opera-ish SF novel, it would concern humanity's attempt to travel to the center of the Milky Way, to find out what's going on, but stealthily, so we don't get swatted down by the big, old civs.

The universe has about 10^{80} particles (in the active center – maybe multiply that by 10^3 to include all the collapsed matter around $T = 0$). The million-stellar-mass black(ish) hole at the center of the Milky Way might have about 10^{64} particles, which might be the armature for a mind-space of 10^{60} particles, a step-down by a factor of 10^{20} between the mind-space of the universe and the biggest mind-space in the universe, unless the central black hole has more information on the inside than is apparent from the outside. So just for fun, figure there's an average step-down of only 10^{10} . Even with that fairly small step-down, our universe is only about eight rungs from the bottom of an infinite ladder. Unless...

...blackish holes could be just the visible outputs of possibly much bigger processors. Could be – quite likely is – that information-spaces can contain information outputs from information-spaces much bigger than themselves. I guess that doesn't really affect the ladder hierarchy – the armature of the complicated processor is probably part of the same external universe as the armature of the mind-space it's feeding information into. Anyhow, our universe, big as it is, is very close to the bottom of the ladder of universes within universes. Things get really big if there's no governor on the size of things that can exist.

Not that such hugeness is visible to us – we're thoroughly a part of our fairly small universe, and furthermore, we're a product of a single long moment of the universe. We'll need luck and great leaps forward in complexity and understanding to survive as a civilization beyond this moment.

Can a universe contain itself – be its own armature and thus avoid the infinite ladder of universes? I don't see how. (But of course I know almost nothing.) The mind-space would be minding just itself, self-referentially shielded from any reason for existence. Even if you could

have an information-space that's equivalent to its armature, wouldn't that armature need to be a material presence in an external space?

Jacobsen: Frank Drake proposed an equation mapping onto the probability of extraterrestrial/alien life with active radio communication technology. A widely-accepted probabilistic metric of advanced civilizations. Moreover, one can remove the additional specifications of the theory for estimations of lesser, and lesser, degrees of advanced life. He proposed a single equation to distill the probabilities:

$$(N=R \cdot f_p \cdot n_c \cdot f_i \cdot f_l \cdot f_c \cdot L)$$

Each in brief:

- “N” means “The Milky Way galaxy civilizations with detectable electromagnetic emissions.”
- “R” means “rate of star formation acceptable for intelligent life’s development.”
- “f_p” means “fraction of stars with planetary systems.”
- “n_c” means “planets per solar system with acceptable habitat for life.”
- “f_i” means “fraction of acceptable planets with certain emergence of life.”
- “f_l” means “fraction of acceptable planets with certain emergence of intelligent life.”
- “f_c” means “fraction of civilizations with technology capable producing detectable signs in space.”
- “L” means “span of f_c in intelligent life and their civilizations.”

Most expert critiques consider the last four variables hard to measure. It may seem complicated, but each new variable builds, i.e. specifies, on prior variables. You simply follow the steps. If one removes “f_i”, the equation produces probabilities for emergence of life rather than intelligent life. Duly note, if you remove one variable, you effectively remove subsequent numbers of higher specification. Latter variables build on former variables in specification.

In universe with ultra-deep cosmic time and multiple unfoldings through tremendous numbers of “little bangs” rather than one “big bang” based in neutron cycling, how does the *Drake Equation* operate?

In my humble consideration of Drake’s venerable work, not an expert, but he did not seem to extrapolate far enough – do not know of others. I consider two additional variables of substance. He limited “N” to The Milky Way galaxy. Another variable needs inclusion based on best estimates of galaxies with habitable life. Galaxies might have a “Goldilocks Zone” akin to range of planetary orbits suitable for the development of known kinds of life. Rate of life-

permitting galaxies labelled “G*” in a *Drake-Jacobsen Equation* for our universe. New formulation becomes the following:

$$(N=G^* \cdot R^* \cdot f_p \cdot n_e \cdot f_i \cdot f_c \cdot L)$$

One might include an additional variable on life-permitting universes too. “U*” for the rate of life-permitting universes in the total set of logical possibilities of universes. With the first addition of “G*” in the modified equation, we produce a modified “N” meaning “galaxies containing civilizations with detectable electromagnetic emissions.” In the second addition, we produce a further modified “N” meaning “set of logically possible universes containing civilizations with detectable electromagnetic emissions.” The second extrapolation of the formulation becomes:

$$(N=U^* \cdot G^* \cdot R^* \cdot f_p \cdot n_e \cdot f_i \cdot f_c \cdot L)$$

Moreover, the non-arbitrary definition of “detectable electromagnetic emissions” – as an adaptation of Drake’s definitions – does narrow the range; however, we do not know the precise forms of life, if indeed beyond the DNA-based, and the expression of intelligibility including those outside of the use of technologies with detectable electromagnetic emissions. One need merely redefine the former variables appropriately – in a self-consistent way – to extrapolate on a more specified or less specified definition of extraterrestrial intelligent life with detectable activity. If Drake can string assumptions together and name a formula after himself, then I can string assumptions together off Drake’s and adapt various forms of a *Drake-Jacobsen Equation*.

How might the *Drake Equation* work in an informational cosmology view?

Rosner: The Milky Way contains at least 100 billion planets. There’s nothing so untypical about our solar system that we can’t imagine similar conditions existing on many millions of other planets in our galaxy, not to mention the more than 100 billion other galaxies in the universe. Informational cosmology suggests that it’s pretty hard to avoid the creation of life and, eventually, thinking organisms.

Thought isn’t this magical thing the creation of which requires the touch of a wand from on-high. Thought is flexible information processing which can bestow evolutionary advantages. In the random spread of organisms to occupy evolutionary niches, the niche of thought has likely been occupied on a multitude of different planets.

And once occupied, the niche probably doesn’t get unoccupied. Yes, we’re fucking up our planet. But we’re not fucking it up so terribly that we won’t be able to fix it. We’re about to enter the era of smart everything. I remember when, in 1974, my family’s first computer chip entered our house in a primitive four-function calculator. Now, our home contains at least a dozen computers or computer-like devices with trillions of times the computing power of that first chip. And that’s nothing – we’re far from the limit of Moore’s law. In the past 50 years, the cost-per-calculation has dropped by something like a billion-fold, and it will keep dropping. We’re about to be surrounded by computation, and we’ll increasingly merge with our computing devices.

This has probably happened on some crazy number of planets. Recent science fiction has it playing out like this – an advanced civilization devotes increasing amounts of resources to computing, eventually dismantling entire planets to build a shell around its sun – a Dyson sphere – or multiple shells – a Matrioshka brain – to capture more energy for computing.

Computing might be the answer to the Fermi Paradox. (With regard to space aliens, Fermi asked, “Where is everybody?”) If it’s more profitable in terms of knowledge to stay home for the most part and devote resources to computation and simulation, civilizations will stay home. It’s not computationally efficient to have a far-flung galactic empire because the speed of light puts a speed limit on communication. Better to build your empire around a single star, where the exchange of messages will take hours at most rather than years. And once you outgrow your Matrioshka brain, maybe you set up shop around or in a blackish hole, which gives you a bunch of matter in a much smaller space for faster communication and computation.

There’s no non-weird answer to the question of aliens. No aliens anywhere? Weird. Aliens? Weird! Aliens colonizing space? Weird. Aliens not colonizing space? Weird. But everything is weird. We’re on a ball of rock orbited by a smaller ball of rock which both orbit a huge ball of hydrogen atoms undergoing fusion? Weird. Weirdness is a less-than-reliable guide to the validity of a theory.

In a Big Bang universe, it’s unlikely that there aren’t a bunch of civilizations a million years old and more. Unless something consistently wipes out civilizations, which would be weird. Or civilizations link up or are colonized into super-civilizations extending across swaths of the galaxy. So the question becomes, what does a civilization do for a million years or ten million or a billion? I’d guess that there’s some principle that the number of interesting things to do increases along with the computational power of your brain (or your brain plus your super-computing add-ons). Otherwise, you and your civilization would go nuts from boredom.

In an informational cosmology universe, civilizations could survive for longer than the apparent age of the universe. You could have civilizations tens or hundreds of billions of years old or more. I’m guessing that if this is the case, then such civilizations are very involved in the business of the universe. They have a good idea of the universe’s objectives, and they help with its operations. A big, old, highly organized universe might include highly developed technicians. Kinda doesn’t make sense that it wouldn’t.

I imagine that, among other things, long-lasting civilizations might be able to manipulate quasars to hose down dormant galaxies with neutrinos, awakening those galaxies. (Can also imagine this might be wrong and dumb.) Can’t imagine how a civilization or entity could persist for 100 billion years without going stir-crazy, but it has 100 billion years to figure out fun things to do. (A hundred billion years is the ultimate endless Sunday afternoon.)

Jacobsen: What about the Goldilocks Zone for universes existing?

Rosner: I don’t think there’s any optimum size for a universe, except that really tiny, fuzzy ones are on the borderline of existence. And to have creatures inside it that can speculate about the universe, you need a universe of a certain hugeness, though such creatures aren’t essential – they

don't grant the universe existence by observing it. The universe observes itself. (That is, the matter in the universe defines itself through its interactions.)

If every universe is an information-space supported by an armature in a universe external to that information-space, that implies an endless chain of universes, each with an external armature supporting it. This is disquieting – we live in a huge universe, which is supported by an even larger external universe, etc. Seems like Occam's Razor might scoff – “Your concept implies an infinity of universes, each one more gigantic than the one before? That's simple – not.”

Jacobsen: What role do infinities play in informational cosmology? How about metric of minds? How about metric of universe?

Rosner: I don't think there are infinities in informational cosmology. I think everything's the result of a finite number (though often fantastically huge) of interactions in finite though tremendous time and space. Fuzziness and the finite nature of information save us from infinities. For instance, you can't get two particles close enough together to have infinite gravitational force between them – their fuzziness means they can never have zero distance between them – it's impossible to specify distance with infinite precision.

To indicate the size of an information-space, there could be various metrics – total number of particles, apparent age, apparent size, scale – the DeBroglie wavelength of a proton compared to the average distance between protons, maybe even the proton-electron mass ratio or the number of levels in the hierarchy of clustering (solar system, galaxy, galactic cluster, supercluster).

Jacobsen: Modern cosmology found 'empty space' weighs something. Common sense might think empty space weighs nothing. In informational cosmology, does apparent empty space weigh something or nothing? Does empty space contain something or nothing in informational cosmology? Does 'empty space' suffice for a proper title?

Rosner: Common sense believes that nothingness is the natural, default state, and that anything else requires an explanation. In actuality, everything including nothingness requires an explanation, and nothingness is a very unlikely state.

I don't know if space weighs anything. In informational cosmology, space has to be specified – given shape and scale and size by the relationships among the matter it contains. Don't know if this implies that it has weight. Apparently empty space does have a lot of stuff in it – zillions of photons and neutrinos crossing every cubic centimeter of space all the time. And space is bubbling with virtual particles which are probably part of the universe's bookkeeping, in that virtual particles reflect relationships among actual particles. So empty space isn't empty.

Two of my ideas in particular need to be mathematicized and put into an overall system of how the universe defines itself – that protons' and neutrons' relatively heavy masses have to do with the amount of collapsed matter in the universe, and that space in the active center is further defined by interactions among charged particles.

The exchange of distance-traversing particles – photons and neutrinos – defines and organizes

space via Hubble sorting – giving clusters of matter their own unique apparent velocity vectors.

When I was working at Anthony's Gardens, at the time America's biggest outdoor bar, in the 80s, one of the other bouncers, Larry Reimers, a tough, competent Vietnam vet, would break up fights using spatial sorting. Instead of grabbing people who were brawling, he'd walk into the middle of the tussle and shove everyone in different directions. The brawlers would stumble several steps backwards. Continuing to shove drunk idiots as they tried to get at each other allowed Larry to handle fights that otherwise would've required more bouncers. (Not being as competent or as brave as Larry, I'd come up behind a single brawler and try to put him in a sleeper hold, which I didn't know how to administer – nobody ever went to sleep. I'd grab the guy around the neck. Customers would scream that I was choking him, so I'd let go, and then he'd turn around and hit me, so I'd put him in an incorrect sleeper hold again.)

The universe sorts itself out by exchanging particles. Over billions of years, particles' kinetic energy is translated into Hubble sorting – large-scale structuring (and, I suppose, indexing – with the structure allowing for retrieval of information when needed). A photon traversing the universe loses its energy to the curvature of space (the universe being one huge gravitational well). But the loss of this energy helps define space, so the lost energy is turned into order. (Hence, no entropy on a universe-wide scale.)

The collapsed matter hanging out in collapsed space close to $T = 0$ is Hubble sorted – relativistically segregated. It doesn't all coalesce into one big blob. Every collapsed galaxy or cluster has its own unique Hubble vector, with all the vectors separated by what must be, in that neighborhood, a pretty severe (equivalent of a) cosmological constant.

Jacobsen: You provided extensive discussion of informational cosmology. I formulated modern cosmological and informational cosmological conceptualizations rooted in information theory from Shannon and Weaver (1949) in one question for each:

- In modern cosmology, we ask, “What if the contents of the universe equals input, process equals laws plus time, and output equals transformations of the contents (e.g., particles, fields, forces, and so on) of the universe?”
- In informational cosmology, we ask, “What if bit units of universe equal input, process equals principles of existence plus time, and output equals transformations of bit units of universe?”

How does the former relate to bidirectional time? How about the latter?

Rosner: The arrow of time should point into the future whether we picture the universe as a thinking entity or only as a set of physical processes. The arrow of time should make sense when thought of from both points of view. For the physics to have a time arrow, you might need to have time-asymmetric processes. On a large scale, we have these. Physical processes are only reversible across small distances. Traversing millions of light years, neutrinos and photons lose energy to the curvature of space, energy they wouldn't get back if you bounced them off of a mirror and sent them back to where they came.

This is true for a uniform Big Bang universe (everything's the same everywhere) and even more so for an information-based universe, which isn't spatially uniform, with most of its collapsed matter hanging out in its smallish outskirts, making the collapsed outskirts much less transparent to neutrinos than the active center. Neutrinos are created through fusion in the active center and travel largely unimpeded to the outskirts. It's a large-scale, one-way process. It doesn't work in reverse.

Are large-scale one-way processes sufficient to propel the arrow of time? Does the arrow of time need to be propelled, or is the entire idea of the potential reversibility of time a misconception based on thinking of physics as a set of small-scale reversible processes? I don't know.

Though small-scale individual physical events can be run in reverse without violating the rules of physics, events don't happen in isolation. Events are part of moments. In our minds, moments are what we're currently aware of. This might also apply to the universe itself, but even if not, a moment can be seen as what's currently happening in the universe (from a particular vantage point or in the universe as a whole). Each moment contains information about the present, which includes information about the past (which contextualizes the present) and predictive constraints on the future. Each moment predicts its immediate future. An arrow is built in.

Jacobsen: What about other scenarios with the possibility of a time-asymmetric process?

Rosner: With regard to time, I think the biggest question is, if the universe is vastly, wildly ancient, with its Big Bang age only an apparent age, why does the universe look so precisely as if it had a Big Bang? The answer must have to do with the nature of information. (Or with me being wrong. But I'm not.) The active center of the universe is where new information is being formed. Protons entering the active center are new – either they've been created from neutrons in collapsed matter, or they've come from a soup of unstructured primordial matter around $T = 0$. (I picture space around $T = 0$ consisting of collapsed galaxies, separated by their Hubble/general relativistic vectors along with a large local gravitational constant, all suspended in a dense primordial soup.)

All the protons are new, though most of them are contextualized by the once-collapsed and now uncollapsing galaxies they're part of. They all enter the active center from close to $T = 0$. The protons' (and electrons') interactions with each other puff up the space they share in what looks like a Big Bang. Galaxies don't have to all enter the active center at the same time. Since all galaxies enter from close to $T = 0$, more recently lit-up galaxies look like they're located in part of the universe that's distant from us, so we're seeing them earlier in their existence.

The proton interactions have to start from around $T = 0$. They have to create the space they're in – the active center, which, as galaxies light up, expands like a Big Bang universe. The protons and their galaxies create information through a shared history that plays out in what looks like a Big Bang – they enter at the beginning of apparent time, and space expands around them.

Some conceptual trouble comes when galaxies burn out. They recede from the active center, which means they're moving backwards in apparent time. I guess this is okay. Observers within a burned-out galaxy would see something like a Big Crunch, I suppose.

The apparent age of the universe could stay roughly the same for a very long time, as newly lit-up galaxies enter from near $T = 0$ and burned-out galaxies recede back towards $T = 0$. Or the apparent age can change as more or less business is done in the active center. You could have relatively few galaxies in the active center, with the universe kind of being asleep, or you could have a relative multitude.

Jacobsen: Let's summarize some of the back-and-forth from our discussion of informational cosmology. We've covered the equivalence of minds and universe; isomorphic operation and traits of minds and universe. Informational cosmology implies informational cosmogony and informational eschatology too. Brain/mind converging into armature/universe. Armature/universe constructing mind-spaces. Possibility of armatures/universes and respective mind-spaces extrapolated in positive magnitude without reasonable grounds for cessation.

You have some primary derivative constructs such as a series of little bangs in a neutron cycle rather than a single big bang for the universe, ultra-deep cosmic time, Hubble Redshift based on information, a flat universe (compared to open or closed). What are the primary elements of the physics you've presented here?

Rosner: Information in the mind and information in the universe have strong structural and dynamic equivalences. The physics of the universe is analogous to information-processing in thought.

The optimal map of information within a mind-space or information-space has the same properties of the universe – same 4D space-time and same physics.

Consciousness is a technical property of wide-angle information-sharing.

The universe is probably conscious.

The universe extends across ultra-deep time, with the current 14-billion-year or so current unfolding of the universe being a single (computational) moment in a long series of such moments. (The universe can think about more than one thing at a time, and series of thoughts can continuously fade into each other, but shifts in what the universe has under consideration generally take billions of years.) The unfolding of the universe for what appears to be its apparent age is more or less the equivalent of a single thought. The universe thinks many, many thoughts across an ultra-deep span of time.

There's an ongoing series of Little Bangs. The universe didn't explode once, 14 billion years ago. It's been on a rolling boil for a fantastic span of time.

Galaxies recycle, lighting up and helping for the universe's active center, burning out and being pushed to the outskirts (around $T = 0$), and lighting up again when needed.

The apparent age of the universe is an indicator of the amount of information in the (active center of) the universe.

An information-based universe is essentially flat – it won't expand to infinity or collapse to nothing. The size of the universe is proportional to the amount of information it contains.

An information-based universe appears to have Big Bang mechanics, with all galaxies' (Hubble) expansion vectors apparently originating from a single point, and with a history of proton-mediated interactions stretching back to what is apparently the early universe. There was no Big Bang.

The Hubble redshift is due to the nature of information. Parts of the active center of the universe which have less to do with each other (less information in common) are more redshifted relative to each other.

Jacobsen: In relation to particles, modern ideas such as dark matter and dark energy, gravitation and collapsed matter, Cosmic Background Radiation, and proton-electron mass ratio, what other elements come from informational cosmology?

Rosner: The five persistent particles do most of the universe's information-processing and memory-keeping. Other particles are largely helpers and bookkeepers.

Dark matter responsible for the flat galactic rotation curve isn't exotic matter – it's regular collapsed matter – neutron stars, blackish holes – which has survived previous galactic cycles. (There might be issues here with metallicity – heavy elements contained in stars – and absence of microlensing.)

Gravitation is most commonly seen as following the inverse-square law, but gravitation is informational, with the shape and scale of space determined by the distribution of and relationships among particles, which means that on the very largest scales, gravitation probably isn't inverse-square. (It behaves as if there's a cosmological constant.) This may also account for what looks like dark energy. (General relativity addresses the shape of space. It doesn't have as much to say about the scale of space. (I think.))

Probably don't need gravitons. The net result of other types of interactions (electromagnetic, the weak nuclear force – neutrino stuff) probably accounts for gravity without requiring special particles.

The Cosmic Background Radiation is noise/uncertainty. The more organized the active center is, the more CBR is attenuated.

The proton-electron mass ratio is proportional to the ratio of collapsed matter to non-collapsed matter. (Which means it might be proportional to the ratio of neutrons to protons (or, in the case of blackish holes, at least what look like neutrons when observed from outside the blackish holes).) Collapsed matter helps specify matter.

Collapsed matter contains memory of past interactions or other specification mechanisms such as processing of external information (within the collapsed matter).

Jacobsen: Blackish holes equal universe's memory. What about other astronomical objects? For instances, solar systems, gas giants, galaxies (e.g., barred spiral galaxies, elliptical galaxies, irregular galaxies, lenticular galaxies, ring galaxies, spiral galaxies, and so on), galaxy filaments, galaxy clusters, galaxy groups, galactic superclusters, quasars, blazars, seiyfert galaxies, stars (e.g., A-type, B-types, F-type, G-type, K-type, L-type, M-type, O-type, T-type, peculiar stars, barium, neutron, hypergiants, and so on), stellar groupings, variable stars (e.g., pulsating variable, eruptive variables, cataclysmic variables, rotating variables, eclipsing binaries, and so on), circumstellar matter, accretion discs, star systems, meteoroids, interstellar medium, comets, satellites, stellar streams, asteroids, planets, intergalactic space, dwarf planets, cosmic microwave background radiation, proplyds, open/globular clusters, nebulae, and voids, what about possible novel astronomical objects?

Rosner: Don't think you get quasars without collapsed matter at the center.

Think there are a variety of collapsed matter structures – memory (mostly sits there), sensory information feeds (comes in semi-processed, is a spraying hose of information), reduced information feeds from semi-conscious to unconscious processors (in ourselves, walking, breathing). Also have leaky blackish holes – information goes in, gets lost forever – universe's armature doesn't hold onto it. Would guess that any celestial objects behaving spectacularly are doing something interesting with information.

Also have to talk about the Cosmic Microwave Background, which is basically noise. By organizing itself, universe has managed to reduce its impact. It's like three degrees? So it doesn't have much power to cause heat-based disorder. If it were 100 degrees, it would make it harder for the universe to order itself – stuff would be getting randomly knocked around by stray photons.

Think that any aggregating celestial body is an incipient idea. Bodies coalesce, and as they boil down over billions of years, they become more sharply defined mental objects – representations of fork, cube, tire, movie cliché, messy 2010s hair, shininess, the letter B – lots of fairly specific mini-umbrella concepts. The concepts can feel kind of arbitrary – clustering is choosing. To form one classificatory concept is to preclude others (which doesn't drive them out of existence, but which makes them less handily referenced, I suppose).

Black holes aren't black – they're blackish. Their crushing gravitational force isn't as crushing as traditionally thought, because interactions among particles within the blackish hole reduce the scale of space.

Blackish holes store and process information. Most of this information is retrievable

The universe has three spatial dimensions because information is generally limited to holding open – specifying – three dimensions. (Specifying dimensions takes information. Information-in-common/not-in-common with the point of observation specifies the polar axis. Points with the same amount of information-in-common with the point of observation form a sphere (centered on the point of observation).)

The general mechanism for specifying matter and space is Hubble sorting of matter. That is, the more matter that has its own unique apparent velocity or acceleration vector away from other matter (and the greater the vector's magnitude), the more precisely matter is located within space.

Photon flux keeps space open in the active center of the universe. (Alternately, virtual photons keep space open.) In essence, an array of Hubble-shifted protons keeps space in the active center open, making space extra voluminous via the specifying activity of interactions among charged particles. As protons and electrons cook down into neutrons, space starts to close up.

Neutrino interactions are time-asymmetric. (This is within the large-scale arena of the universe, but where else are they gonna interact?) Neutrinos are emitted in the active center through fusion, pass through the active center which is largely transparent to neutrinos, and are absorbed by the collapsed matter at the outskirts (where the neutrinos have been slowed down, increasing their capture cross-section, and where there's a bunch of neutrons close together). Photon interactions are also large-scale time-asymmetric – they lose energy traversing great distances. You can't run that in reverse and have photons pick up energy. Is this enough to specify the arrow of time? Seems like it. Does the arrow of time need to be specified? Probably – some large-scale framework needs to keep all the essentially reversible small-scale interactions in line.

Space seems organized to minimize the total distance traversed by particle interactions. And time seems organized to maximize the number of interactions per unit of time. (This is tricky, because the scales of space and time are self-determined, but still doable. In temporal terms, this means a distribution of events that's as evenly spaced as possible. In spatial terms, it means efficient clustering.) The universe might also be arranged to maximally specify (predict, determine) the immediate future and/or to maximize the information obtained from the immediate future.

Universe as a whole doesn't have to increase in entropy. Energy lost to the curvature of space is translated into increased order (via Hubble sorting).

Protons are units of potential correlation. They act as variables or dimensions, correlating via proximity. When two protons are so near to each other that they're essentially perfectly correlated as a single variable, they fuse, locking down one of the protons as a neutron, with a single proton interacting via charge.

Jacobsen: What about derivative fields in an information-based cosmology? How do they change? How does this effect fields such as formal sciences (logic, statistics, computer science, systems science, and mathematics), social sciences (anthropology, archaeology, criminology, sociology, psychology, and so on), natural sciences (biology, chemistry, earth sciences, and so on), humanities (linguistics, literature, arts, philosophy, religion, and so on), professions (law, education, divinity, and so on), and others amenable to the information-based program of research?

Rosner: We can hope this fits into the tech boom which will empower people, make them less stupid, leave politicians in the dust. Of course that's optimistic. But we're at a 100-year low point in American politics. It has to get better, especially as people get less dumb. If it doesn't

get better, then America eventually ceases to be a first-world country and turns into a cowboy theocracy. Dozens of SF books present different versions of this, including Margaret Atwood's *A Handmaid's Tale*, Cory Doctorow's and Charles Stross's *The Rapture of the Nerds*.

Understanding that consciousness can be mathematicized is the last major conceptual hurdle to having programs that research all aspects of human physiology. Consciousness has been ignored for being too nebulous, too disconnected from the body. But to truly pursue immortality or even healthy extended living, we have to understand consciousness. Once we understand that consciousness is something we can aspire to work with, that opens up new research angles in what, up to now, has been brain research. Doing brain research without a mathematical model of consciousness is like trying to build computers and software without the benefit of display screens.

Impact on psychology: If you read a lot of brain research, you can get a pretty good idea of how thoughts are assembled. But a model of consciousness that specifically addresses how thoughts might play out in a mind-space gives you a bigger set of tools for observing thought. Minsky's society of mind, built up from simple, mindless mental agents, is a good place to start. But you generally can't observe your mind working at the agent level – they're too small. You can, however, observe different perceptions and half-formed thoughts competing in your mental arena. I can observe my mind battling about whether I should get out of bed or get out of the tub. (Often, it takes me observing, "This lazy battle has been going on too long – I'm just gonna get out of the tub now" to get me out of the tub.) You can watch yourself telling yourself, "I knew that chair was there – why did I walk into it?" Truth is, part of your brain sensed the chair was there immediately before or just as you walked into it, but not soon enough to avoid the chair. You got your chair warning too late, but part of your brain misunderstands it as a timely warning and says, "I knew that was gonna happen." Yeah, you knew it was gonna happen because it did happen, and chatter among parts of your awareness doesn't come time-stamped. Anyhow, having a physics-based model of mind-space is very handy for understanding the mechanics of thought and memory and subconscious processing.

Impact on economics: In the next century, the world economy will get kicked in eight different directions. Among the things weirding-out the economy will be – accelerating pace of technological change, reduced cost of essential goods, in-home manufacturing, increasing population, destruction of the environment and massive clean-up and preservation projects, changing sources of energy, a biotech revolution, possible epidemics abetted by failure of antibiotics. The longevity business – selling extra years of healthy, somewhat youthful life – will become the biggest industry on earth. But uncoupling consciousness from the human body (beginning 40 to 60 years from now and becoming commonplace by the middle of the 22nd century) will be more economically disruptive than all these other things. Almost all of our economy is involved with the physical needs of the body. Increasing numbers of people will choose to make some of these needs go away. We'll have the human economy fading into the transhuman economy.

Impact on education and entertainment: Eventually we'll have knowledge and expertise on-demand. To the extent that classroom learning continues to exist, it will be for socialization more than for academics. Information and entertainment will be piped into our heads with increasing

directness.

You can read about this stuff in good near-future SF novels. Informational cosmology provides a mathematical framework which facilitates making consciousness transferrable, augmentable, fabricatable. It's part of the science fiction world we pretty much know is coming, with a few unexpected technical/spiritual overtones.

Jacobsen: What does it all mean?

Rosner: We're out of the habit of pondering metaphysical questions. The universe that science shows us seems to run without purpose. But...

The principles of existence allow for large structures – the size of our universe, at least – to exist. It's not necessarily a deep, permanent existence – probably has a finite-though-enormous lifespan and can disappear without a trace. But...

Worlds that can exist, do exist, belonging to the set of allowed-to-exist worlds – a bunch of present moments. (We only know our present moment, and we don't even know it in some super-deep sense. We only know things in a virtual, “as if we actually know it but we don't, really” knowingness. However, each present moment contains statistically indisputable evidence of the past.) Nothing that we know of exists except in the form of a present moment. These moments can be seen to form chains in that each present moment contains information about past present moments and information that predicts future present moments. Does being part of these allowed worlds – belonging to this set of all that is – give us any sort of satisfying permanence? (I mean, we're woven right into some immutable fabric of what is or can be.) Seems unlikely. This abstract permanence doesn't satisfy any of our real needs – it's just tokens in an abstract set. It doesn't extend our existence beyond its natural, situational limits. But...

Persistent structures tend to persist. They may not last forever, but they might be able to last for any length of time short of infinity. Structures might be able to grow to any finite size. We've evolved to want to continue to exist. (Beings that don't want to exist probably don't persist so well.) Call that desire to exist the Persistence Project. Belonging to the Persistence Project means adhering to a set of non-nihilistic morals (which function to make continued existence more likely by avoiding destruction and chaos). We have evidence that the Persistence Project works – the universe itself is huge and old and likely to continue for a long time.

It's almost a cliché that each scientific revolution takes humans farther away from the center of creation. Copernicus moves the sun to the center and kicks us to the side. Darwin descends us from fish and dwarfs human history with hundreds of millions of years of deep time. Hubble and Einstein locate us in Nowheresville in a vast universe. And if the universe is some fantastic multiple of tens of billions of years old on a rolling boil, then we've lost even the story of being witnesses to the grand unfolding of the big bang universe. There were a zillion unfoldings before us, and a zillion after. We're a sub-blip in ultra-deep time. But...

If consciousness is a technical, not a mystical thing, if it's associated with thorough sharing of information among specialized subsystems – modules – within a self-contained system of

information, then it may be found in many places in the universe and may be an attribute of the universe itself. To me, this feels like a small victory versus the vastness of the universe (which keeps getting bumped up in size and duration). Consciousness may be the framework through which the universe perceives itself and exists is an information space.

(Humans have very jazzy, souped-up consciousness – emotionally charged, rich in special effects and value judgments and motivation to take action. Is a quieter consciousness, more of an observer than an actor, not wired for strong emotion, still conscious? That is, is the drama of amped-up consciousness responsible for the awesome, profound, feeling of undeniable existence and solidity of reality that we experience as consciousness? Is consciousness without emotion still consciousness? I think it is (though without oomph) and also think it's hard to drain all emotion and value judgment from consciousness. A pure observer with no preferences is unlikely, and such an observer would still be conscious of what it's perceiving.)

That we can reasonably assume that we share the property of consciousness with many entities throughout the universe can be seen as heartening. It's the way entities do mental business. We each have our story of contending with the principles of existence. And, because persistent systems can be huge and old, we can assume that huge, old persistent systems have found adequate reasons to continue to exist. So, everything considered (including that we currently know approximately zero percent of what we will know), I have guarded optimism about the nature of existence.

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Eight)

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*Part eight of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1991-97), and writer. He discusses the following subject-matter: fundamentals of universe in bits or links, Pierre-Simon Marquis de Laplace and Napoleon Bonaparte's famous conversation, axiology, aesthetics, ethics, metaethics, comparative/descriptive ethics, applied ethics, normative ethics, moral psychology, moral truth, moral antirealism with Gorgias, Søren Kierkegaard, Friedrich Nietzsche, and The Will to Power, moral realism, and their concomitant sets and subsets, ethic's cataloguing with "Deontological," "Teleological," and "Virtue," and an information-based perspective of these; a framework with concepts for theoretical considerations about the existence of free will at the global and local scales in addition to the reflection in informational cosmology; revision of the prior formalisms to discuss informational cosmology and informational ethics; definition of the key terms "informed will" and "targeted thinking" with Canadian Oxford Dictionary(2nd Edition) descriptions of "informed," "will," "targeted," and "thinking"; and informed will and targeted thinking in relation to everyday and outlier morality with examples from recent reading.*

Scott Douglas Jacobsen: Fundamentals of universe deals with bits or links – information. Units of sufficient individuation of universe with self-consistency and information processing – and by implication complexity – might not implicate ethics. No explicit connection there; a possible tacit linkage.

Akin to Pierre-Simon Marquis de Laplace's – likely apocryphal – determinist universe statement to Napoleon Bonaparte, in Bonaparte's question about God in the equations of LaPlace, LaPlace said, "Je n'avais pas besoin de cette hypothèse-là," or in the English translation of the statement, he said, "I had no need for that hypothesis."

An information-based view of processing reflects a meaningless, clockwork mechanism conceptually synonymous with the Laplacian determinate – or even indeterminate, meaningless quantum – world with everything lacking inherent, even derived, moral truths.

Axiologists might enlighten the shroud of these problems. Indeed, information-based ethics might implicate ethics with some background and thought.

Axiologists study value. Value divided into aesthetics and ethics. Aesthetics studies beauty. Ethics studies moral conduct. In general agreement among ethical axiologists, ethics splits five ways: metaethics, comparative/descriptive ethics, applied ethics, normative ethics, and moral psychology.

Metaethics studies nature of moral theories and judgments. Descriptive ethics studies beliefs about morality. Applied ethics studies professional and public affairs related to morality. Normative ethics studies ethics in practice. Moral psychology studies the nature and

development of moral agency.

Ethics begins with one basic metaethical query, “Do moral truths exist?” Without such a question and answer, why bother arguing for moral truths and, therefore, ethics? A field needs content; that question with an answer gives it.

Ethics derives further from answers to *the* fundamental metaethical question. One answer negates moral truths; another affirms them. If one answers, “No,” moral truths do not exist; if one answers, “Yes,” moral truths exist. Former called antirealist (“No”); latter called realist (“Yes”). Each provides complete conceptual and functional negation or affirmation – “No” and “Yes,” respectively. “Conceptual” means “in theory.” “Functional” means “in practice.”

One *could* answer with “probability,” “undecidability,” or “meaningless.” If “probability,” this implies conceptual and functional affirmative, but not to the degree of “Yes”; if “undecidable,” this implies functional negation; if “meaningless,” this implies conceptual *and* functional negation, but not to the explicit degree of “No.”

Of course, a thought, behavior, and consequences of thoughts and behavior might have objective moral content in spite of an individual respondent’s answer.

“Probability” argues for moral truths in thoughts about and behavior with respect to them. “Undecidability” answer argues for present unknowability of moral truths in thought and, therefore, lack of explicit ethical dimension to behavior. “Meaningless” answer argues unknown moral truths with permanent conceptual unknown and functional negation status. This leaves definite negation and definite affirmation.

Definite negation of moral truth includes one ethics set: nihilism. Greek sophist Gorgias (485 BCE-380 BCE) equates to the most stated ancient exemplar of moral antirealism. Some argue for Socrates (469 BCE-399 BCE) as a nihilist based on the *Method of Elenchus* or the method of questioning. A modern instance in the person of Søren Kierkegaard (1813-1855).

With another common instance adumbrated in the writing of Friedrich Nietzsche (1844-1900), he writes in *The Will to Power* (1901), “I describe what is coming, what can no longer come differently: *the advent of nihilism*.” In short, exemplars (Gorgias and Kierkegaard) and ideological forecasters (Nietzsche) lived in history. Not something of easy dismissal.

Nihilism argues nothing contains intrinsic moral value. Troubles relate to antirealism. It denies truth. Truth intersects with logic. Logic cannot apply here. No truth to prove or disprove with respect to internal validity of arguments. No objective or subjective truth. Same for ethics. Moral antirealists have the same problem. No objective or subjective *moral* truth.

If universe lacks truth – and by implication moral truth, then thoughts, behaviors, and their consequences lack inherent immoral status. If logic implies truth, and if moral realism implies moral truths, then logic applies to moral truths, and therefore logic can examine truth or falsity of moral arguments.

Let's work through the difficult circumstance in pragmatic terms: if one 1) kidnaps and tortures a young girl/boy, 2) steals a cookie, or 3) saves a life from collision with a New York taxi driver, the moral antirealist would consider these equivalent in their empty state with respect to moral content.

They have distinguishing factual content, but equivalent moral content. Different variables, associations, and likely outcomes. Even so, no distinction among them in the calculation because no distinguishing moral value among "1)," "2)," or "3." Therefore, one cannot calculate among these except to equate them in null moral terms and calculate their null value.

No need for ethics in the first place with such a position. Why bother arguing over ethics? Moral antirealism provides zero content for the discipline. In a way, the *empty set* of ethics. A near-complete analogue.

A definite affirmation of moral truth includes many ethics supersets: Act Utilitarian, African, Anarchist, Aristotelian, Atheist, Biological, Buddhist, Business, Casuist, Christian, Communication, Confucian, Consequentialist, Daoist, Deontological, Environmental, Epicurean, Evolutionary, Feminist, Gender, Global, Hedonist, Hindu, Humanist, Islamic, Jewish, Machine, Military, Objectivist, Personal, Political, Postmodern, Professional, Publication, Relational, Research, Role, Role Utilitarian, Sexual, Shinto, Social, Stoic, Teleological, and Virtue. (Insert the term "ethics" at the end of each: "Act Utilitarian Ethics," "African Ethics," and so on.) Each affirms some model of moral realism. Limits in depth, scope, and duration of use, but gives specifications of moral domains and, thus, an ethics position – a moral realist stance.

In and out these ethics supersets, we find sets of and subsets of ethics in principles, codes, and laws: *American Constitution*, animal care, autonomy, beneficence, carefulness, *Charter of Medina* (*Constitution of Medina*), *Code of Hammurabi*, *Code of Li k'vei*, competence, Computer and Information, confidentiality, *Declaration of Helsinki* (1964), *Declaration Toward Global Ethic*, discipline-based conduct, *English Bill of Rights*, *Exodus' Ten Commandments*, *Great Laws of Manu*, *Hippocratic Oath*, honesty, human rights protection, *International Charter on Medical Professionalism* (First published in 2002), justice, *Justinian Code*, least harm, legality, *Magna Carta*, *Mosaic Law*, *Napoleonic Code*, non-discrimination, *Nuremberg Code* (1947), objectivity, openness, respect for colleagues, respect for integrity, respect for intellectual property, responsible mentoring, responsible publication, *Ṣaḥīḥ al-Bukhārī* (Sunni Islam), *Sharia* and *Fiqh*, social responsibility, *T'ang Code* (including *Tánglǔ shūyì* – commentary for it), *The Golden Rule*, and so on, in an enormous array spanning millennia of creation, dissolution, modification, and general development.

The moral realist set argues thoughts and behaviors contain intrinsic or extrinsic moral value. These sets relate to positive considerations of ethical ontology, i.e. ethics talks about reality or moral reality – moral truths exist. Correct/right/moral statements correspond to moral reality; incorrect/wrong/immoral statements do not correspond to moral reality.

Convenient for logicians and ethicists. Logic's intersection with truth permits logical analysis of moral statements, premises, conclusions, arguments, or sets thereof.

Moral realist systems operate in three traditional terms: “Deontological,” “Teleological,” and “Virtue.” “Deontological” or duty-based aims for rights and duties of agents. “Teleological” or goods-based aims for the good life. “Virtue” or civic-based aims for development of virtuous people.

How does an informational vantage invite new interpretations of classical, and modern consensus, perspectives on metaethics, descriptive ethics, applied ethics, normative ethics, and moral psychology? What new emergent properties, fields, or arguments organize themselves from this information-based view?

Many philosophical or cosmological systems imply a set of worlds which can exist (or do exist, in some elsewhere). Many-worlds theory, at least as popularly understood, says that every possible world exists. This could be seen as an argument against ethics, since, if every possible thing happens, if every possible choice, good or bad, is made, what’s the difference?

So, I would first stipulate that our world – the series of moments we exist in – is more real than other possible worlds. I don’t know whether other possible worlds necessarily exist somewhere, but our world is the one we experience directly – the world in which our choices have consequences.

Now for some semi-informed assumptions.

There could be a ladder of armature-spaces containing mind-spaces extending towards infinity. (“Towards infinity” requires several assumptions – that armature-spaces tend to be bigger than the mind-spaces they contain, that every mind-space necessitates an armature-space, and that there’s no limit to the size of armature- and mind-spaces.)

There’s no Prime Mover who’s biased towards existence. Existence conforms to principles of consistency. Existence is permitted and compelled by a kind of bootstrapped math. There’s not some omnipotent entity who wants things to exist. (But good luck eliminating this possibility, as every level of metaphysical explanation requires another, deeper level to explain why the explanation is justified.) Not being part of any conscious entity that *can* want, the principles of existence are neutral. But the principles are highly permissive of existence (again, without intent).

Entities that exist can be biased towards wanting to continue to exist. Evolved entities are often driven to continue to exist, and values associated with continuing existence are built into their civilizations. Advanced entities may design sophisticated, special-purpose entities which do not include a drive for indefinite existence, but such entities would likely be part of larger social/technological structures which have at some level a drive for continued existence.

Some entities which have developed the understanding and technology to take control of their own drives may choose not to include the desire for indefinite existence. But the (presumed) existence of entities at all levels of complexity approaching infinity should indicate that a desire for continued existence isn’t inconsistent with arbitrarily large entities.

Every entity has a history which includes reasons why it was brought into existence. Such reasons can range from what we would consider natural, initially random action which has brought about persistent processes and entities – evolution, for instance – to intentional creation of entities by civilizations with high technology. Whether natural or technological or somewhere in between, the creation of entities should have a reasonable probability of being associated with a drive for the continued existence of something – individuals, a species, a civilization, or the universe itself. We can imagine nihilist civilizations dedicated to promoting chaos and non-existence (and science fiction has), but such civilizations seem likely to be much less prevalent than existence-favoring civilizations.

For more than half a century, people have been growing increasingly uneasy about the potential for artificial intelligence to enslave or wipe out humanity. The mathematization of consciousness (as part of informational cosmology) – the procedure for mathematically modeling mind-spaces – is an essential part of developing advanced AI. We have to know that the motivations we design and those which may arise spontaneously are consistent with benevolent AI behavior which preserves our world and allows humans at all levels of development to choose their destinies. We can't be sure what AIs are thinking unless we can model it.

While the principles of existence, lacking consciousness and will, don't have an agenda, existence in general is biased towards continued existence, and the ethics of existence should be preservational. Let entities which want to continue to exist, continue to exist, unless there is a compelling reason otherwise.

Of course, we have barely an inkling of the nature of existence, and all of this is subject to complete revision as we learn more. For the past couple hundred years, science has increasingly implied that existence is meaningless, that the universe just is. This may not always be the case. Existence may provide its own durable justifications.

Jacobsen: If free will exists, its options exist as a total set or space of logical possibilities of choices, *C*. Free will means *any* selection in the total set or space of logical possibilities of choices (*C*). Why “logical possibilities”? Informational cosmology operates on self-consistency; “logical possibility” means maximal possible definition of “self-consistency.”

If universe operates in self-consistency or logical possibility, choices of universe operate within logical possibilities; universe operates in self-consistency or logical possibility; therefore, choices of universe operate within logical possibilities. In short, universe exists within constraints, and, by implication, constrains internal choices of net system and subsystems.

C exists in the space provided by universe from the start, $T = 0$, through every positive addition in time. Each whole cross-section of universe in time would have a unique configuration of *C*. In short, informational cosmology's “final answer” amounts to choice from the time universe says, “Go.” No way out of choice with the “blue touch paper” lit and kept alight through the arrow of time.

Consciousness endowed subsystems of universe would partake of this space, *C*, with a subset or subspace of logical possibilities of choice, *C_n*. Each unit of sufficient individuation in universe

with self-consistency and information processing would have a set or space of logical possibilities of choices (C_n). Each whole cross-section of a single unit of sufficient individuation in time would have a unique configuration of C_n .

Undoubtedly, we take into account finite self-consistency and information processing of each unit of sufficient individuation, i.e. mental and physical limitations of each consciousness endowed subsystem in universe. Less physical and mental possibilities reduces the magnitude of C_n out of C ; more physical or mental possibilities increases the magnitude of C_n out of C .

Ethics dictates correct choices through affirmation of optimal choices and negation of suboptimal choices in C and C_n . Demarcation between optimal and suboptimal based on ethical code or algorithm, E , inserted into C and C_n . Interpolation of E transforms C and C_n into a moral set or space. C becomes C^E ; C_n becomes C_n^E . Thus unifying universe-based/objective and individual-based/subjective general ethics. “Generals ethics” without specification of particular ethics (more later).

If informational cosmology lacks infinities, it describes finites; informational cosmology lacks infinities and, hence, describes finites; if informational cosmology describes universe and finites, universe lacks infinities and operates in finites; informational cosmology describes universe and finites; therefore, universe lacks infinities and operates in finites.

Furthermore, if universe operates in finites, C contains finite elements; if C contains finite elements, C^E contains finite elements. Universe operates in finites. Hence, C and C^E contain finite elements.

Even further, if C contains finite elements, C_n contains finite elements; if C_n contains finite elements, C_n^E contains finite elements. C contains finite elements. Thus, C_n and C_n^E contain finite elements.

Free will and ethics implies moral choice. Together – free will and ethics – imply correct/right/moral and incorrect/wrong/immoral choices in C^E , at the global scale, and in C_n^E , at the local scale. Therefore, this means individual free will and ethics over time (over one or more selections) creates moral accountability.

What kinds of free will might exist in universe – at global and local scales? How do you define them? How do they relate to the C ? How about C^E and C_n^E ? In short, how do you *pin* the start of informational ethics?

Rick Rosner: Protagoras said, “Man is the measure of all things,” meaning that there is no absolute truth. When it comes to existence, I disagree with this. I believe that we have an infinitesimal probability of not existing in the forms in which we seem to exist. More simply, the odds that this is the Matrix are just about zero, and even if this were the Matrix, its existence would imply the existence of a substantial material world (that contains the Matrix, or contains the fake world that contains the fake Matrix – at some point, you run into the Real).

But it’s harder to disregard a suspicion that ethics is a human construct with human-created rules

and values. So let's pin down ethics. We evolved as persistent organisms – organisms which want to continue to exist and which serve the continuing existence of life by surviving and reproducing. If we're playing the game of persistence – and we've been built to (not on purpose by a goal-oriented entity, but as a consequence of purposeless-but-persistent processes) – an entire moral/ethical structure can be built from the game. To win the game is to maximize existence according to a set of existence-valuing principles. People can argue about the specific principles, but the general idea is not to wreck the world and not to wreck people and perhaps to make progress. It's the opposite of nihilism.

Since we humans are discussing and determining what the existence-valuing principles should be, you could argue that morals and ethics are a human-built system which doesn't reflect absolute truth. However, life that arises anywhere within the universe faces the same game, the same issues of how to protect life and civilization and its world. The universe itself is likely part of some system which has rules to preserve existence.

Given the one principle that persistent beings want themselves and/or the world in which they exist to continue to exist, moral and ethical systems will have great general similarities (involving safeguarding existence). So what we're left with of Protagoras is specific precepts of morals and ethics being specific to humans. General ethical and moral principles and existence itself aren't just human constructs.

Jacobsen: You mean objective *and* universal ethics derived from informational cosmology: informational ethics. Prior considerations remain valid: C means the same; C^E means “existence-valuing principles”; C_n means “informed will”; and C_n^E means “targeted thinking.”

New C^E provides absolute referent of correct or incorrect ethics. An absolute referent for morality. Or the greatest possible criterion for all logical possibilities of ethics. Logic implies truth, truth implies logical possibilities, logical possibilities operates in both informational cosmology and informational ethics, and therefore ethics examinable by logic for truth or falsity, or degree thereof.

Where “good” means “maximizes persistent existence” and “evil” means “does not maximize persistent existence,” one can scale ethics. C^E bestows referent and grounds for logical analysis of every ethical system, code, creed, law, and principle in proportion to their respective correspondence with C^E. More C_n allows greater C_n^E. More C_n and C_n^E provide possibility for more accurate correspondence with C^E, and therefore, by implication, greater responsibility due to greater moral accountability. A *Moral Hierarchy* implied with C^E at the top.

Does this hold merit to you? How might we refine or extend this argument? If you do consider a general moral, intellectual, spiritual, or emotional progression or development, how do you view development from the basic to most advanced at the individual and collective levels?

Rosner: Should note that I live in LA, where we're more concerned about spotting celebrities at Rite-Aid than personal growth. On a daily basis, most of my efforts to be a better person occur behind the wheel. (In LA, your morality is revealed by your driving. Many Audi drivers will have to do a lot of explaining to St. Peter.) And I often judge other people's moral development

by their posted comments on internet stories.

I like to imagine that our increasing interconnectedness leads to increasing moral development – an ethical Flynn Effect – though internet trolling indicates otherwise.

I picture people in general as having moral characteristics – levels of niceness, truthfulness, reliability, etc. – distributed in a bell curve, with most people being close to average and some outliers in positive and negative directions. When I was checking IDs in bars, I estimated that about one person in 90 would lie to me. This seemed indicative of most human behavior – generally good, with opportunistic failures (which you shouldn't consistently expect but should be prepared to protect yourself against – it's like defensive driving – always be alert for terrible behavior without expecting it in every instance). When dealing with jerks in bars, the bell curve model helped me keep my temper. I'd think, "Here's somebody who's way beyond the mean for jerkiness. Statistically, that's what you'd expect occasionally. Should I fly off the handle at him, or wait for someone who's even more of an outlier?" (I'd usually keep my temper.)

Having a bell curve model of behavior means that I don't spend much time thinking about hierarchies of individual goodness. People will be people – I just try to steer clear of the horrible ones. I spend more time thinking about societal goodness because, writing for a late-night show, I got in the habit of paying attention to politics, and America currently has a bunch of terrible people in and around politics. You have a bunch of people upset about tyranny and the end of America, and these people, when they willfully and very effectively bend the truth, seem like the biggest threat to America.

But crappy politicians probably aren't the biggest threat to America as it is. The biggest threat and biggest opportunity is change. In 10 years, America will change as much as it did in the previous 20; in 20 years, America will change as much as it did in the previous 60; in 30 years, America (and the world) will change more than it did in the previous century. Near-future science fiction presents a range of possibilities for America. The laziest SF presents stories of apocalyptic strife, some with America split into several nations. More well-thought-out work presents a daunting assortment of negative and positive changes. But no near-future fiction presents an America that's unchanged.

Which leads to what I think is the most pressing ethical concern of our time – managing change. The wages of ignorance have always been death, but even more so now and into the future. Politicians often talk about the world we're leaving for our grandchildren. But they never mention that our grandchildren will be very different from us, and if we want to build a bridge to them, we can't be dipshits about technology. More technically-educated people and nations will be in the driver's seat. (Actually, no one will be in the driver's seat, since cars will be driving themselves.)

Technical literacy should be viewed as an ethical responsibility. Ignorance about science and technology screws you, your family, and your friends. In America, there's a strong correlation between states where people are more likely to have anti-scientific views and states with higher mortality rates.

Jacobsen: You leave some definitions loose: “informed will” and “targeted thinking.” *Canadian Oxford Dictionary* (2nd Edition) defines the terms in a reliable fashion. “Informed” means “give or supply information or knowledge”; “will” means “the faculty by which a person decides or is regarded as deciding on and initiating action”; “targeted” means “identify or single out (a person or thing) as an object of attention or attack”; and “thinking” means “using thought or rational judgment; cogitation.” What does “will” mean in an information-based ethics? How might this relate to personal valence (“emotional value”) of an individual consciousness?

Rosner: Everything a decision-making entity does is based on information – the information which informs its decision (the data) in combination with the information which describes its decision-making apparatus (the hardware, software, and settings). You can’t defy the informational basis of decisions – you can only strive to understand the basis (though your decision to strive is itself based on information). Will can be understood as a decision (I will work on this paper until I pass out) or as a tendency in decisions (I will always go to the utmost extreme when working on something I deem to be of value). As such, will comes from a combination of hardware, settings, and data. A thinking entity can know itself but cannot escape that its decisions are rooted in information which is encoded in the material from which it is made.

Jacobsen: How do informed will and targeted thinking influence every day and outlier morality?

Rosner: I expect informed will to generally be more good and ethical than reflexive responses. Informed will is decision-making based on thorough thinking. Often my immediate decision isn’t as brave or kind as a reconsidered decision. I’ll walk right past asking for money then be forced by my conscience to double back. Of course, doing bad can also be the result of thorough thinking. But if you consider most people, I’d guess that the average move between knee-jerk reaction and thorough thinking is towards the positive. It helps if there are societal, peer and family structures in place which support positive values. Just finished *Zone of Interest*, by Martin Amis, which tells about the daily lives of the people who ran Auschwitz. Everyone was highly invested in the evil they were doing and could find unlimited support for their evil from their government.

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Nine)

2014-12-08

*Part nine of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1991-97), and writer. He discusses the following subject-matter: individual-based/subjective, universe-based/objective, and collective-based ethics, Social Contract Theory of Thomas Hobbes (*Leviathan*, 1651), John Locke (*Second Treatise of Government*, 1689), Jean Jacques-Rousseau, (*The Social Contract*, 1762), Pierre-Joseph Proudhon (*General Idea of the Revolution in the Nineteenth Century*, 1851), John Rawls (*Theory of Justice*, 1971), David Gauthiers (*Morals By Agreement*, 1986), and Philip Pettit (*Republicanism*, 1997), with discussion on social ethics in essence “boiling down” to the Golden Rule; ethics in journalism with respect to acquisition, collation, and reportage, definition of a “real” journalist, Dr. Steven J. Pinker on the improved conditions for humans, and informational ethics in relation to sociocultural trends; motivation of intellectuals for the good, troubles in academia with description of differing cultural/ethical systems transformed into prescription of cultural/ethical relativism – no scale to ethics or cultures, and things for intellectuals to do in the immediate for the good; Academia’s two dominant ideological strains of “bland multiculturalism” and “ethical relativism,” and reference back to thinking about the future; mobilization of intellectuals for the good in the long-term; possible prevention of this good; and thoughts on ethics of focus on one person with reflection on the personal desire for fame.*

Scott Douglas Jacobsen: Ethics at the individual-based/subjective (C_n^E) scale relates to the universe-based/objective scale (C^E). Everything might appear abstract. Not so, informational ethics would clarify social ethics too.

Social ethics equates to collective-based ethics. A superset of C_n^E . A group of individuals with different, similar, or the same ethics within each possible superset. All of this would provide new clarification of the terminology in ethics.

Universe-based ethics means objective; collective-based ethics means universal; individual-based means subjective. More vogue ethics relate to social context and universal ethics such as *Social Contract Theory* of Thomas Hobbes (*Leviathan*, 1651), John Locke (*Second Treatise of Government*, 1689), Jean Jacques-Rousseau, (*The Social Contract*, 1762), Pierre-Joseph Proudhon (*General Idea of the Revolution in the Nineteenth Century*, 1851), John Rawls (*Theory of Justice*, 1971), David Gauthiers (*Morals By Agreement*, 1986), and Philip Pettit (*Republicanism*, 1997).

Collectives and individuals can exist out of sync with the greatest possible criterion for ethics (C^E) in informational ethics. They might have greater or lesser correspondence in actions and choices with C^E , and, therefore, more moral or immoral behavior. Degree of moral and immoral dependent upon correspondence with C^E .

Informational ethics clarifies the variant and invariant aspects of ethics. A comprehensive and

coherent consideration of ethics. Social ethics pertains to the many-valued middle between individual-based/subjective and universe-based/objective ethics.

A more prosaic consideration of this issue with one question: what equates to the right action in the immediate social context?

Rick Rosner: I suppose that informational ethics in a social context boils down to something like the golden rule – treat others how you’d want to be treated. Often, a tacit or explicitly stated argument for the inconsiderate treatment of others is that the others don’t have fully developed consciousness – they’re dumb or animal-like. However, if consciousness is a technical-not-mystical thing that’s commonly found in systems with wide-angle information-sharing, then you can assume that you can find consciousness in many of the places you’d suspect you could find it – in other people, for instance, and in animals with decent-sized brains.

In an even smaller nutshell – don’t break stuff. That is, don’t unnecessarily destroy things that may be valued by other conscious beings.

But there’s a huge caveat to all of this. Under informational cosmology, consciousness is a not-too-hard-to-achieve technical phenomenon which arises frequently in the universe. In terms of time and space as we experience it, it’s a rare thing – it shows up on this planet, and say, in the closest other instance, it emerged 32 light years (and 700 million years ago) on some other planet – but in terms of sheer numbers, it probably shows up a bunch. Figure our universe creates 10^{20} habitable planets per every 20 billion years, and conscious life arises on one half of one percent of such planets. This would mean that conscious life arises somewhere in the universe an average of nearly once a second.

Conscious life could be, in terms of the sheer number of times it arises, fantastically common. Does that make it less magical? Not necessarily, in that consciousness may be linked to the existence of everything. Not that rocks and trees and Gaia are individually conscious, but that matter is information that’s part of the mind/information-space of the (conscious) universe itself. At the same time, our individual consciousnesses are rough-grained and piddly compared to a universe-sized consciousness. And when an individual consciousness ends, the good and bad things experienced within that consciousness may be completely erased. When a factory-farmed pig leads a thoroughly miserable life and then is killed, there’s no vessel in which the pig’s misery lives on. So does the pig’s misery ultimately matter? Do the good and bad we experience ultimately matter? We just don’t know yet.

We can imagine a set of all possible moments in a mind/information space (with informational cosmology suggesting that such moments are the only context in which things can exist). There are strong probabilistic linkages among such moments, experienced as individual consciousnesses’ world-lines. Among animals and primitive naturally arising civilizations, death means the end of a world-line. But in more advanced civilizations, there can be technical resurrection and virtual creation – moments of consciousness and world-lines can be artificially created. So death may not exactly be Game Over. (Though it still may be Game Over. What are the odds that some civilization will resurrect virtual pigs in cyberspace?) Given the possibility of artificial resurrection, we can’t rule out the possibility that what’s experienced in a world-line

has some significance beyond that world-line. There's the obvious significance of the good you do in the world lasting beyond your death. And there's the yet-to-be-explored probabilistic math of how mind-space moments relate to each other beyond the natural moment-to-moment linking along world-lines. Looking into this will be complicated and never-ending. In the meantime, try not to be a dick.

Jacobsen: Ethics appears more in the fore of the public conversation – for the better. I do not know the precise state of journalism, but I do have many suspicions. Suspicions with respect to acquisition, collation, and reportage from popular news venues. Most venues seem trivial, content with shameless hyperbole and political bias, celebrity gossip, inaccuracies or, worse yet, ignorant and callous; ignorance and a hard edge become the harvesting ground for cynical charlatans, liars, mountebanks, swindlers, and sophists. A phenomena hastened by continuous motion into a service economy. How else for their jobs to persist? They malignantly grow on ignorance, unconcern for others, and non-production – a modicum of wellbeing from solace at times, but not much else.

Possible amusement in consideration of the reality, but more distress because of the deleterious effect on popular discourse. I quote Malcolm X, “The media is the most powerful entity on earth... they control the minds of the masses.” We should respect media more. Media should conduct themselves with more wisdom. Not an easy task. It becomes a ubiquitous pattern of inaccurate representation. Not aimed at reportage with high correspondence to *objective truth* (which exists – sorry to burst bubbles), but in apparent intent to create an image of how things can *seem* true.

A real journalist seems demonized, wrongly – but expectedly, into obscurity. What do I mean by “real”? “Real” lives next door to “true.” A journalist collects, collates, and summarily reports. Within this framework, a “real journalist” collects, collates, and summarily reports the truth. One might add – for explicit clarity, “...without obfuscation, lies, leniencies, allegiances, and onward in the list of foul behaviour in the name of public (or more appropriately self-) service.” I write in such frank tones because of the immense responsibilities and duties concomitant with roles in the media – at all levels, especially for journalists.

According to Johnstone Family Professor of Psychology at Harvard University, Dr. Steven J. Pinker, we live in the most peaceful times of humankind, which he described at length in *The Better Angels of Our Nature: Why Violence has Declined* (2011). Other troubles exist and persist (more later).

Without common diversionary tactics or redirecting attention from particular groups, even excuses for infliction of suffering upon other human beings, terrorist activity from fundamentalist national and religious groups, killing without trial in violation of international human rights, and law, by some countries, organizations, and individuals, and variegated forms of subjection, general thralldom, or objectification of women depending on the history, nation, culture, context, people, and motivations, ethics emerges in each of these particulars and their innumerable interactions – acknowledging far more numerous other instances without explicit statement, how does an information-based perspective in ethics relate to sociocultural trends?

Rosner: In addition to the long-term trend of science moving humanity away from the center of the universe, there's a long-term social trend of admitting that an increasingly large sphere of people deserve civil rights, with an implied acknowledgment that different groups – women, minorities, LGBT people – think and feel on a par with members of the most empowered class. Informational cosmology will reinforce that process. It will lead to the mathematization of consciousness, and by 2050 or so, we'll be able to estimate the size of thinking systems. (We'll have a number or pair of numbers which will reflect the size of an information-space.)

Having a numerical idea of the size of thinking systems and mathematical models of such systems will inform ethical questions. Is it wrong to make a chicken, with its mind-space of size X, suffer? What about a cow? A whale? A robot companion? Is it cruel to deprive someone of his AI brain booster, reducing the size of his mind-space by two-thirds? Should a copy of a deceased person's mind-space, downloaded with 92% accuracy while he was still alive, have legal rights? Should it continue to receive a pension? Should it be able to vote? Should it be able to own things? Should video games be allowed to incorporate AIs which think and feel? How much privacy should be given to individuals' mind-spaces? Who should be allowed to have cyber-immortality? Should reengineering of criminals' mental landscapes to remove criminal tendencies replace punishment?

All these and many more questions about AIs and boosted brains are familiar to anyone who's interested in science fiction. Informational cosmology will help clarify what thinking and consciousness are and will encourage and facilitate the creation of artificial and add-on thinking systems.

Our world will have more and more embedded computing devices – people (who watch TED talks) are calling it “the internet of things,” “ubiquitous computing,” “the world waking up.” Many of these devices will be of sufficient complexity that they can be said to think, which will raise a zillion new questions of ethics and etiquette. And we won't have time to adequately answer these questions before new stuff comes along. We'll be playing catch-up, at least until someone develops MannersMaster, an AI specialist system brain add-on. “MannersMaster has manners, so you don't have to! Order now, and we'll include MannersMaster Junior, absolutely free!”

I imagine a science-fiction story in which every animal above a certain level of complexity has had its intelligence boosted. Their lives become a mix of their old ways of being and new behaviors prompted by their expanded cognition. When one animal kills another, the killer is obligated to absorb and incorporate the life experience – the mental record – of the animal it's killing. (This is also how vampires should work. Nanobots, injected via the vampire's bite, map the victim's brain. The victim lives on, along with a chorus of other victims, in the vampire's brain.) I don't imagine this will really happen – it's just fun to think about. However, eventually we'll have dogs and cats that live for 40 years and have the intelligence of kindergarteners (and little articulated paws for posting their selfies on Instagram for Pets).

Jacobsen: You spoke in another venue for motivating intellectuals into a force for good. Difficulties exist in mobilization of intellectuals for the good. Formal, mainstream intellectuals, i.e. majority of Academia, seem to have two dominant ideological strains: bland

multiculturalism and moral relativism. A broad conceptualization would depict these two in generalized, merged terms: difference in cultural/ethical systems transformed into prescription of cultural/ethical relativism – no scale to ethics or cultures. Ethics becomes a human construction; in contradistinction to this ubiquitous academic position, informational ethics necessitates otherwise – described earlier.

Together, these have crippled effective ethical calculations and implementations in and from the Academy in many instances. Organizations external to Academia could form, organize, strategize, and implement various plans of action to counteract these rather negative developments. Trouble with this, the majority of funding, support, and advertisement goes towards mainstream academics.

If we wish to create a force of good from intellectuals, in and out of the ivory tower, we might need to erase or modify these ideological programs based on their failure to intake large quantities of ethically relevant information and compute this into effective action to solve problems inside and outside the university system. I do not state this with demeaning any particular person or group.

Either through tacit approval or passive negligence, all – interviewer included – have failed to combat the morally crippling effects of these two ideological strains in conjunction. Intellectuals have more foundational work to complete in this light. What can intellectuals begin to do in the immediate as a force for good?

Rosner: I'll say again that people need to think about the changes the future will bring. The future will be increasingly focused on thinking, computing, and sharing information. It could be helpful to start thinking about the risks and benefits of this kind of future before it arrives.

Here's how we might think about and prepare for the future:

If you're in the arts, make stories set in the near-future. Picturing the near-future is hard, because it doesn't exist yet, and it has a lot of moving parts. But people will love you for taking on the future. Look at *Star Trek* – it's been around for 48 years, has spawned a bunch of series and movies, and is universally known and widely beloved, and it does a half-assed job at best of presenting the future.

Acquire scientific and technical literacy. The future's not gonna get *less* filled with high-tech geegaws. Everybody should understand this stuff, so we can distinguish reasonable approximations of the truth from nonsense and don't get fooled by bad actors – sleazy corporations, sneaky government programs – hiding behind lies. C'mon – if you can understand the math of fantasy football, you can track trends in tech.

Sharpen and systematize our predictions of the future. We do a lot of predicting of election and sports results. We don't do much predicting of the future in general. We use Moore's Laws to determine how small and cheap and powerful our devices will become. Futurists like Ray Kurzweil have their timelines full of predictions. But we don't have a good overall consensus landscape of how the future might unfold. A consensus landscape would of course be wrong

about a bunch of things, maybe most things, but at least it would give us practice at thinking about and getting ahead of possible issues. We're doing a crap job of addressing global warming. Idiots and shysters are still arguing that doing anything about it is playing into some liberal, big-government scam, and those arguments seem as if they'll continue for years to come, even as increasingly obvious effects become apparent. What will happen if that kind of paralysis-by-bullshit is allowed to play out with a faster-moving problem?

Call out cynical stupidity and anti-scientific bias in the media. News channels are full of false balance or false equivalence, with a sensible argument on one side and idiots spouting bullshit on the other, presented as equal in merit. We should be less afraid to call stupidity stupid.

If we don't do the work of visualizing the future, it will be built for us in ways that will be less to our liking.

Jacobsen: What about the long-term? How can those with particular gifts and talents contribute to society?

Rosner: John Maynard Keynes said, "In the long run we are all dead." The era of people with exceptional natural talents may be, in the not so long run, over. In some important ways, we're living at the beginning of the end of the world. It's premature to call this the end of human civilization and the beginning of post-human civilization, but it's not *that* premature. The science fiction future is coming. It won't be much about Mars colonies and gyrocopters. The future will be the rise of computation, with everyone being nodes in a network of stuff that thinks.

Natural talents won't translate directly into the world of pervasive computing. The new talented might be people who figure out the most effective ways to team up or merge with technology. The most effective talents change from era to era. My friend Lance Richlin, who's skilled in Old Masters-style painting and who painted the portrait of me which begins each part of this interview, scrambles to make a living. Four hundred years ago, his painting skill would have made him wildly successful and highly renowned. Andy Warhol was a talented illustrator, but he found great success in putting aside illustration to concentrate on the role of celebrity in pop culture. Jeff Koons is an artist-technologist, developing novel high-tech methods to create works of kitsch which acquire grace and grandeur through their sheer size and precision.

In the long run, contributions to society will come from people who find and create creative niches in the computational world. Old niches will remain for traditional artists, writers, performers, but many more new niches will open up as the world becomes more saturated with cheap computing. There will be room and need for both creators and artistic interpreters of computation-intensive technology. So, once again, my advice is to stay current on technology. And don't be afraid to do stupid stuff. – powerful technology brings with it powerful frivolity, which often turns out to have seriously transformative effects – Twitter and other social media as tools against political repression, for instance.

Jacobsen: Insofar as ethics concerns individuals' focus on one person, this collective drain of attentional, emotional, and sometimes intellectual resources might work for good or bad, which relates to an astonishing and relatively pervasive celebrity culture devoid of a single scintilla of

responsibility – even with a lack of basic knowledge about risks associated with the potential for creation of an idol without grounds. You comment on this celebrity culture within some of the discussion for prior parts of the interview.

Most people do not deserve such status because most do not earn it. Further, most fail to heed risks and steward responsibilities implicated within increased attention, admiration, and general expenditure of collective time and resources on them. Entrusted power means privilege; privilege implies responsibility; responsibility proportional to privilege, and therefore responsibility proportional to entrusted power.

In point of fact, you desire fame – have for decades. You spend lots of time in this pursuit. As noted, responsibilities and risks come with it. Based on the served quotation of Eugene Wigner from me and your return with the quote of Albert Einstein, I return the ball to you with a minor note from *Ideas and Opinions* (1954) by Einstein in print:

“The cult of individuals is always, in my view, unjustified. To be sure, nature distributes her gifts unevenly among her children. But there are plenty of well-endowed, thank God, and I am firmly convinced that most of them live quiet, unobtrusive lives. It strikes me as unfair, and even in bad taste, to select a few of them for boundless admiration, attributing superhuman powers of mind and character to them. This has been my fate, and the contrast between the popular estimate of my powers and achievements and the reality is simply grotesque.” (Einstein, 1954)

I observe near-universal tendencies in others and yourself. What do people want in life? Lots of things. You want to be understood, liked, and respected – in no particular order. Why the desire for fame – even glory? Does this not appear proud or hubristic?

Rosner: I agree with Einstein that the structure of fame rests on a rotten foundation, since every characteristic on which fame can be based is the result of luck, even traits that don’t seem like special gifts, such as persistence or conscientiousness. But fame being based on luck doesn’t imply a moral prohibition against trying to become famous. Many famous people who complain about fame probably secretly or not-so-secretly enjoy its benefits.

Starting when I was young, I wanted fame for at least three reasons – respect, understanding, and a girlfriend. I was nerdy at a time when nerdy wasn’t at all cute. I sometimes felt picked-on. Whenever allowed, I stayed inside at recess and read. From constant reading and looking at *Mad* magazine and *National Lampoon* and accidentally being exposed to a book of Victorian pornographic writing (and having cute third- and fourth-grade teachers), I became aware of women’s sexual desirability by age nine, which is way too young to do anything about it, especially when you’re a geek.

So I wanted to be famous. I didn’t want to be picked-on, and I wanted a girlfriend. I figured that my shot at recognition would be through figuring out the universe.

I’ve always been a little weird. Not so much eccentric-for-attention (though I do like attention) but rather, having my own ways of doing things which make sense to me but seem nuts to

everyone else – taking 70 pills a day, going to the gym 5 times a day, having a OCDish preference for turning clockwise. Always figured if I were famous my quirks would be understood and perhaps accepted. Instead of “What’s up with that weirdo?” it’d be “Hey, there’s that guy who does that stuff.”

I’ve been pretty successful without being famous. Been married for nearly 24 years. Am a parent of a lovely daughter. Have been a TV writer for more than 25 years, contributing to 2,500 hours of network television and being nominated for six Writers Guild Awards and an Emmy. Am generally thought of by people who know me as not especially a prick or a douche.

I’m past the point of wanting celebrity in order to get a girlfriend. But I still want to be famous. Have had brushes with fame – was in an Errol Morris documentary, have been in three TV pilots which, like most pilots, didn’t go anywhere, occasionally get to be in a news article. None of these has caused me to reach a self-sustaining level of fame, where you get to stay famous by virtue of being famous.

But now, I kind of really want/need to be famous. I lost my longest-lasting, best TV-writing job a few months ago and am screwed when it comes to (easily) getting more TV work (even though I’m a proven writer). Met with an agent at a big agency. He said that he can’t represent me unless I have a spec sitcom pilot. But if I take a couple months and write a spec pilot, all that would do, if the agent indeed would rep me, would be to get my stuff into a stack of 200 or so submissions, out of which 1 or 2 percent of the submitters might be hired. I want to stand out from the hundreds of other submitters, and to do that, it would be helpful to have fame. (If I did write a spec pilot, it’d be about a weird genius dad with a normal family who thinks he’s half-an-idiot. Write what you know.)

Genius is very popular on TV right now – two flavors of Sherlock Holmes, *The Big Bang Theory*, the team of super-geniuses on *Scorpion*, the genius forensic techs and profilers on every murder show. CBS alone must have more than a dozen actors playing geniuses. So I want to yell, “Yo! Over here, CBS – a real person who’s gotten dozens of highest-ever scores on IQ tests, who has a theory of the universe that might not suck, who knows all the issues and behaviors associated with being a weird-ass brainiac, and who’s written more TV than all but 60 or 80 people in the city of Los Angeles.”

It’s not unreasonable for me to want recognition. You may have noticed that reality TV has made dozens and dozens and dozens of horrible people famous. At least my story is interesting. I’m not some Botox addict getting in a slap-fight at a wine-tasting. (But give me a chance – I’ll do that.) Marilyn Savant has had a nice 30-year career based on having the world’s highest IQ. My scores are higher than hers.

And let’s say my theory of the universe is at least partially correct. It could lead to big steps forward in our understanding of the world and our place in it. It could help us figure out how to make our brains work better. If some fame draws some attention to the theory, then good.

If you’ve slogged through all of the interview up to this point, you should be able to tell I’m not a BSer. I’ve spent decades trying to figure out how the universe works (when I haven’t been

writing Kardashian jokes), and I've come up with some stuff that I think merits some attention. Yeah, there's some "Hey – looka me!" in my fame-seeking. But, after working on a theory for 33 ½ years and having had a bunch of ridiculous misadventures, it doesn't make me a douche to want people to check out my stuff.

Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Ten)

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*Part ten of eleven, comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1990-96), and writer. He discusses the following subject-matter: difficult circumstances for women, international obligations to women based on Millennium Development Goals (MDG) with a focus on MDG 3, 4, and 5, thoughts of focus on the transhumanist future, recommended reading of Charles Stross, Cory Doctorow, David Marusek, or Neal Stephenson; Dr. Rosalyn Yow quote, some observations about conditions for women; the history of men with two examples of Plato and John Stuart Mill, and reflection on history not treating most people well; female exemplars in history with multiple examples, daughter's study of history, and personal Women's Studies history; ethics in the global scale with multiple UN examples, collating them into a single question of "How best to solve problems in civil society?", and thinking about the future with becoming more informed as the remedy.*

Scott Douglas Jacobsen: Many, arguably most, women have greater difficulties than their male counterparts in equivalent circumstances. Their welfare means our welfare – men and women (no need to enter the thorny, confused wasteland of arguments for social construction of gender rather than sex; one need not make a discipline out of truisms.).

Net global wellbeing for women improves slowly, but appears to increase in pace over the years – millennia, centuries, and decades. Far better in some countries; decent in some countries; and far worse, even regressing, in others. Subjugation with denial of voting, driving, choice in marriage, choice in children, honour killings, and severe practices of infibulation, clitoridectomy, or excision among the varied, creative means of female genital mutilation based in socio-cultural or religious practices; objectification with popular media violence and sexuality, internet memes and content, fashion culture to some extent, even matters of personal preference such as forced dress or coerced attire, or stereotyping of attitudinal and behavioral stances. "All I ask of our brethren is that they will take their feet from off our necks and permit us to stand upright on the ground which God intended us to occupy." Sarah Moore Grimke said.

Everyone owes women. International obligations and goals dictate straightforward statements such as the Millennium Development Goals (MDGs) of the United Nations (UN) in addition to simple provision of first life. MDG 3, 4, and 5 relate in direct accordance with this proclamation – in an international context mind you. MDG 3 states everyone's obligations, based on agreed upon goals, for promotion of gender equality and the *empowerment of women*. MDG 4 states everyone's obligations for reduction of *infant mortality rate*. MDG 5 states everyone's obligations towards improvement of *maternal health*. All MDGs proclaim completion by 2015. We do not appear to have sufficed in obligations up to the projected deadline of 2015 with respect to all of the MDGs in sum.

In addition to these provisions, we have the conditions set forth in the *The International Bill of Rights for Women* by *The Convention on the Elimination of All Forms of Discrimination Against Women* (CEDAW) of the United Nations Development Fund's (UNDF) consideration and

mandate of the “right of women to be free from discrimination and sets the core principles to protect this right.” Where do you project the future of women in the next 5, 10, 25, 100 years, and further? In general and particular terms such as the trends and the concomitant subtrends, what about the MDGs and numerous other proclaimed goals to assist women – especially in developing areas of the world?

Rick Rosner: Predicting gender relations beyond a century from now is somewhat easier than predicting the short-term. In the transhuman future, bodily form, including sex, will be changeable. People will take different forms. And when anyone can change sexes with relative ease, there will be less gender bias.

Let’s talk about the transhuman future (100 to 300 years from now) in general, at least as it’s presented in science fiction that doesn’t suck. Three main things are going on:

There’s pervasive networked computing. Everything has a computer in it, the computers all talk to each other, computing costs nothing, data flying everywhere. Structures are constantly being modified by swarms of AI builders. A lot of stuff happens very fast.

Your mind-space isn’t permanently anchored to your body. Consciousness will be mathematically characterized, so it’ll be transferrable, mergeable, generally mess-withable.

People choose their level of involvement in this swirling AI chaos. Most people won’t live at the frenzied pinnacle of tech – it’s too much. There are communities at all different levels of tech.

Also, horrible stuff old and new happens from time to time – bio-terror, nanotech trouble, economic imperialism, religious strife, etc.

For more about this kind of thing, read Charles Stross, Cory Doctorow, David Marusek, or Neal Stephenson.

So, two hundred years from now, gender won’t be much of a limiting factor, except in weird throwback communities. In the meantime, idiots will continue to be idiots, but to a lesser extent the further we go into the future. No one who’s not a retard is standing up for the idea of men being the natural dominators of everything. If it seems like we’re not making progress towards gender equality, it may be because there’s a huge political/economic/media faction that draws money and power from the more unsavoury old-fashioned values, with its stance that anyone who’s concerned about racism or sexism is naïve and pursuing a hidden agenda to undermine American greatness.

Dumb beliefs that aren’t propped up by doctrine eventually fade away, and believing that men or any elite group is inherently superior is dumb, particularly now and into the future as any purportedly superior inherent abilities become less significant in relation to our augmented selves. Across the world, the best lazy, non-specifically targeted way to reduce gender bias is to open up the flow of information, serious and trivial (however you do that).

In the very short run, maybe the U.S. elects a female President. Doubt this will do that much to

advance the cause of women, because Hillary Clinton has already been in the public eye for so long – she’s more a specific person than a representative of an entire gender. Is thinking that dumb? I dunno. I do know that her gender and who she is specifically will be cynically used against her. I hope that if elected, she’s less conciliatory and more willing to call out BS than our current President.

In the U.S., there’s currently some attention being paid to rape. Will the media attention to rape make rapey guys less rapey? I dunno. Will increased attention to rape in India reduce instances there? I dunno. A couple general trends may slowly reduce the overall occurrence of sexual coercion and violence. One trend is the increased flow of information and the reduction of privacy – cameras everywhere, everybody willing to talk about everything on social media, victims being more willing to report incidents, better understanding of what does and does not constitute consent. The other trend is the decreasing importance of sex. My baseline is the 70s, when I was hoping to lose my virginity. Sex was a huge deal because everything else sucked – food, TV, no video games, no internet – and people looked good – skinny from jogging and cocaine and food not yet being engineered to be super-irresistible. Today, everybody’s fat, and there’s a lot of other fun stuff to do besides sex.

I think that some forms of sexual misbehaviour – serial adultery, some workplace harassment – will be seen as increasingly old-school as more and more people will take care of their desire for sexual variety via the vast ocean of internet porn. Of course, sexual misbehaviour isn’t only about sex – it’s also about exercising creepy power or a perverse need to be caught and punished – so, unfortunately, that won’t entirely go away. During the past century, sexual behaviour has changed drastically – the types of sex that people regularly engage in, sex outside of marriage, tolerance for different sexual orientations, freely available pornography and sexual information, the decline in prostitution – you could say, cheesily, that sex is out of the closet. And sex that’s not secretive or taboo loses some of its power.

But I could be wrong. According to a 2007 study conducted at two U.S. public universities, one fifth of female college students studied suffered some degree of sexual assault.

Jacobsen: Many, not all, women tend to have a hard time in science too. Improvements in welfare, access, and attainment continue. Rosalyn Yalow, Nobel Prize in Medicine for 1977, stated:

“We bequeath to you, the next generation, our knowledge but also our problems. While we still live, let us join hands, hearts and minds to work together for their solution so that your world will be better than ours and the world of your children even better.

We cannot expect in the immediate future that all women who seek it will achieve full equality of opportunity. But if women are to start moving towards that goal, we must believe in ourselves or no one else will believe in us; we must match our aspirations with the competence, courage and determination to succeed; and we must feel a personal responsibility to ease the path for those who come afterwards. The world cannot afford the loss of the talents of half its people if we are to solve the many problems which beset us.

If we are to have faith that mankind will survive and thrive on the face of the earth, we must believe that each succeeding generation will be wiser than its progenitors. We transmit to you, the next generation, the total sum of our knowledge. Yours is the responsibility to use it, add to it, and transmit it to your children.

The failure of women to have reached positions of leadership has been due in large part to social and professional discrimination.

The excitement of learning separates youth from old age. As long as you're learning you're not old."

Yalow's "immediate future" exists here and now.

I observe some tendencies of form: some truth in women choosing non-STEM fields often to explain some of the number differential; decent truth in institutional barriers; a good deal to do with ineffectual programs of action; a great deal to do with lack of female mentors – male mentors appear less effective than women; a catch-22 of desire for more women at the top, need of more female mentors from the top for women at the bottom, but *lack of female mentors at the top in proportion to the women at the bottom*; some more to do with inflexible tenure-track, differential pay, no childcare on-site, tacit bias for men; and, something never said – too taboo, *some small minority of men not liking women*; or a variable by implication of the former or on its own, working with them.

Narrowed from the prior question about the situation for women, with some of this in mind, what about the need for opening the arena for women in science more with continued technological and scientific comprehension in the 21st century to succeed in keeping pace with the rapidity of technological change, and scientific discovery and innovation?

Rosner: I don't know what will draw more women into STEM fields. However, I think that more needs to be done to draw people of both genders into STEM. (A good step might be calling it "math-science" instead of STEM.) I grew up during the post-Sputnik push to educate Americans in science, followed by the laissez-faire 70s. Now we're in the era of dumb politics, with large factions backing away from and urging skepticism about science. It shouldn't take a cold war or a big regular war for the U.S. to be pro-science. If current trends persist, the US will be overtaken by China in terms of percentage of GDP spent on R&D within a decade. Does it matter to the future whether the United States becomes a backwater country? I think so. American politics is having a bad 21st century so far, but the best values America stands for will be important in tempering the more ominous aspects of the tech wave.

Jacobsen: In the history of men, we have some exemplars, Plato's philosophy culminated in the considerations of an ideal society appropriately given the appellation "*Kallipolis*," or "Beautiful City." Few did as much theorization for female opportunity and equality, likely hypothesizing only in light of limitations of power and influence, in the ancient world apart from Plato including the incorporation of equality for women in the philosophical foundations, theoretical institutional operations, and consideration of aptitude and character found in *The Republic*, there likely exists few, or none, other in ancient times paralleling such depth of female inclusion in

society and procurement of education. Bear in mind, he did not intend the discourse of work related to *Kallipolis* for the purpose of equality for women, but for creation of an ideal society and people with spores devoted to women in the society. Just society equated to just individual; ideal society equated to ideal individual; society – in conceptual equivalence to Platonic Form or Idea of “ideal society” – paralleled the individual. Well-ordered society reflected well-ordered individual – man or woman. Germinations from the dialogue on an ideal society in the seminal work *The Republic* became the seeds for partial, by the accepted canon of ethics today, female equality, most saliently found in the work *The Republic*.

We find little in the totality of literature contained within the canon of Western, and Eastern, traditions beyond Plato and the ancient Greeks until the explicit work by the bright light John Stuart Mill (1806-1873) – a utilitarian philosopher rooted in the ideas and work of Berkeley, Hume, and Locke – in the hefty essay *On The Subjection of Women* (1869) – a probable fresh stirp outcropping from the writing of his wife Harriet Taylor Mill’s essay, *The Enfranchisement of Women* (1851), because the Mills – including some by their daughter Helen – co-authored *On the Subjection of Women*, where the opening paragraph considers the issue of male & female relations and social institutions from the discerning, acute, and perceptive gaze of the Mills in preparation of probably one of the most complete disquisitions on women and their status in society in their day – one can find these throughout the prolonged essay:

“The object of this Essay is to explain as clearly as I am able, the grounds of an opinion which I have held from the very earliest period when I had formed any opinions at all on social or political matters, and which, instead of being weakened or modified, has been constantly growing stronger by the progress of reflection and the experience of life: That the principle which regulates the existing social relations between the two sexes—the legal subordination of one sex to the other—is wrong in itself, and now one of the chief hindrances to human improvement; and that it ought to be replaced by a principle of perfect equality, admitting no power or privilege on the one side, nor disability on the other.” [Mill, J.M. 1869]

Why little in the way of acknowledgement in history for women other than in some great few jewels? How can men best assist women – and by implication everyone in sum – flourish?

Rosner: History hasn’t been very nice to anybody. About 107 billion humans have ever lived, and the vast majority of these had miserable lives, regardless of sex. Global life expectancy didn’t reach 50 until the 1960s and didn’t reach 60 until about 1980. We live like kings and queens compared to people of a century ago, and we live wretched lives compared to people a century from now. Standards of liberty go roughly hand-in-hand with standards of living. As humanity has gained control over the world, larger segments of the population have gained some relief from misery. I expect the future to be richer, to have more life-improving tech, and to be more inclusive.

Regressive forces in politics want to maintain gender and racial hierarchies to some extent. These efforts often masquerade as equal treatment for all, when in fact, treatment isn’t equal. So people get pissed, and they protest, and they point out inequalities and hypocrisy. Bringing unfairness to the public’s attention seems to be the way to get things done. One sign of progress is that arguments for inherent inequality between genders or among races are increasingly

unacceptable. And such arguments should be. I have a saying (which has failed to impress anyone) that the world's smartest rabbit is still a rabbit. By figuring out how to overcome human limitations, we can figure out how to overcome individual limitations.

Jacobsen: In the timeline of women, on setting examples, instances arise of historical female virtuosity in spite of different circumstances for women *en masse*, in the commemorated annals of geniuses such as Hypatia of Alexandria, Elizabeth Anscombe, Hannah Arendt, Margaret Atwood, Simone de Beauvoir, Hildegard von Bingen, Marie Curie, Lady Anne Conway, Sarah Margaret Fuller, Susan Haack, Ayn Rand, Dame Mary Warnock, Mary Wollstonecraft, Betty Friedan, Marilyn vos Savant (greatest living philosopher of the everyday – opining), Joanne Rowling (“J.K. Rowling”/“Robert Galbraith”), and innumerable others, one need not agree with their multitudinous productions, but ought to welcome the attainments as genuine supplements to the cerebral arsenal of the erudite world.

Most of these relate in the academic, philosophical, intellectual partition of discourse on the sexes, more exist in relation to the many types of sheer brave accomplishments and firsts for women: Élisabeth Thible (First woman to ride in hot air balloon), Sophie Blanchard (First woman to pilot hot air balloon), Raymonde de Laroche (First woman to receive pilot's license), Lilian Bland (First woman to design, build, and fly an aircraft), Amelia Earhart (Not long after Charles Lindbergh – one could state Albert Read before either Lindbergh or Earhart, first woman to fly solo across the Atlantic Ocean), Sabiha Gökçen (First woman to fly fighter plane into combat), Jacqueline Cochran (First woman to break sound barrier), Jerrie Mock (First woman to fly solo around the world), Svetlana Savitskaya (First woman to walk in space), Eileen Collins (First female space shuttle pilot), and so on. Not enough time to enter into full listing and description – a compendium must suffice for now.

Even a single example, in depth, from this list of female bright lights in the human narrative, Marie Curie discoverer of the 88th element known as Radium, winner of the Nobel Prize in Physics (1903) and Chemistry (1911), having an element named after her: curium, and someone of potential for higher emotional impact based on the recent nature – relative to the timeline from Hypatia to the present – of the achievements by Curie. Indeed, she lived concurrent with the most often quoted, and misquoted, of geniuses, Albert Einstein. No introduction or explanation needed for his accomplishments of unification and foundational contributions to physics, cosmology, and insights into reality in general. However, we do not hear much of Marie Curie off the top of our minds; even so, she may arise after some time to wonder and ponder on the cases of female genius.

When examining with thorough care the deep historical roots of the situation for women up to the modern era in the world of pedagogy, or even with a mild skim through a history text, within arguably the most important societal and cultural institution, outside of raw technological change, for the influence of individuals and collectives in society, Academia holds the most sway in refurbishing the old housing of society with new frameworks for understanding the world and the relation of human beings within, and to, that new apprehension of the world.

Some modern days of recognition such as *International Women's Day*, *Women's Equality Day*, and *Women's History Month* do some good in continual recognition from positive reflection on

them. As per the previous question, most history education tends to teach male exemplars in each field while lacking the representation of women in such fields of endeavour. History would appear to work on the shoulders of men, European men. No exemplars in proportion to men can set tacit tones through education for the youth and in turn the upcoming generation. What could shift the focus, perspective, and conversation related to female exemplars in history?

Rosner: Compared to men, a much smaller fraction of women have been highly visible to history. Of course, the fraction of men who are visible to history is already tiny. The vast majority of the more than 100 billion humans who have ever lived have disappeared without a trace of individual presence and are remembered only as tiny constituents of plagues or wars or statistical trends. Now, of course, everyone produces an extensive individual digital record, and the recording of our lives will only grow more thorough. (But individuals may become invisible within a deluge of information rather than a trickle.)

History is usually learned from an event- and trend-based perspective – battles, leaders, dates, economic and demographic forces. But there's another way – the slice-of-life approach – trying to reconstruct how people lived their daily lives and thought their daily thoughts. This puts the women back into history and provides a counter-narrative to the big events POV. Most of our lives are conducted around daily tasks, not historic events. When we see history on TV or in a movie, it's usually people's stories, not dry recitations of facts.

In Women's Studies classes and by watching my daughter study history, I've learned that traditionally womanly arts are often assumed to be second-tier – mundane, decorative, part of the background – what Betty Draper does, to her frustration, as compared to what Don Draper does. And even as *Mad Men* points out this dynamic, it still screws over Betty, making her seem unpleasant compared to Don, whom we root for even as he wrecks his life.

We're lucky to live in an era of increasingly immersive media that offers more opportunity to build complete worlds, including the worlds of the past. But even with this ability, virtual worlds can be shitty for women – for example, the *Grand Theft Auto* series is brutal to women. The video game industry remains biased towards traditionally male action stories because they're fun, they sell, and they're easier to make compelling. Eventually, video games and immersive entertainment will learn how to embrace more of human experience. The subtlety's not there yet.

(My thinking about women's issues isn't ultra-sophisticated. But I took women's studies in college and belonged to a pro-feminist group called *100 Men Against Violence Against Women*. On the other hand, I wrote for *The Man Show*. (It wasn't anti-women – it made fun of men's attitudes about women – but was widely misunderstood because it tried to have it both ways – making fun of men and celebrating what men like. And the fifth season, after Adam and Jimmy and the other writers and I left, was pretty mean and misogynist.))

Jacobsen: Ethics exists beyond issues of the sexes. Issues of global concern. Ongoing problems needing comprehensive solutions such as differing ethnic, ideological, linguistic, national, and religious groups converging on common goals for viable and long-term human relations in a globalized world scarce in resources without any land-based frontiers for further expansion and exploitation, UN international diplomatic resolutions for common initiatives such as

humanitarian initiatives through General Assembly Third Committee (Social, Humanitarian and Cultural), Economic and Social Council (ECOSOC), United Children's Fund (UNICEF), United Nations Development Programme (UNDP), World Food Programme (WFP), Food And Agricultural Organization of the United Nations (FAO), United Nations Population Fund (UNFPA), United Nations Human Populations Settlement Programme (UN-HABITAT), Interagency Standing Committee (IASC), and issues of UN humanitarian thematic import such as demining, early warning and disaster detection, the merger of theories of the grandest magnitude (e.g., general and special relativity) and the most minute (e.g., quantum mechanics), medical issues such as Malaria, Cancer, and new outbreaks of Ebola, nuclear waste and fossil fuel emissions, severe practices of infibulation, clitoridectomy, or excision among the varied, creative means of female – and male – genital mutilation based in socio-cultural and religious practices, stabilization of human population growth prior to exceeding the planet's present and future supportive capacity for humans, reduction of religious and national extremism, continuous efforts of conservation of cultural and biological diversity, energy production, distribution, and sustainability, economic sustainability, provision of basic necessities of clean water, food, and shelter, IAEA and other organizations' work for reduction and eventual elimination of nuclear armaments, culture wars over certainty in ethics on no evidence (faith-based ethics) and lack of certainty in morality because of too much data while lacking a coherent framework for action (aforementioned bland multiculturalism transformed into prescription of cultural/ethical relativism), acidification of the oceans, problems of corruption, continued annexation of land, issues of international justice handled by such organs as the International Court of Justice, introduction of rapid acceleration of technological capabilities while adapting to the upheavals following in its wake, issues of drug and human trafficking, other serious problems of children and armed conflict including child soldiers, terrorist activity, education of new generations linked to new technological and informational access, smooth integration of national economies into a global economy for increased trade and prosperity, and the list appears endless – and growing.

If collated, they form one question: *“How best to solve problems in civil society?”*

Main issue, all subordinate queries and comprehensive, coherent solutions require sacrifice. You might ask, *“Cui bono?”* (“Who benefits?”) Answer: all in sum. Problem: few feel the need to sacrifice past the superficial. Some Facebook, Twitter, or Instagram protestations to represent themselves as just people while not behaving in the real world as just people. Hashtags and celebrity speeches help in outreach and advertisement, but we need long-term, pragmatic solutions to coincide with them more. Nothing hyperbolic to disturb healthy human societies, but reasonable and relatively rapid transitions into sustainable solutions. You have stated positive trajectories by thinking about the future. You talked of some, but not all. What about these collection of problems and the growing list?

Rosner: I believe the best instrument of change is information. Informed people more readily disbelieve stupid shit. Widespread ignorance and distrust of well-substantiated facts are usually signs of somebody getting away with something.

We know society is trending in an egalitarian direction. Trends towards equality are in a race with technology remaking society. For me, the question becomes, “How many lives and generations will be spent in misery before social and tech trends make things better and/or

weird?”

The happy possible eventual situation is that tech creates a utopia in which all people get what they want. The unhappy possible eventuality is that tech debunks the importance or centrality of humanity, and humans are afterthoughts – the stepchildren of the future – being taken care of but not really having their concerns addressed because their level of existence isn’t taken seriously by posthumans. (And of course there’s the possibility that AI gets out of hand, eats everything and craps out robots. Let’s try to avoid that.)

Tech will solve some huge problems. One of the biggest is the steadily growing population. People who have a shot at technical, earthly immortality (50 to 80 years from now) will reproduce less. When transferrable consciousness becomes commonplace (120 to 150 years from now), posthuman people may not reproduce at all (though traditional human enclaves will still spit out a steady stream of kids). The uncoupling of individual consciousness from the body it was born into solves a bunch of, perhaps most, current problems and anticipated problems – crowding, food, pollution, global warming – by allowing people to live in ways that leave less of a footprint. (Not that their choices will be made for purely ecological concerns. People will always follow their own interests, and posthuman people will choose a variety of non-fleshy containers (200 years from now) because virtual or semi-robotic containers will be cheaper, more convenient, more versatile and exciting.)

But our current problems will be largely replaced by fantastically weird problems. Virtual people will be subject to virtual attacks and virtual disease. Agglomerations of consciousness may become bad actors. People may sic nanotech swarms on each other. You can find all this stuff in good near-future science fiction. William Gibson’s new novel, *The Peripheral*, which takes place about 20 years and 90 years from now, can serve as a good, fun intro to the future. In it, some impossible stuff happens, but it’s the possible stuff that’s interesting and scary. There are websites devoted to the future in a very non-la-de-dah way. Look at <http://io9.com/> and <http://boingboing.net/> – they’re entertaining and informative.

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2014-12-22

*Part eleven of eleven comprehensive interview with **Rick G. Rosner**. Giga Society member, ex-editor for Mega Society (1991-97), and writer. He discusses the following subject-matter: Genius of the Year Award – North America in 2013 from PSIQ and clarification of statements; definition of the term “gods” in operational terms from the award statement; discussion on our future rather than gods; thoughts on aesthetics within an informational cosmology lens; some brief discussion on informational eschatology; human history’s numerous examples of individuals and schools of thought aimed at absolute definitions of consciousness, universe, and their mutual union; thoughts on Big Bang Cosmology and the possibility of its replacement; three greatest mathematicians/physicists/cosmologists; three greatest mathematics/physics/cosmology concepts; The Heisenberg Uncertainty Principle and Wave-Particle Duality; Einstein-Podolsky-Rosen (EPR) Nonlocality; possibility of universe operating in something more essential than information; everything in essence equate to a Turing Machine in informational cosmology; operation of different time depending on armature/universe in reference; mysteries; ex nihilo cosmogony; theology becoming informational cosmology and vice versa; informational ethics in relation to numerous ethics; The Problem of Evil; souls; Fr. Teilhard de Chardin, The Phenomenon of Man (1955), Omega Point, and The Future of Man (1964); work needing doing for Informational Cosmology; reflection on theorizing and outlier background; common sense and intelligence; regrets; ethics of forming, joining, and sustaining elite groups based on high and ultra-high IQs; harsh internet crowd, frequent comments, and responses; principles of existence as the language of existence with explicit listing of some of them; and thoughts on prevention of intellectual theft.*

Scott Douglas Jacobsen: You earned the *Genius of the Year Award – North America* in 2013 from PSIQ. In your one-page statement on winning the award, you say, “My one wish is that trying to extend human understanding is doing God’s work.” In some sense, there seems no higher calling than something akin to an internal – to the cosmos – teleological duty to assist the self-actualization of the universe as sub-systems, various individual POVs, within the universe in service of God. Does this fairly characterize the statement? If not, what did you attempt to address with such a statement?

Rick Rosner: I was addressing a strain of religiosity which is hostile to science (or which misrepresents science to advance an agenda). I would like fewer people to be anti-science and would like people to be less subject to anti-scientific manipulation on religious grounds.

Isaac Newton thought that by making mathematical and scientific discoveries, he was doing God’s work. I like the idea that figuring out how the world works and how to make it better is helping God, not defying God.

Humans are part of a world we can choose to believe was created by God. Doing science isn’t alien to the world or opposed to God.

Teleology isn't a word that I embrace, because it can be used to sneak creationism into evolution. Evolution, of course, isn't a purposeful progression towards complexity. Rather, it's the proliferation of varied organisms via the occupation of exploitable niches, some of which are occupied by organisms having complex abilities. (But simple organisms continue to occupy their niches. And new, simple organisms continue to arise.)

The universe is a very complicated entity, and as such, demonstrates that highly complex entities are permitted by the principles of existence (whatever those turn out to be). Can we help our species, our planet, or even the universe itself self-actualize, and if so, is this some kind of built-in bias towards complexity? Maybe, but I don't see it as the hand of the Creator nudging us towards glory. Rather, I see it as the possibility of mathematical teleology, with complex entities perhaps statistically tending to have histories of increasing complexity. There is room for God or gods in this, but gods who are subject to the same principles of existence that we are. Which isn't the worst thing – we are all striving, humans and gods alike.

Jacobsen: You stated “gods.” How do you operationally define the attributes, in concrete terms, of these proposed gods? Moreover, how might we rank these civilizations in terms of advancement some relative scale of civilization development?

Rosner: Start with the Arthur C. Clarke quote that's now so overused it's a cliché – “Any sufficiently advanced technology is indistinguishable from magic.” There are around a quarter or a third of a trillion stars in the galaxy. A bunch of them have planets – there are tens of billions of planets in the Milky Way – maybe 100 billion, maybe 200 billion or more. Even if only one in 10,000 contains life, that's still 10 million planets with life. (And there are a hundred billion galaxies in the universe.) Some must have intelligent life, and on some of these planets, tech-wielding life most likely has a huge head start on us (because the odds of us being the first to tech in the galaxy are one in however many tech civilizations there will eventually be). Even if it's only a thousand-year head start, that's huge with regard to tech. And it's possible that tech-wielding life on some planets might have a *billion-year* head start. So it's reasonable to assume that there are some civilizations which are so advanced, their powers are almost magical in comparison to ours. But to call them gods is something of a cheat – super-advanced civilizations that have arisen in the past 14 billion years might best be called godlike.

Super-advanced civilizations would be able to do awesome stuff – for instance, possibly defy time to some extent by simulating a plethora of possible futures (on a rolling basis) and choosing the best future from among them. At the very least, advanced civilizations will have vast computational capacities. And the business of the universe *is* computation.

Next step in the hierarchy of godlike beings – let's say I'm correct that the universe is vastly older than 14 billion years. It's not unreasonable to think that some civilizations have learned how to survive galactic cycles, perhaps by hiding out in the enormous black hole-like objects at the centers of galaxies or by hopping from exhausted galaxies to newer galaxies (if it's even possible to travel fast enough to escape a collapsing, exhausted region of the universe – hey, maybe they could beam themselves via neutrinos). Civilizations (or entities) which can survive for many multiples of 14 billion years would have fantastic capabilities – they might actively participate in the running of the universe – beaming neutrinos at the burned-out galaxies they

want to reactivate, for example. Is it so unreasonable to think that something as large and old and intricate as the universe might have intelligent entities helping to manage it? Such entities might almost deserve the title of gods.

And the next step in the hierarchy – what if the universe itself is an entity, with perceptions, thoughts, and objectives, playing out across octillions or decillions of years? That is –

What if a sufficiently complicated self-contained and self-consistent system of information such as the universe itself can't not be conscious?

That entity deserves to be called a god, but a god that did not make us, that may not know we exist, and that doesn't intercede in our affairs. We are made of its information – its thought-stuff – but it didn't intentionally create us. Its information space provides the arena in which we came into existence through natural processes.

And beyond the universe we live in is the universe in which the entity whose information space we live in itself lives. Maybe it's not turtles all the way down; maybe it is information spaces all the way up.

These different levels of godlike beings share with us the basic constraints of existence. They've almost certainly developed work-arounds for many of these limitations, but they share the same general characteristics, even if such characteristics have been obscured and weirdified by their godlike mastery of physical processes. It's kind of nice that in wrestling with existence, we and these gods are all in it together.

The various gods certainly have consciousnesses which are more powerful, more detailed, and encompassing more senses and types of analysis than ours. But who knows if the differences in consciousness are more than differences in magnitude, perceiving space and time in ways that are fundamentally different?

Jacobsen: What about our future rather than these “gods”?

Rosner: People aren't freaked out enough about the future. Have I already said that? Humanity will be forced to change – to embrace new, weird forms of thought. Here's why – advanced artificial intelligence is coming. It will be hard and perhaps impossible to design AI so that it doesn't want stuff for itself. It won't just be our faithful servant. So we're gonna have to keep up with it – we'll need to be joined to AI, so that we remain, for as long as possible, among the smartest beings on the planet. When occupying niches, species tend not to limit themselves. External factors limit how far species expand. Similarly, if it's us versus AI in a struggle to occupy the same niches, the smarter entities will overpower the weaker ones. We can't program AI to limit itself – it's too likely that any barriers will spring leaks.

We'll need to develop and evolve a worldwide (and eventually a solar system-wide) ecosystem which incorporates AI. That is, we'll need to develop durable forms of advanced intelligence which don't just ravage all available matter for computing purposes. It doesn't seem unreasonable that AI and humans-plus-AI will eventually find niches that don't threaten the

existence of all other life on earth. But that probably won't happen unless we keep up with AI by augmenting ourselves with it.

The world will be flooded with AI cops – software, hardware, etc. that will spy on everything to make sure that hyper-destructive AI and nanotech don't get loose and destroy everything. There will have to be cyber cops on top of cyber cops – like an immune system – trying to keep outbreaks of bad AI local. Privacy will be left in tatters. (This could be an unrealistic science fiction TV show set 20 years in the future. A squad of sexy cops fight bad AI and nanotech. Perhaps make it a comedy, so the glaring errors can be seen as funny instead of stupid.)

AI will get smarter and smarter, faster and faster. Won't it smart itself right out of the universe and into some other plane of existence? Nah. I think it runs into some hard limits – the speed of light, the computational limits of matter, the decreasing marginal utility of additional knowledge. There might be work-arounds for some hard limits – cramming enough matter into a small enough space should create more space, for instance – but such limits should put a damper on the double-exponential growth predicted by some Singularitarians.

We've been talking about ethics. Throughout history, humanity has had generally agreed-upon ethics for the protection of life and property and sometimes freedom, based on what humans want – comfort and safety. Such protections don't extend far beyond humans, and we've found little evidence of the world itself having any ethical expectations. Our ethical framework is about to be completely revamped. Consciousness will be quantified. Consciousness will be created in non-living beings. Unaugmented human intelligence will no longer dominate the planet. Ethical arguments will have to be more powerful, to persuade our far brighter descendants.

Ethical protections have extended from the self-appointed most special beings on earth, humans, to, often grudgingly, other humans and sometimes to animals, the environment, and objects of historic value. Within 40 years and probably much sooner than that, unaugmented humans won't be the smartest, most talented known beings. Unaugmented consciousness will be shown to be unimpressive in many ways. Winds of change will buffet the ethical umbrella, and we don't know who or what will be under it in 2060.

Narrative is important. We like stories. And stories are an essential part of the structure of history. Just about every development in evolution and history involves someone or something embracing change – often being the first to make a change. We offer people, animals, and things ethical protection when we recognize and understand their stories. We have to sell the future on the importance of unaugmented humans' stories, even when the augmented are in charge.

Jacobsen: What would a timeline of the future look like?

Rosner: There are already some good timelines of the future. Ray Kurzweil's timelines might be the most well-known. He's been making them since 1990, so you can judge how he's done in his first 25 years of predicting. And this is a through, non-lunatic timeline –

<http://www.futuretimeline.net/index.htm>. (You have to watch out for timelines with crazy agendas.)

Let me try to do one –

2070: World's annual birthrate drops under 1%.

Don't know if I can do this. What I know is a bunch of stuff is gonna get weird and perhaps go away. Pro and Olympic sports will get weird in the next century as human bodies become increasingly augmented. There might be augmented and unaugmented leagues. Current pro sports may come to seem too arbitrary or antiquated for popular attention.

2080: People commonly have relationships with artificial people, who by the early 22nd century, have acquired limited rights.

Money is gonna get weird. Some human necessities will continue to get cheaper. Employment will decrease. The life cycle of commercial enterprises will accelerate, making investment weird.

By the mid-22nd century, everything associated with human life as we've known it for thousands of years gets weird as we have increasing choice of what should contain our minds and of the form of consciousness itself. You could call the 2100s the Century of Choice. Dibs on that.

It's also the century of fragmentation, as new choices of how to live lead to different societies and sects and enclaves. After this, it's hard to say what happens, because you can't predict what the prevalent forms of consciousness will be.

The mental isolation that humans have always felt – that we are separate, autonomous individuals – will be eroded. We already have close working relationships with our devices, and we'll increasingly be nodes in a network of streaming information as everything in our world gets packed with computing (and eventually thinking) circuitry.

Just remembered – made this list in 2013 as part of a pitch to *Grantland* – it's everything I thought would be going away.

Children (Currently, about 85% of humans have children. By 2090, less than 30% of humans will have reproduced traditionally by the age of 60.)

Risk and wrecks (People who might live for many centuries won't tolerate current levels of risk.)

Meat from animals with brains

Humans' exalted view of ourselves (We're gonna learn exactly how we work, and we'll find it not so awesome.)

The soul (We'll have a mathematical model of how we feel that we have feelings. This will be a good thing, but it won't feel so good. Understanding consciousness could add an underlying sadness to the world until people get used to it.)

Basic human concerns and drives (We're gonna be able to rejigger the agenda that evolution has wired into our heads.)

TV and movie storylines as we know them (All our entertainment is built around basic human drives. Once we start messing with these drives, we have to mess w/ our stories. Romance, action, comedy, drama, etc. all get reworked.)

Natural-born bodies

Sex as the greatest thing
 Not knowing how our brains work
 Not knowing why the universe is
 Thinking we know what's going on a moment-to-moment basis (Our awareness is really patchy and cobbled together, but evolution doesn't give a crap. Evolution wants us to have enough awareness to survive and reproduce. Anything beyond that is a bonus.)
 Thinking our brains are perfect and fantastic
 Privacy
 Marriage 'til death do us part
 Disease
 Island consciousness (that is, not being able to link your brain to someone else's)
 Abject poverty and ignorance (except among angry, fucked-up, repressed populations)
 Unhealthy food (Food that tastes great won't actually be bad for you.)

And a few things that won't happen:

No time travel, except through simulation (which will grow more and more powerful, but still won't let you change the past).

Probably no warp drive.

Probably no war between galactic empires. Empires don't get you much – there's no rare stuff that can only be had on a certain planet. I guess civilizations might fight for control of large bodies such as a neutron star that has neutrino jets or a black hole at a galactic center (which might be good for vast amounts of computing). They won't be fighting over worm poop that helps you steer spaceships. According to many futurists, advanced civilizations just want to stay home and compute – kinda like us with our smart phones.

We'll eventually encounter other civilizations. I'm guessing finding alien life will be like dating and marriage – initial excitement followed by vaguely interested familiarity.

And finally, a rule of thumb. In the 21st century, the percent weirdness of daily life roughly equals the last two digits of the year. The year 2015 is 15% weird. (We spend all day staring at screens. We have access to all information, and we constantly share information via social media. We can watch anything we want at any time. We're in a constant state of war against nebulous enemies. Cameras and surveillance are everywhere. All this adds up to at least 15% weirdness.) The year 2030 will be roughly 30% weird. 2050, 50% weird. (The rule, following a straight line instead of an exponential curve, probably underestimates weirdness for the last part of the century.) Dibs on the rule – call it the *Rosner Rule*.

Jacobsen: Any thoughts on aesthetics within your framework for understanding the world?

Rosner: Conscious beings are driven by pleasure (and pain). Pleasure is associated with things that are important to survival and reproduction. Perhaps more than any other species, humans get pleasure from learning, because our niche is discovering exploitable regularities in the world. We get aesthetic pleasure from representations of things associated with pleasure, especially when

those representations offer a satisfying hint of discovery or problem-solving.

Kitsch and porn pander to pure pleasure without the learning, while art offers at least the suggestion of learning how to decode the world. At its best, the beautiful also offers insight.

Endorphins shape learning. Jokes are funny because they simulate an abridged learning process. We enjoy music because it sets up expectations of patterns and then fulfills those patterns. (And the rhythm sets up a framework that can keep us in the moment.) Familiarity in our surroundings and predictability in our sensory input helps structure our awareness – we’re all a little like the guy in *Memento*.

Jacobsen: Any comments on informational eschatology?

Rosner: The universe will likely largely stay the way it is for trillions upon quadrillions upon quintillions of years. However, our galaxy will burn out and fall away from the active center after I dunno, another ten billion years or so. (Astronomers say the Milky Way and the Andromeda galaxy will collide and merge in another five or so billion years, but that’s not the issue. It’s when the merged galaxy’s stars burn out that it falls out of the active center.) Perhaps advanced civilizations have ways of surviving the burning-out of a galaxy to persist for more than just tens of billions of years. For us, with our puny conception of things, tens or hundreds of billions of years might as well be forever. When and if the universe does end, probably does so through heat. Heat is noise and loss of information. The temperature of the cosmic background radiation increases and sizzles everything away. The currently active center runs out of juice and falls back into the hot background like Schwarzenegger being lowered into the molten steel in *Terminator 2*.

Of course, for us, the idea of a civilization or entity lasting for billions of years is inconceivable. How could an entity develop and accumulate knowledge for the equivalent of a million lifespans of our current civilization? Well, maybe it doesn’t. Maybe it hits a ceiling of knowledge. Maybe it’s like a security cam setup that keeps only a rolling record of the past 24 hours. At this point, with knowledge of only one civilization that’s only 10,000 years old, we have no way of knowing.

Jacobsen: Deep and shallow recorded human history present numerous examples of prior attempts at absolute definitions of consciousness, universe, and their mutual union. Of course, dust needed brushing along with spooling of the cobwebs, and at least one coat of varnish, of ideas, evidence, and argument to a sufficient level for clarity on these issues.

Rather than pontificate on broad historical patterns, for brief and mundane historical examples, earliest known individuals with works focused on the gods such as Hesiod with *Theogony*, which went through the traditional Greek mythological timeline including the triumphs of Cronos over Ouranos and Zeus over Cronos.

Other sets of individuals comprising schools focused on the schools of philosophy with less focus on gods and more focus on forces of nature. The Milesians took different fundamental compositions of the world while removing the place of the gods with Thales (Water),

Anaximander (*Apeiron* or the indefinite, infinite, unlimited), and Anaximenes (Mist, air, or vapour). Each with views different from before, but monistic (non-plural) and material as opposed to plurality of gods and their caprices. In particular, the worldview of Thales because of the transition between the world of the mythological, allegorical, and metaphorical of Hesiod into the world of reason.

Some of these cosmological speculative philosophies gave rise to political and moral philosophy. These speculations continued to lack comprehensive integration, even with the question-based philosophies of Socrates and the Sophists. Plato and Aristotle provided the most thorough accounts of a comprehensive philosophy covering numerous subjects over many, many writings. This continued onward to the present day with individuals attempting unification such as David Deutsch, David Chalmers, Edward Witten, Stephen Hawking, and so on. Many bright lights in history. How do you assess or grade the attempts at absolute definitions of phenomena such as consciousness?

Rosner: For most of human history, people made all sorts of wrong guesses about the nature of consciousness. It feels so ineffable and deeply, transcendently real – it has to be a bridge to some kind of ethereal beyondness, right? After millennia of this, consciousness has a bad reputation for being associated with la-de-dah mysticism. Mention consciousness, and people get nervous that you’re gonna argue that rocks and trees and entire planetary surfaces are conscious.

But, as I’ve said, consciousness is a technical, not a mystical phenomenon. Human consciousness is all jazzed up – made super-exciting to keep us interested in ourselves – but at base, it’s about shared information forming a mind – a mental arena – because we have a better chance of accurately modeling reality when all our specialized subsystems have a global understanding.

Today, people have a better intuitive understanding of consciousness than ever before. We’re used to working with our devices, which are near-extensions of consciousness – feeding us information at our bidding. We’re fluid in juggling apps – right now, I have 25 windows open on my computer – and can see not a stream of consciousness, but pop-up consciousness – information and specialist systems popping into awareness as needed. We can see that our devices, while not conscious, could become more integrated into our consciousness – heads-up displays as in *Terminator* or fighter jets, for instance – and that smart devices will become increasingly emulative of our thinking. Regardless of whether our devices will eventually become conscious in the manner of hundreds of mostly bad science fiction movies, we see that our devices are capable of complex information processing, which takes away some of the exaltedness of the information processing going on in our heads.

Jacobsen: What makes the Big Bang so convincing? Is it at risk of being replaced?

Rosner: The Big Bang is convincing for lots of reasons. It’s by far the most widely accepted theory of cosmogony among scientists. However, it’s only held this position for the past 50 years. Before the discovery of the Cosmic Microwave Background radiation in 1964-65, it was neck-and-neck between Big Bang and Steady State Theory, which postulated that matter popped into existence in empty space. And before Big Bang and Steady State Theory originated as a

consequence of general relativity and Hubble's Law in the 1920s, we didn't know enough about the large-scale dynamics of the universe for any effective theorizing that I'm aware of.

The discovery of Cosmic Microwave Background radiation was dramatically convincing. In 1964, some guys at Bell Labs built a radio telescope which picked up low-temperature noise they couldn't explain. They thought it might be bird poop on the antenna. Turned out to be light from the early universe as predicted by the Big Bang. Game, set, match for Big Bang Theory.

The Big Bang explains a lot – the apparent velocities of billions of galaxies, the formation of heavy elements, the size and apparent age of the universe, the proportions of elements found in the universe, the relative youthfulness of more distant galaxies.

It's conceptually easy – one big explosion, everything flies apart. Has a catchy name. Is the title of the biggest sitcom on TV.

But it doesn't explain enough. It minimizes cosmic questions, with the main question being, why is nothingness so volatile that it explodes into an entire enormous universe? With enough tweaks, Big Bang theory can explain the mechanics of how the universe exploded out of nothingness, which is kind of satisfying from the point of view of physics, but not of philosophy.

Some problems of Big Bang theory include:

It leaves too many physical constants unexplained – the proton-electron mass ratio and dozens more. The Big Bang in general is not overly explanatory – it only tells you why some stuff is the way it is – how elements form in stars, for instance. (But you can have element formation in stars without the Big Bang.)

Big Bang Theory incorporates assumptions of uniform conditions and constants across the entire universe. This is usually seen as a theoretical strength, but, like the unexplained physical constants, Big Bang theory doesn't completely justify why the universe should be uniform. The philosophical reason, called the cosmological principle, is that we on earth are located nowhere special in the universe, and furthermore, the entire universe is nowhere special. This is a dangerous assumption. You can't just demand that the universe be roughly the same everywhere. What if that's not how the universe works? The Big Bang has that assumption built in. And while the Big Bang assumes uniformity in space, it does no such thing in time. There is no uniformity across time in Big Bang theory – every observer is located at a unique moment in the universe's unfolding.

Some of universe's spatial uniformity is explained by cosmic inflation in the very early universe. According to cosmic inflation, the universe expanded so fast (blowing up by a factor of at least 10^{26} in less than $1/10^{32}$ nd of a second – that is, doubling in size every $1/10,000,000,000,000,000,000,000,000,000$ th of a second or so) that a tiny volume without much room for variation became the entire visible universe, and the rapid expansion also spread out any irregularities. The reason for such rapid inflation isn't known, so cosmic inflation is a little ad hoc.

Beyond cosmic inflation, the Big Bang requires more and more precise, fussy tweaks to agree with increasing amounts of observational data. One would hope that there would be a theory, either an add-on to Big Bang theory or an alternative, which would explain more of the conditions of the universe without having to be tweaked to fit the conditions of the universe.

Our galaxy contains globular clusters – tight groups of a million or so stars – which may be older than the Big Bang. Calculations are pretty equivocal on this – the clusters might not be that old. Meh to the clusters.

Yeah, the Big Bang is in danger of being supplanted. It's pretty much our first try at a theory of the universe based on not hopelessly incomplete observational evidence. Even though the Big Bang is young, it's already accumulated a bunch of patches.

A digression –

Was up late last night, thinking about how active galaxies get to the active center. They can't just light up and slide into the center – what would cause the slide? And they can't just slide out of the center when burned out. I'm thinking maybe it looks like soap bubbles – lit-up galaxies expand enough of the surrounding space that bubbles would be too big not to merge. There wouldn't be walls between bubbles – that's incorrectly extending the analogy – but there would be dark galaxies along the saddles between bubbles. Without being able to contribute to the photon flux that keeps the active center inflated, maybe dark galaxies would slide along the saddle between lit-up regions, back down to the dark outskirts. Could be messy enough to work. Over billions of years, there would be an ordering of regions by brightness – the greatest producers of photon flux would float to the top of the lumpy bubble, and less-bright regions would be pulled down to the outskirts by gravity.

I suppose this would mean you could temporarily be of two minds – thinking of two things somewhat independently – having a pair of incompletely merged active centers in your mind-space – until your thoughts merge. While driving, you're trying to remember your second-grade teacher when another driver forces you slightly out of your lane. Your thoughts about your split-second evasive driving maneuver don't necessarily disrupt your thoughts about second grade. Each pattern of thought informs itself more than it informs the other, unless you then ponder your bifurcated thinking during the incident.

Jacobsen: Who do you consider the three greatest mathematicians/physicists/cosmologists?

Rosner: Darwin is one of my favorite cosmologists, even though he's not a cosmologist. He took the idea of deep time, which was being debated by geologists of his era, and applied it to biology, which indirectly set the stage for the discovery, 60 years later, that we live in a universe that's many billions of years old. Some physicists of Darwin's time argued against deep time, saying stars couldn't last that long. The longevity of stars wasn't explained until the discovery of nuclear fusion.

Newton was the first to describe gravity as the force holding all large objects together, which is a necessary first step in a conceptual framework that encompasses the entire universe. And

Einstein made that framework much more explicit.

Also important are the developers of theories of information, including Alan Turing and Claude Shannon.

Jacobsen: What do you consider the three greatest mathematics/physics/cosmology concepts?

Rosner: I like Mach's Principle, which states that inertia arises from an object's interaction with the stellar background (all the matter in the universe). Mach's Principle has never been turned into a precise mathematical theory, but it's still compelling. If true, Mach's Principle can't mean that an object is directly interacting with all matter as that matter is now, because of the speed of light. The object has to be interacting with its local inertial field which is created by all matter, but with matter's contribution to the field delayed by distance, the same way we can see all the visible stars in the universe but only as they were in the past.

Quantum mechanics is powerful, especially when viewed as the universe observing and defining itself.

And relativity, both special and general and including Big Bang cosmology, is essential, particularly when considered as aspects of how information is structured and how it behaves.

Jacobsen: How does informational cosmology incorporate high level concepts like *The Heisenberg Uncertainty Principle*? How about *Wave-Particle Duality*?

Rosner: Uncertainty and wave-particle duality are aspects of a finite universe having a finite capacity to define itself. Particles will be fuzzy. Say you're playing roulette, one chip at a time. The best you can do, on average, based on whether your chip pays off (and nothing else), is pin down the number that came up to somewhere among half the numbers on the wheel. The universe is like that – it doesn't have an infinite number of chips to lay down to see exactly what comes up. Or have an infinity of photons for particles to exchange with each other. (Though one difference between the universe and blind betting and roulette is that an incompletely observed quantum roulette ball lands in all possible slots. The information isn't there-but-hidden – it's just not there. Black pays off – well, the ball's probability wave occupies all the black slots (unless observed to occupy a specific slot). The universe moves on.)

The universe writes its own history moment by moment. But history is always incomplete. Under the uncertainty principle, you can pin down some aspects of things with as much precision as you want, but this will always be at the expense of other aspects. We're used to feeling that the universe has great solidity and precision because at our macroscopic scales, it does. Our bodies contain nearly 10^{28} atoms. We're big, compared to atoms. We don't generally perceive atomic-scale lack of precision. We're the beneficiaries of living in a universe with something like 10^{80} particles, which define each other pretty precisely but not infinitely so through their interactions.

Inexactly defined particles behave with a certain degree of mystery – of unknown information. This unknownness takes definite forms – probability waves, etc. Defining how unknownness and

imprecision manifest themselves is the job of quantum mechanics. Patrick Coles, Jędrzej Kaniewski, and Stephanie Wehner at the National University of Singapore just proved that wave-particle duality is a manifestation of the uncertainty principle. Dr. Wehner said, “The connection between uncertainty and wave-particle duality comes out very naturally when you consider them as questions about what information you can gain about a system. Our result highlights the power of thinking about physics from the perspective of information.” (Once co-wrote an adult movie about time travel which included a scientist named Dr. Wiener. This is not the same Dr. Wiener.)

Jacobsen: How about *Einstein-Podolsky-Rosen* (EPR) Nonlocality?

Rosner: Existence depends on self-consistency. You can set up situations in the universe in which the discovery of the value of a variable at Point A implies the value of a linked variable at an arbitrarily distant Point B. Every particle interaction is a handshake between two points in time (as seen from points of view that aren’t moving at the speed of light – from the photon’s POV, no time passes). These handshakes are part of how the universe defines itself and maintains its self-consistency. The EPR setup links two such handshakes. The unfolding of time is the setting up and completing of vast numbers of these handshakes.

Jacobsen: How about the possibility of universe operating in something more essential than information?

Rosner: I don’t know what would be more essential (in a practical sense) than information. Information is the pure essence of choice with everything extraneous stripped away. In a binary system of information, it’s just 0s and 1s or whatever you want to call it – apples and oranges, Bens and Jerrys – but it’s all just the choice between two values – what you call these two values isn’t included. It’s no-frills.

However, this doesn’t get at the essence of distinct choices, why something can only be true or not true (Gödel aside), how non-contradiction arises and why it’s the key to existence. We have to work on the logical foundation of existence, including the existence of information, but in terms of how the universe does moment-to-moment business, information is a highly efficient framing device.

While we’re at it, we have to get at the foundation of numbers – how they exist (in an abstract sense that’s reflected by numbers in the material world) without contradiction and with infinite precision. The same logical structures of non-contradiction – the infinite choices of and handshakes between values that allow numbers to work – also allow material existence. (My article about meta-primes in *Noesis* begins to discuss the infinite series of choices among numerical values that make numbers work.

Jacobsen: How does everything in essence equate to a *Turing Machine* in informational cosmology?

Rosner: A Turing machine constructs a picture of reality one finite step at a time. Any finite process or system can be mathematically translated into a series of bit-wise steps – a series of 0s

and 1s. Multiple Turing machines can be married into a single machine – the Church-Turing thesis states that any computable function on the natural numbers is computable on a Turing machine. I'm assuming that the universe (or any information-space) is finite and that possible transitions between states of the universe are computable (given the input of new information to reflect the outcome of events that had yet to be resolved). With these assumptions, subsequent events can be computed by a Turing machine.

Jacobsen: Where one contained armature/universe equals A_2 and another container armature/universe equals A_3 , does A_2 operate on a different kind of time than A_3 ?

Rosner: The armature world and the mind-space world are temporally linked – the mind-space is reacting in real time, but there's no coordination of physical processes – between the speed of light in the armature world and in the mind-space, for instance.

Jacobsen: What can we never know? In other words, what count as, by their nature, mysteries?

Rosner: The universe observes and defines itself. It takes information to get information. There's not an infinite amount of specification to be spread around. There will always be gaps in knowing. Even in a deterministic universe, which ours isn't, you'd need something vastly hugely huge to model the universe.

So our knowledge of specifics will always be at risk of being threadbare. But we can hope to learn more about the general principles of existence. Richard Feynman laid out the possible paths of future scientific knowledge, something like – we figure out the universe, learning just about everything there is to know. Or we fail to figure out the universe – it's just too tough. Or we keep learning more and more but never learn just about everything because what there is to know just keeps going and going.

I think we'll mostly figure out the universe – we'll develop a pretty good picture of the Whys. Our knowledge, however, will always be surrounded by a deep metaphysical chasm of not yet understanding the Whys behind the Whys. There's no absolute knowledge – there's just hope.

It's not an unreasonable assumption that there's an unlimited amount of stuff to know. There are reasons behind reasons behind reasons, and we may never get to the rock-bottom essential nature of things, because there may not be a rock-bottom essential nature. Everything might be bootstrapped and self-referential and the way it is because it can't not be the way it is without being contradictory. You can never precisely draw a fractal or a Mandelbrot set – there's always an infinity of little curlicues you're leaving out. And as you go bigger and bigger and more complex, there are emergent properties and essential stories too big to be contained in smaller information sets.

Having a beginner's understanding of the Whys of the universe is just a first step to learning how to operate within the universe. There will always be infinitely far to go to figuring everything out.

Jacobsen: How does informational cosmology explain *ex nihilo* cosmogony for the modern form

of nothing defined by science *and* the modern philosophical/theological kind of “nonbeing” nothing?

Rosner: In informational cosmology, there’s a reason in the armature world for a mind-space to come into existence. Reasons can be anything that creates a wide-angle information processing system – can be natural, as when our brains form as a fetus grows, could be semi-mechanical, as with us building future sophisticated robots, could be a spontaneous negentropic process (which the billion-year evolution of life on earth can be seen as).

Also, the principles of self-defined information-spaces should generate a roughly defined set of all possible such spaces. If these principles more-or-less completely specify what can exist, consistent with non-contradiction, then anything that can exist, can’t not exist – that is, must exist (though we can only experience one moment at a time, and each moment has to be consistent with its history – we can’t jump world-lines).

So, between every information-space having a reason to exist in an armature world that’s created it and the principles of existence pretty much mandating that information-spaces exist, you have pretty solid justifications for there not being just nothingness.

Jacobsen: With universe as mind and theology as study of the nature of God – in large part, theology becomes informational cosmology, and vice versa. How does this reframe the enormous discipline of theology?

Rosner: If widely embraced, informational cosmology would eventually prompt a whole new mess of unfounded and semi-unfounded belief and misunderstanding. It has a whole set of new and semi-new hooks on which to hang irrational beliefs.

Even if it becomes an accepted theory, not everyone’s going to believe it. I assume our semi-artificial selves of a century hence will be pretty scientific in their beliefs, but there will be many groups that continue to hold traditional beliefs. Figure 14 to 25 billion entities with at least human-level cognition 100 years from now (could be many, many more if independent, individual AIs are all over the place). The majority will hold scientific worldviews, but billions of others will be various degrees of Christian or Muslim or Buddhist.

Informational cosmology contains more Whys than Big Bang theory. Big Bang theory asks you to believe that nothingness is unstable and wants to explode without much philosophical justification. I’d think that people would embrace a theory that, if largely verified, offers more Whys within a scientific framework.

Informational cosmology also offers huge questions to try to answer – is the universe truly conscious? If so, what’s it up to, and what world contains it? How old is the universe? Can civilizations survive the recycling of galaxies? Is there a ladder of worlds? What are some of the other conscious beings scattered throughout the universe up to? Do they participate in the mechanics of the universe? Are three-dimensional space and one-dimensional time structures that all civilizations are stuck with? And a zillion more questions. Some people will try to answer them theologically.

Jacobsen: If you had the opportunity to look at deep human time in an instant, you would see antiquity's graveyard with a small section, where we can find remnants of the great theologians, and these grand figures of theology lie in the grave with some onlookers – no doubt to join – around the graveyard; look close, some found in this grave, some at the eulogies, and others to partake of this cemetery: Abraham Joshua Heschel, Albert Schweitzer, Bahá'u'lláh, Charles Wesley, Clement of Alexandria, Clive Staples Lewis, Eliabeth Stuart, Gordon Clark, John Calvin, John Ronald Reuel Tolkien, John Wesley, Jonathan Edwards, Joseph Smith, Jr., Karl Barth, Ketut Wiana, Leila Ahmed, Marilyn McCord Adams, Martin Luther, Pelagius, Polycarp, Prophet Muhammad, Saint Anselm, Saint Augustine of Hippo, Saint Francis of Assisi, Saint Ignatius of Antioch, Saint Irenaeus, Saint Jerome, Saint Thomas Aquinas, Soren Kirkegaard, Teilhard de Chardin, and so on.

With such a deep background into the realm of ethics in the world of theology, informational ethics provides the basis for theoretical analysis of issues in ethics such as asserted proclamations on ethics in prior times. Application of C^E to each set or subset of proposed ethics; C^E provides the basis for logical analysis of ethics.

How might other pervasive ethics have rational calculation in such a moral calculus from informational cosmology? How might the longstanding tradition of theology work in such a framework? How do some vogue – within the timeline of recorded human civilization's history – assertions of ethics operate in informational ethics such as Christianity, Confucianism, humanism, Islam, Judaism, secularism, and so on?

Rosner: Most ethical implications of informational cosmology probably come from the idea that everything exists within a framework of (technical-not-mystical) consciousness. Consciousness is a big deal – it's the context for everything. At the same time, it is weak – it's technical, not transcendent, and it doesn't transcend death unless abetted by technology. Consciousness is threadbare, it lies to us, and it's not everlasting. At the same time, it's all we have.

We have to assume that respect for conscious beings is important. At the same time, we have evidence that it's not. We know pigs are fairly intelligent and have feelings. At this point, only schmucks would argue that pigs aren't conscious. (Unless they're arguing that no living beings are truly conscious, in which case they're using a completely different (and schmucky) definition of consciousness.) We slaughter pigs by the billions, but there's no proof that this mass killing of conscious beings leaves a metaphysical stain on the universe.

We can go back to existentialism, that the world is meaningless, so we have to build our own moral systems. But we're potentially in a better position than the existentialists confronting a random, spontaneously arising Creator-less universe that contains no inherent moral values. If informational cosmology is correct about conscious information-spaces being the framework for existence that, at least, is a unifying theme for existence. We still have to build our own moral systems, but there's a little more to grab onto than the completely random, coldly purposeless, Big Bang universe.

Consciousness is a mathematically describable, verifiable thing, not just a suspicion of or an ineffable feeling that there might be a thing. And consciousness might be a thing on all scales, up

to the most humongous. We don't know much yet, but there's a chance that our self-built moral systems might eventually get some support, not from some Creator handing down pronouncements, but from the structure of things. If consciousness is embedded in existence, and existence is the default state of things, then there might be reasonable ways to philosophize the problem of how to exist, without just blindly, bravely doing it for the sake of keeping on.

We still have to face that existence is governed by the math-like principles of non-contradiction, rather than being granted by a deity. We may always face the problem that there's not some Ultimate Mover who wants us to exist, but rather that it's up to us to design ourselves to want to exist (after having inherited the drive to exist from purposeless evolutionary processes). But we can be hopeful about consciousness being inherent to existence. The principles of existence won't be able to squeeze the ghosts out of the machine.

Jacobsen: How might this calculate the most difficult issue in the history of theology, *The Problem of Evil*?

Rosner: The deal is, the processes that created us don't have purpose, and they don't judge. We've been created by a history of things happening via natural processes. I think we arose instead of being created by a purposeful being with plans for us. And since there's no planner to keep things in line, to make things nice, lots of things can happen, and some of the things that can happen are horrible. It's up to us to create moral systems which help us decide good and bad and up to us to do what we can to minimize the bad. There's no One in charge; we have to be in charge of ourselves. But we get some help, in that existence seems to be unpreventable. We're in a fight against personal and civilizational and even universal oblivion (our universe, not all possible universes), but existence itself is undodgeable. Existence isn't a fluke, and nothingness is not the default state. There is a fabric of existence (well, not exactly, because where would it exist? It exists the way numbers exist.), a set (a quite likely messy, not-well-defined set) of possible moments of existence, because there can't not be.

Evil, as opposed to bad things happening by accident, involves choice. Something capable of choice chooses to do something bad or to allow something bad to happen. There's no deity in charge who's allowing bad things to happen. But what about the conscious entities who are so much bigger than us that they might as well be gods? In the case of the universe itself, it probably has an idea that the information which comprises its information-space can take forms which are so complicated that they can include worlds with conscious beings and civilizations. However, it's unlikely that the universe would care about beings which are low-level relative to itself and which do not exist in a form of which it is explicitly conscious, unless such forms threaten to impede the universe's information-processing. As for advanced civilizations within the universe, they seem unlikely to go out of their way to prevent bad things from happening on our planet.

So, to boil everything down –

No one is in charge, neither a Creator nor an agent or ethical system put in place by a Creator.

The universe isn't concerned about relatively low-level worlds which form in its information-

space. The universe wants its information-space to process information. It's okay with, and is largely unaware of, whatever happens to specific negentropic forms taken by the information in its information-space – that is, us.

Other civilizations in the universe haven't invited us to join some galactic empire of goodness in which we get help in not having bad things happen.

For the time being, we're on our own in building ethical systems and in trying to minimize evil.

Jacobsen: Do souls exist? How do you define them?

Rosner: Souls exist if you call our conscious selves our souls. If by "soul" you mean a magic ingredient, not information-based, that transforms an unconscious automaton into a feeling, experiencing being, then no, I don't think souls exist. Our consciousness, our feeling that we exist in the world, is a property of how we process information. It's not the result of a transcendent soul that rides unfeeling matter like a little sparkly cowboy or a golden thinking cap on a flesh-and-bone Roomba.

Our soul is what we're feeling and experiencing and the incompletely expressed background to what we're thinking at any given moment. At any given moment, there's a lot we don't consciously know but are comfortable that we could know if we needed to. Our moment-to-moment awareness is somewhat rooted in all our stored knowledge (including feelings associated with that knowledge) that's only unpacked a little at a time. Our being accustomed to knowledge-in-waiting, our at-homeness in the world, our not freaking out that we don't know everything at every moment, is part of what feels like a soul – a generalized feeling of self.

We don't see a painting all at once – we fill it in mentally as our eyes wander over the painting. Similarly, we don't know ourselves all at once. We constantly fill in ourselves about ourselves as our awareness wanders through our stored knowledge. Being comfortable with our normal brain function is part of feeling we have a soul.

We could even speculate that a feeling of comfort with and complacency about our brain function – this feeling of self and soul – might be encouraged by evolution, because it wouldn't do for every organism to be freaking out over every mental glitch. Consciousness is glitchy, and we might have a certain optimum level of glitch-blindness that's consistent with calm, normal functioning. In people suffering from Alzheimer's, failure to recognize mental deficits seems to be fairly common. This could be a manifestation of a normally helpful defense mechanism (or it could be another symptom – a failure in self-perception caused by the Alzheimer's itself).

The speed and precision of perception and thought are also a big part of feeling as if we have a soul. There's a not-uncommon feeling among people who've been on heart-lung machines for many hours during an operation, called "pumphead" or post-perfusion syndrome. Apparently, while you're on the machine, your circulatory system can get gunked-up, and during the month or so after the operation, your brain becomes clogged and strokey. It becomes harder to think and concentrate and control your mood. Some people with pumphead describe it as losing their soul.

And most of us have had the “wrapped in cotton” feeling of reduced reality when exhausted or a little bit buzzed. It’s apparent that degrading brain function reduces the feeling of the authenticity of reality and of self.

Jacobsen: Father Teilhard de Chardin remains a controversial figure to some. In particular, his ideas in *The Phenomenon of Man* (1955) evoked praise, infamy, and even calumny. He had some ideas of note. Ideas in relation to theology and the world. With rich theological undertones, he spoke of an *Omega Point* in the book *The Future of Man* (1964). Does this idea hold merit in informational cosmology?

Rosner: I believe that, as in Omega Point theory, the universe evolves more complicated and effective ways to process and store information, which can include biological and technical evolution. However, I don’t believe in the Omega Point’s teleology, that some god-like entity is the engine of progress, drawing us towards its enlightenment. And evolution doesn’t just progress towards increased complexity; evolution spreads out across all levels of complexity. Bacteria didn’t disappear when humans emerged.

Also, if the universe recycles itself across octillions of years, then life within it emerges zillions of times as a natural consequence of negentropy. (Every solar system is an open, negentropic system, though life won’t evolve in every such system.) So you don’t have a universe relentlessly climbing towards higher levels of complexity; you have a universe in which complexity arises over and over, trillions and quintillions of times. Even if intelligent life arises only once per galaxy, that’s still 10^{11} instances of intelligent life, not even considering the recycling of galaxies. The universe should gradually grow more complex as it accumulates more information, but it could operate just fine with an unchanging amount of information, just as we could.

Jacobsen: What do you see as still needing to be done with Informational Cosmology?

Rosner: Informational Cosmology:

Needs mathematical structure – words translated into equations.

Needs testable aspects and testing – it’s not a theory unless it can be tested. Many of its elements are hard to test observationally – dark matter being collapsed normal matter, there being a bunch of burned-out galaxies in the neighborhood of $T = 0$, the universe being many, many times older than 14 billion years. But these same difficulties pertain to other theories of dark matter and the large-scale structure of the universe. These theories are often tested via mathematical modeling, which could be applied to Informational Cosmology. Fortunately (perhaps), Informational Cosmology is also a model of our minds, which, while not sharing our physical space, aren’t 14 billion light years away and are amenable to observation.

Needs attention. I’m trying to sell a memoir, *Dumbass Genius*, about the dumb things I’ve done, with some of the dumb things being done in pursuit of a theory of the universe. The proposal for *Dumbass Genius* is currently being looked at by publishers. The memoir will be 95% narrative and 5% physics. The narrative is a Trojan horse to get the physics in front of people.

I've hired some PR people, and I'm trying to expand my social media presence, and I will continue to do and say semi-stupid stuff with the hope that this might cause people to accidentally pay attention to my non-stupid stuff.

Needs professionals to look at it. Professional scientists hate this kind of stuff. I'm working on an article titled "On Being a Crackpot." I can tell you that professors don't greet wild, all-encompassing amateur theories with unbridled joy. The standard reaction is, "I'm not even gonna look at your theory. I've dealt with lunatics like you before. Your theory is almost certainly crap, and reading the theory and explaining why it's wrong would be a waste of time because nothing I could say would change your crazed mind. Why did the receptionist even let you into my office?" My best bet is to have my brain transplanted into the body of an attractive young woman and marry Brian Green or Neil deGrasse Tyson or Michio Kaku. We'll get married and have lots of sex and then he'll have to at least pretend to pay attention to my theory. Anyone know an attractive young woman who wants to swap bodies with a 54-year-old man with hair plugs?

Needs further integration – to have its elements combined into a smoothly functioning model of the life cycles of thoughts, galaxies, and the entire mind and universe (preferably with cool diagrams).

Needs to be shown to address shortcomings of currently accepted theories and explain things currently accepted theories don't. A theory which explains why the universe does what it does is preferable to a theory which says, "There was a big explosion, then some cosmic inflation, and now there's some accelerated expansion." Current thinking tends in the direction of, "Asking 'Why?' is naïve – a pinpoint that explodes with vast broken-symmetry energy just is," but a nice metaphysical/mathematical explanation that might also explain why some physical constants are what they are could eventually be well-received.

Needs time and for Big Bang theory to continue to accumulate contravening evidence. Thomas Kuhn, in his classic book about how science works, *The Structure of Scientific Revolutions*, explains that science progresses through a kind of punctuated equilibrium – theories prevail until they accumulate a bunch of anomalies, and then there's a scientific revolution. Big Bang theory has been the boss-man theory of the universe for only 50 years. And before that, we didn't really have a widely accepted theory of universal structure, because all the pieces weren't in place. The Hubble redshift and expanding universe equations of general relativity weren't discovered until the 1920s. We didn't even know that the universe extended beyond the Milky Way until Hubble provided incontrovertible evidence in the 20s. So we've had this one theory for not too long – basically our first and only theory based on decent information about the universe. (There was Steady State theory, but it was never boss before getting swatted down by observational evidence.) Big Bang's getting a little creaky – needs a lot of add-ons and geegaws to account for the results of observation.

The Big Bang will eventually be replaced, but it won't go away, the same way Newton's gravitation didn't go away – it became part of the larger conceptual framework of general relativity. The universe will always appear to be Big Bangy due to the nature of information. Informational cosmology still has the universe blowing up, but just a little at a time. (And by

little, I mean maybe at an average rate of around ten galaxies a year.)

Jacobsen: Would you ever have theorized without your outlier background?

Rosner: The background definitely helps. Can imagine many different destinies – resentful math teacher, divorced unsuccessful novelist.... But think those versions would do some theorizing, too. Maybe not as much as this version. And they certainly wouldn't have had this forum.

Jacobsen: Do you see a difference between common sense and intelligence?

Rosner: It's an old question which has an element of what might now be called nerd-shaming. It implies that regular people with common sense can get along in the world, while you, Nerd, with your so-called intelligence, have a hard time with things such as sports or getting a girlfriend or not dressing weird.

As a nerdy kid, I ran into this attitude fairly often, with people saying, "Well, you may be a brainiac, but I've got common sense." This reflects a lost world of nerds being somewhat isolated from regular people. Today, tech forces us all to be nerds to some extent, all searching for the new best practices for living.

Jacobsen: What do you most regret?

Rosner: I regret squandering time on some stupid stuff – all the *Gilligan's Island* and *I Love Lucy* reruns I watched as a kid, the crazy amount of time spent suing a quiz show. (My lawsuit was justified, but it ate up a lot of time.) I regret not being more skeptical of medical procedures which turned out to be unhelpful at best – varicose vein stripping, CT scan.... I regret not being born a couple decades further into the future. I regret not becoming wildly handsome in my 20s.

Jacobsen: You live among an interesting cohort, no doubt. A group of individuals among the elite of intellectual abilities. What of the ethics of forming elite organizations – "elite" by admission standards? What about joining them? What about the possibility of some exploiting concomitant assumed authority of an individual or group? Perhaps some of those in the ultra-high IQ community make a conscientious choice – moral choice even – to not join such societies. Insofar as the ethics of forming, joining, and sustaining elite groups, what of the possibility of ultra-high general ability individuals choosing to not enter?

Rosner: There are probably more hyper-intelligent people not in high-IQ societies than in them. Smart, highly successful people tend to be more involved with the things that made them successful than in exploring their mental skills.

But there's not a super-high correlation between intelligence and success, especially at the highest levels. Many high-IQ people have pretty normal lives and jobs. Some of them find high-IQ societies, where they can get a little recognition and interact with people who have meshing interests. People turn to high-IQ societies on social media for the same reasons people do anything on social media – recognition and sharing. Social media makes it easier to join high-IQ societies – every two or three months, I'll be emailed that I've been added to some high-IQ

group. Because they're easy to join, quite a few people belong to high-IQ groups on social media, which means that such groups consist largely of nice people who are delighted to have online friends.

Jacobsen: You suffer from the attention and invective of internet trolls. Trolls come in many variety within the flora and fauna of internet life. I hear they feed on a combination of foaming at the mouth and others' time – at least in their natural habitat. Unfortunately, they're like starfish. If one chops the poor little echinoderm to pieces – or like the story of the wizard from Fantasia with the shredded broom, they have a "population explosion" and emerge with greater force and invective than ever before. Do you have any responses for the harsh internet crowd? In other words, what comes across with the highest frequency? How do you respond to them?

Rosner: Arrogant – Well, I'm really good at IQ tests. Does that make me a snotty jerk? I hope not. Do I know what's best for people or have a plan for remaking society? No. Do I want to be the boss of everybody? No. Do I think I'm really smart? Kinda, but my Twitter handle is [@DumbassGenius](#), not @geniusgenius, which shows at least a little modesty.

Weirdo – Yes, I'm kind of weird – not weird just to be weird, but weird because I'm used to figuring out on my own how to do stuff, and often this figuring works out oddly. And even though I do weird things like go to the gym five times a day, I also do normal, responsible things like stay married for 23 years and be a dad and hold down jobs more successfully than most people in my profession.

Loser – If you've read that I'm a high-IQ bouncer and stripper and nude model, that's kind of loserish. Very loserish. But I've also been a TV writer and sometimes-producer since the late 80s. I've written for more than 2,500 hours of broadcast television, including the *Emmys*, *ESPys*, *American Music Awards*, *Grammys*, and *Jimmy Kimmel Live!*, earning seven Writers Guild Award nominations (one win) and an Emmy nomination. I've gotten a lot of material on TV. As I've said before, I'm married and a dad, which is important. I've got a memoir that's being shopped around, and I have a theory of the universe. So, not entirely a loser.

Obvious hair plugs – Yes, you can tell that I have hair plugs. They're not the worst plugs in the world, but they could be better. I started getting them in 1989, before the technique had been refined, so they're a little clumpy. But they're better than no hair, and if you didn't know what you were looking for, you might not notice them.

Why should you listen to me? – I've been trying to figure out how the universe works since I was ten, and I've had a decent foundation for a theory for more than 30 years. I might be onto something. Current big bang cosmology is getting a little threadbare. A very, very, *very* old universe explains a lot of stuff.

You were very concerned about losing your virginity – Sex is kind of a given. Unmarried couples live together without social censure, everyone's saturated in porn and sexualized images, everyone suspects the worst about everyone else in terms of sexual behavior. But as a population, we're just about fatter than ever, there are a zillion other things to besides sex, and people in general don't seem overly concerned with having sex, at least not as much as in the

70s.

Jacobsen: Provisions for principles of existence would equate to the *language* of existence, and therefore one can derive the more appropriate, direct, and proper phrase “principles of existence” rather than “laws.” We have more derivations from defined principles of existence:

Principle One: universe operates within limits of complexity. Any further complexity will likely deteriorate into optimal simplicity. Universe among logical possibilities of the set of universes bound by optimal simplicity.

Principle Two: relevance/irrelevance, information of relevance will occupy or begin to occupy the active center; conversely, information of irrelevance will not occupy or begin to not occupy the active center.

Principle Three: *The Persistence Project* divides into *The Statistical Argument for Universe* and *The Statistical Argument for Consciousness*. Universe cannot not exist; consciousness cannot not exist. Therefore, the non-absolute high probability for existence, and persistence, of universe and consciousness.

Principle Four: informational cosmology implies informational ethics in a progressive argument. Where I_c equals informational cosmology, S_u equals *Statistical Argument for Universe*, S_c equals *Statistical Argument for Consciousness*, P equals *The Persistence Project*, C^E equals “existence-valuing principles,” and I_e equals informational ethics, we can construct one conditional argument to derive informational ethics from informational cosmology: 1) $I_c \Rightarrow (S_u \wedge S_c)$, 2) $(S_u \wedge S_c) \Rightarrow P$, 3) $P \Rightarrow C^E$, 4) $C^E \Rightarrow I_e$, 5) I_c , 6) $\therefore, I_e$. Therefore, one acquires values consistent with the facts of existence: “existence-valuing principles” or C^E . David Hume’s *is/ought* fails. A distinction exists between them, but facts imply values.

Principle Five: universe/mind symmetry, universe as mind based on net self-consistency and information processing. Units of sufficient individuation in universe with self-consistency and information processing as minds too.

Principle Six: universe (M_n) implies armature (A_n); if armature, universe. Universe equates to information processing; armature equates to material framework/processor: ($A_n \Rightarrow M_n$).

Principle Seven: armature and universe construct mind-space: ($A_n + M_n = S_n$).

Principle Eight: net self-consistency and information processing equates to consciousness. This reflects *Principle Five*. Sigma, $\sum$, self-consistency, S , times, $*$, sigma information processing, $\sum I_p$, would equal mind-space, S_n , where mind-space equals information-space, I_s : ($\sum S * \sum I_p = S_n = I_s$).

Principle Nine: universe as conscious: ($A_n \Rightarrow M_n$); $\therefore, (A_n + M_n)$; ($A_n + M_n \Rightarrow S_n$); $\therefore, (A_n + M_n = S_n)$. In addition to this, we have the inclusion of *Principle Eight* to derive the same conclusion about mind-spaces, S_n : ($\sum S * \sum I_p = S_n$). Armature implies universe; therefore, armature and universe; armature and universe imply mind-space; therefore, mind-space; armature and universe

construct mind-space, and net self-consistency and information processing equate to mind-space. Consciousness equates to net self-consistency and information processing; universe equates to these too. Therefore, universe equates to consciousness endowed system.

Principle Ten: consciousness at every magnitude exists in finitude and with non-mystical/technical construction. Informational cosmology lacks infinities and describes finites. Information constructs consciousness based on information processor and net self-consistency with finite capabilities. Subsystems internal to universe partake of this consciousness too, but not to the same degree. Units of sufficient individuation in universe with net self-consistency and information processing have consciousness proportional to sum of self-consistency times sum of information processing. Therefore, universe and multiple subsystems in universe have consciousness or equate to minds.

Beyond the foundational elements of informational cosmology laid out in this interview, and the first- and second-order derivations with informational ethics and other areas of discourse, what further realms of investigation have a possible future of analysis within an informational cosmological and informational ethical perspective?

Rosner: One big field that will open up in during the rest of the century is what our drives should be, as we develop the ability to modify our drives and desires.

By the end of the century, there will be much inquiry about how to merge minds and how connected minds should be. There will be a whole new field addressing issues of mental connectivity. In some communities, people will want to stay completely unmerged. In others, people will try to achieve complete merging.

A critical field will be modeling AI and predicting its behavior. You need a mathematics of consciousness to understand AI. Out-of-control AI could be the greatest threat in history. A related field will be the design of artificial awareness.

There will be the field of informational structure – trying to figure out what the universe and other such systems are doing with information by looking at the distribution and behavior of matter. Can we get any idea of what's in the mind of the universe?

Technical resurrection will be an area of inquiry and development – preserving consciousness after the body is gone, attempting to reconstruct and simulate the minds of people from history. We'll have better and better iterations of Austen, Lincoln, and Shakespeare – all the usual holodeck suspects.

Beyond the physics of information-spaces, there will be the mathematics of information-spaces, which will go farther into the abstract and general properties of self-defined spaces, along with set theory as it applies to the set of all such possible spaces, the connections and transformations among members of the set, the level of infinity that describes the set, whether it's a well-defined set, and so on.

Then there's the cultural analysis of how we'll be affected by thoroughly understanding

consciousness. Most people probably believe that consciousness is produced by the brain, but the culture shock may not fully set in until consciousness is fully dismantled and replicated. How people feel and behave when they're no longer more divine than their devices will have to be studied.

Jacobsen: In the current climate of excess sensitivity tied to a reactionary institutional culture and subsequent radical conformity – in irony, I do not wish to offend anyone; however, institutional analysis does have value for us: internally, to Academia, various filters through achievement measurements (BA/BAA/BBA/BSc, MA/MBA/MPA/MSc, JD, MD, PhD, Post-Doctorate, and so on) and organizational-structural apparatuses operate for academic peers to consider standards high and one another proficient in relevant material under research; externally, to independent researchers and scholars, these can prevent innovation, hinder creativity, foster intellectual docility and acquiescence, and exclude bright and qualified outsiders (even geniuses) – to claim otherwise would consider academics of an angelic form. Both perspectives valid and compatible. It sounds good in an introductory course for particular ideals to have statement; however, we must face facts in the following reflection. We must speak without prevarication. You do not have academic awards, grants, honors, titles, or persuasive associations such as authoritative academics/institutional connections. If correct, and if someone in mainstream Academia stole these ideas, arguments, calculations, and original conceptualizations, you have little recourse for intellectual copyright and plagiarism.

Your defence would hold little weight, especially with the possibility of defamation, character assassination, and other tenth-rate tricks to discredit an individual rather than consider the claim of plagiarism on truth or falsity of the claim. No internal colleague, principal investigator status (or laboratory), faculty, external department, research institute, ethics board, administrative authority, or university at large to likely remedy such a possibility. The Academy tends to work in a closed way for accreditation and peer recommendations. You live and work outside the university system. Any thoughts on such an outcome? You developed this theory for over three decades. Any words for someone with intention of surreptitious pilfering of even your crumbs? Those with a wolf heart, modicum of talent, but starved for anything with a resemblance to this conceptual bread of life based on avarice and a gnawing hunger for academic, and eventual popular, glory.

Rosner: I have one good defence – some of this stuff turning out to be true. If it's true in a big way – if it's picked up and verified by the world, someone will put me in the story.

My wife and I go to couples counselling every three or four weeks, and we discussed this in our last session – what happens if my book doesn't get published, if I don't get recognition, if 30 years from now I'm a frustrated old man whose ideas have become accepted but whose authorship isn't generally recognized. My wife and our therapist and I agreed that would suck.

And yeah, my credentials are: not-great stripper, epic catcher of fake IDs, legendary goer-back to high school, nude art model, compulsive overachiever on IQ tests, and writer of jokes for late-night TV. But there's a story there. William Blake said, "The road of excess leads to the palace of wisdom." My excess hasn't been that excessive, but it hasn't been what everyone else has done. Charles Darwin took a five-year trip on the Beagle. He saw eroded landscapes and

thousands of species. He thought about it for 20, 30 years. His exceptional life experience plus extended thought lead to the greatest unifying theory in history – the earth's geology plus the vastness of organic variety equals deep time. I like to think that exceptional personal experience plus extended thought can, even in the era of Big Science, lead to a great unifying theory.

I currently have sort of a PR person and next month will hire another PR person. My story will get out there. Eventually, established scientists will consider it. Will someone be able to steal it? At this point, my best chance for this not to happen is for me to keep talking and writing about it in my goofy way.

Dr. Evangelos Katsioulis, MD, MA, MSc, PhD: Giga Society, Member; Consultant Psychiatrist, Psychotherapist, and CEO & Founder, Psycall.com; World Intelligence Network, Founder & CEO; IQ, GRIQ, CIVIQ, HELLIQ, OLYMPIQ, IQID, GREEK IQ Societies, and Anadeixi, Founder; Scientific Associate, School of Medicine, Medical Biology, Aristotle University of Thessaloniki

2015-01-01

Interview with Dr. Evangelos Katsioulis, MD, MA, MSc, PhD. In the following, he discusses: childhood through adolescence into young adulthood with extraordinary giftedness, some activities and memories from youth, and some distinctions in physics and medicine; highest national and international intelligence scores, first place in the Physics National Final Exams (Greece, 1993), Cerebrals NVCP-R International Contest (2003), and the Cerebrals international contest (2009), and examples of philanthropy through creation of high-IQ societies of varied rarity for entrance (first through fifth standard deviations); proposal for alteration to the educational system; identity crisis as the main global problem with discussion; building and running a society in the design of Plato; moral, intellectual, emotional, and spiritual development; the merger of machines and biology; the ultimate relationship between mind and reality; Genius of the Year Award – Europe in 2013 with reflection on desire for improving the life quality of others; and clarification on the term “miracle” and thoughts about the maximization of every moment in life.

Scott Douglas Jacobsen: How did you find developing from childhood through adolescence into young adulthood with extraordinary giftedness? Did you know from an early age? What events provided others, and you, awareness of your high-level of ability?

Dr. Evangelos Katsioulis: Thank you for your question. Well, I didn't have any forehead mark indicating that I have any special abilities, so my childhood was mainly full of activities that I enjoyed, such as reading literature, solving math, logical problems and puzzles, getting involved in discussions with adults and having rather many questions. I can recall an instance that I was a little boy and I made a reasonable for me at that point assumption that given that the white sheep produce white milk, the black ones should produce cocoa milk. I should emphasize that I enjoyed more spending my time on my own instead of socializing, which lasted till my adolescence. Teachers' feedback was positive and promising at all stages of my education. At this point, I should mention that I am very grateful to my parents, both teachers of the Greek language, who provided me a variety of mental stimuli and a proper hosting setting for my interests. During my adolescence, I had a distinction in the national Math exams in 1990 and in the national Physics Final exams in 1993 among some thousands of participants. I was successful to enter the School of Medicine on my first participation in the entrance exams in 1993 and I was one of only six successful candidates who sat for the exams for the first time.

Jacobsen: You scored some of the highest intelligence test scores on record, nationally and internationally. In many cases, you scored the highest. For some of your scores on these tests, I

recommend readers to your website: katsioulis.com.

You competed in the *Physics National Final Exams* (Greece, 1993), *Cerebrals NVCP-R international contest* (2003), and the *Cerebrals international contest* (2009). You earned the best performance in all three. In light of this, when did you find your first sense of community among fellow ultra-high ability individuals?

Katsioulis: Thank you for the impressive introduction to your readers. My ranking on the Physics National Final Exams is mainly the result of hard work and personal interest in Physics. Having scored quite well in some IQ tests and contests, I joined many High IQ Societies since 2001. I noticed that there were some difficulties in their proper functioning minimizing interactivity and subsidizing creativity. Therefore, I took the initiative in 2001 to form a pioneer organization focused on promoting communication and enhancing productivity for the individuals with high cognitive abilities. This organization is the World Intelligence Network, (<http://IQsociety.org>), standing as an international collective entity dedicated to foster and support High IQ Societies. Currently, 48 High IQ Societies are affiliated with WIN. Furthermore, I formed 5 core High IQ Societies covering cognitive performances from the 1st to the 5th standard deviations above the mean (IQ 115 to IQ 175, sd 15), (QIQ, <http://Q.IQsociety.org>), (GRIQ, <http://GR.IQsociety.org>), (CIVIQ, <http://CIV.IQsociety.org>), (HELLIQ, <http://HELL.IQsociety.org>), (OLYMPIQ, <http://OLYMP.IQsociety.org>), one High IQ Society only for children and adolescents (IQID, <http://Child.IQsociety.org>) and one only for the Greek people (<http://IQsociety.gr>). Last but not least, I started a Greek NGO about abilities, giftedness and high intelligence named Anadeixi (<http://aaaa.gr>).

Jacobsen: If you could, how would you change the educational systems of the world? In particular, how would you develop an educational system to provide for the needs of the gifted population?

Katsioulis: The development of a more personal, more accurate and proper educational system is one of the target goals of Anadeixi. I strongly believe that not even 2 different persons can have the exact same profiles, characteristics, needs, personalities, interests, abilities, backgrounds and goals. Imagine the diversity and variety of the students' profiles if you expand this hypothesis including all the students of any educational system. Any person is different from any other and should be treated as such. It is rather an unfair, conforming generalization all of the students to participate in the exact same educational program. There should be an introductory level of the basic sciences offered to anyone and on top of this an additional specialized education program based on the personal needs and potencies of any of the participants. Anyone should know how to read and write, to make simple math calculations and to have some basic awareness of history, geography and the rest main fields of knowledge. However, some of the students have specific preferences and interests and the educational system should take these into consideration and respond accordingly. Regarding the structure of such an educational system, there could be a 2-dimensional. The horizontal axis may include all the special fields of science, knowledge and interests and the vertical axis may demonstrate the various levels of performance and awareness. Thus, any participant can be allocated to the proper horizontal and vertical places based only on his interests, preferences, goals and current expertise and awareness. In such an

educational system structure, there is no place for any age or other restrictions or limitations.

Jacobsen: What global problems do you consider most important at the moment? How would you solve them?

Katsioulis: Identity crisis is the main global problem. People lost their identity, their orientation, their life quality standards. They don't care about who they are, they develop personalities based on the mainstream trends, they play roles and they waste their lives in their attempts to adjust to what some few others expect from them and their lives. People have neither time nor any intention to realize what life is about. They are born and live to become consistent and excellent workers, minor pieces of a giant puzzle for some few strong people's entertainment purposes and benefits. Therefore, they don't care about the quality of their lives, about other lives, about relationships and the society in general, about our children's future. It is indeed a pity, however it is a fact. Education could be helpful towards self-realization, awareness, knowledge, mental maturity, overcoming any external restrictions and limitations. As I usually say to my psychotherapy clients, the solution to any problem is to make a stop and one step back.

Jacobsen: Generally, many interacting systems operate in societies: political, economic, religious, corporate, educational, and so on. If you could build and run a society, how would you do it?

Katsioulis: I would say no more than what a great ancestor said 25 centuries ago. Plato suggested an ideal society based on the special abilities of the citizens. The most capable ones should be leading the society functions, the strongest ones should help with their physical powers, a meritocracy should be in place. We should all contribute to the society well-functioning, if we intend to live in the society and benefit out of it. The definition of one's prosperity should be defined only in the context of the society prosperity. If we act against our nest, how should this nest be beneficial, protective and supportive for us. We often see people who have no other than marketing skills or powerful backgrounds to guide societies, decide about millions of people, control people's future, when many capable and talented others live in the shadow. The most important element in any society is the citizen and people should realize their power. There is no society without citizens, there are no rules without people to follow them. People can claim their right to live their ideal society.

Jacobsen: If you do consider a general moral, intellectual, spiritual, and emotional progression or development, how do you view development from the basic to most advanced levels at the individual and collective level?

Katsioulis: [This is covered above]

Jacobsen: Do you think biology and machines will merge? If so, how might this happen? Furthermore, how far would integration occur?

Katsioulis: We do control machines (for now), however we cannot control or overcome biological rules. Machines could substitute some missing, mistaken or dysfunctional biological structures, however we are in no position to support artificial life at least for now. Having in

mind the science progress and knowledge advancement within the last century, we may soon manage to understand much more about life and even copy biology principles creating a kind of life. There are no limits in this integration. From your question, I could assume that we both like science fiction movies.

Jacobsen: What is the ultimate relationship between mind and reality?

Katsioulis: Mind is an advanced personal processor, responsible for the perception, reaction and adjustment in reality. We need mind to live our reality. I suppose we all know what is the condition of a body with a non-functioning mind. Reality is an objective and independent set of conditions, events, happenings, incidents, people, principles, facts. Our mind personalizes this objective information to a subjective representation in us. Mind function is influenced by factors, such as perceptual ability, reasoning, previous knowledge and experiences, psychological status and mental state. For instance, we have all been present in an event and our understanding of what happened may significantly defer from what anyone else present states. So, we need mind to live our reality and we need reality to use our mind.

Jacobsen: You earned the *Genius of the Year Award – Europe* in 2013 from PSIQ. In your one-page statement on winning the award, you say, “I believe in the power of human mind and my works contribute to the facilitation of mind expressions, promotion of creativity and enhancement of productivity for a better life quality for everyone. Maximizing outcomes based on the appreciation and utilization of people’s potentials for the benefits of any individual and humanity in general.” What motivates this passion for improving the lot of others?

Katsioulis: Life is a continuous claim of happiness and satisfaction. There are plenty of distractions and attractions in life which can mislead and redirect people causing disorientation, targeting fake goals and resulting to low life quality. I am passionate with people and communication and that is the main reason I chose to be a Psychotherapist, Psychiatrist and a Founder of some communities and networks. I believe in self-awareness, self-appreciation, self-confidence and self-determination. Offering people an opportunity to look into themselves and grab the chance to evaluate their lives, attitudes and interests, is a challenge for me. I have undertaken this procedure myself and I offer the exact same to anyone interested. I support people and I believe in their abilities, talents and specialties. Psychologically speaking, I may provide what I would appreciate to have been provided.

Jacobsen: As a final note to your award statement, you state, “Humans are biological beings, life is a mystery, creation is still unknown. We live a miracle and we can only maximize this miracle’s impact in every single moment of our existence.” What do you mean by “miracle”? Can you elaborate on the maximization of every moment of our existence?

Katsioulis: Allow me to clearly mention that I do not wish to support any specific religion with my statement. I have the feeling that the advanced and complicated structure and function of life, considering even only a single cell, is itself a miracle. I am using the word ‘miracle’ since mathematicians have proved that it is rather impossible all cell components to accidentally find themselves in the proper position and start functioning as a cell within the total duration of universe existence. So the time elapsed since the creation of universe supports the non-

accidental, thus miraculous nature of life. The specific rational for this miracle, a specific power, God, destiny, even the nature itself, has been a fascinating topic for many other specialists throughout all human history.

The maximization of our life moments is a quality term, used to define appreciation of our time, life satisfaction and happiness. Since we know nothing about the reasons of our existence, we may solely take advantage of the fact that we are alive and experience the most out of it. In this context, we need to define what makes us excited and content and we should target and claim satisfaction and happiness.

Paul Cooijmans: Independent Psychometitor; Administrator, The Giga Society; Administrator, The Glia Society (Part One)

2015-07-01

*Interview with **Paul Cooijmans**. Independent psychometitor and administrator of The Glia Society and The Giga Society. He discusses: main personal work, information from personal websites, three main websites, and presentation of personal information, publications, and societies, numerous, diverse interests centered in high-range intelligence and its measurement, and family background with respect to geography, culture, and language; the influence of these on development; and additional influences and pivotal moments in major cross-sections of early life including kindergarten, elementary school, junior high school, high school, and undergraduate studies (college/university).*

Scott Douglas Jacobsen: Your main collections of personal work and information come from personal websites. [\[1\].](#)[\[2\].](#)[\[3\].](#)[\[4\].](#)[\[5\].](#)[\[6\]](#) Of those with an interest in this, the three main websites provide plenty of collected works on subject matter of interest to you. [\[7\].](#)[\[8\].](#)[\[9\]](#) You have presentation of personal information, publications, and societies elsewhere. [\[10\].](#)[\[11\].](#)[\[12\].](#)[\[13\].](#)[\[14\].](#)[\[15\].](#)[\[16\].](#)[\[17\].](#)[\[18\].](#)[\[19\].](#)[\[20\].](#)[\[21\].](#)[\[22\].](#)[\[23\].](#)[\[24\].](#)[\[25\].](#)[\[26\].](#)[\[27\]](#) One can find numerous, diverse interests centered in high-range intelligence and its measurement. [\[28\].](#)[\[29\].](#)[\[30\]](#) To begin this conversation, in terms of geography, culture, and language, where does your family background reside?[\[31\]](#)

Paul Cooijmans: My family is from the south of the Netherlands, from the eastern part of the province of Noord-Brabant, and of a Roman Catholic non-intellectual working class background. My first language is the local dialect as spoken in the village of Lieshout. I learnt Standard Netherlandic later, in primary school. People in this region are anecdotally said to be Burgundians, meaning they are keen on the good life, food, wine, beer, and feasting, but it is uncertain to what extent they are genealogically descended from the Burgundians (this part of Europe did belong to the Duchy of Burgundy in the past). In any case, most inhabitants of the south of the Netherlands are of Frankish descent, and many, including us, are descendants in line of Charlemagne; the Franks settled here in the early Middle Ages.

Jacobsen: How did this influence your development?[\[32\]](#)

Cooijmans: The influence of this family background lies mainly in the non-intellectual and social aspects. In this milieu, only physical labour counts, and any kind of intellectual activity is looked down upon, is not respected, not considered work. Studying, and certainly anything beyond secondary school, is not encouraged but seen as “not for our kind of people”, and it is customary and expected to leave school early and find a job. There is no understanding of the fact that one may have talents in intellectual fields, and that pursuing those may lead to societal success and social mobility. These things have changed meanwhile, and I am probably one of the last generation to grow up like this.

Regarding social matters, one is not taught social and communication skills, including manners and self-care skills, as required in highbrow or posh circles, so that one is unlikely to end up in

the right company to get on in life, to end up in the nepotistic networks where the jobs and the money are divided. In fact, I only just escaped needing dentures in early adulthood; in my family it was usual to have one's teeth pulled and get artificial ones by one's mid-twenties. This, too, has changed now, but my childhood fell just in the days when customs and standards of the 1950s and before had not disappeared yet. The circumstance that my parents were already over forty at my birth will have contributed to these old-fashioned, almost anachronistic conditions.

Being an intelligent child from a non-intellectual background as just sketched, I was an outsider both in my family and in the outer world. I was on my own and had to invent and discover for myself how to get through the maze of life, in the absence of any guidance or beaten path. The overall effect of that is a being slowed down in one's development, leading to late-blooming. A good analogy for that can be seen in the land speed records for freely moving vehicles ("cars") as opposed to vehicles guided by a rail ("trains"); the former is only just over the speed of sound, the latter more than ten thousand kilometres per hour, so about eight times as fast. With guidance, one is clearly faster. However, when moving into unknown terrain, there can exist no guidance. There lie no tracks on land where no man has gone before.

Jacobsen: What about influences and pivotal moments in major cross-sections of early life including kindergarten, elementary school, junior high school, high school, and undergraduate studies (college/university)?^[33]

Cooijmans: This is a very broad and comprehensive question, so the answer is according:

The educational system in the Netherlands is not the same as that in the United States, and its components can not necessarily all be mapped on to the American concepts in the question, but I did go to kindergarten, primary school, secondary school, and the conservatory (academy of music). A fact that has been influential is that, in those days and in the area where I grew up, there was no notion of "gifted children", and therefore no special attention to such, no dedicated classes where one was among intellectual peers, no "enrichment" or acceleration or how one calls it. All of that came about a decade too late for me. I think it could have made much difference. For a highly intelligent child, to be put through the same curriculum at the same pace in the same classroom as dozens of age peers of much lower ability, that is about the cruelest form of child abuse imaginable.

The first day in kindergarten – late in the summer of '69 – was a pivotal moment; it ended my freedom. I hated being forced to go to school, I was attached to being boss over my own time and activities. I have hated school every single day from then on to the end of secondary school. I strongly felt no one had the right to tell me what to do and claim my time and mental focus. Only decades later I would learn that this is typical of Asperger syndrome, and that Hans Asperger described it in his 1944 article, which I summarized in English in 2009. It is the being self-driven, only feeling well when doing things that come from within, not being able to bear being steered. It is an anarchism from the inside.

A telling example of my way of apprehending the world took place in these kindergarten years: The teacher asked us to make a drawing of little cupboards filled with clay. I set myself to it, although drawing was not my strongest side. When all were ready, our drawings were compared,

and to my utter astonishment I was the only one who had got it right, who had actually drawn little cupboards filled with clay! All the other kindergarteners had, by some bizarre misunderstanding, drawn a man; a big black man, with boxing gloves on. For background information, it may be good to mention here that the Netherlandic for “little cupboards filled with clay” sounds almost exactly like “Cassius Clay”, the name then still being used for Muhammed Ali, who had defended his world championship title the night before.

Primary school was fairly thorough in those days, especially in a small village where the school had priorly been run by nuns; there was still one nun left at that time. I was excellent at all subjects except for music, gymnastics, drawing, and manual training. When returning after a two-week illness, the class was taking a very difficult examination for which I had not been able to prepare, but the teacher let me try it anyway. Another pupil who had also been ill was told, “No, you had better not take the test without preparation. We are not all called Paul Cooijmans!” It turned out the exam was so hard that, apart from my perfect score, everyone failed and had to redo it. In that period, as well as later in secondary school, it was common that, when a teacher asked a difficult question to the group, a remark would be added along the lines of “Paul does not need to answer, he always knows everything”.

It was during the primary school years that I developed a scientific mind, a desire to know and understand all there is. My greatest interests were astronomy, physics, and chemistry (none of which was taught at school) and I was fascinated by the theory of relativity. I read any books I could get from the library about such matters, independently of school, and was aware that I knew far more than I was supposed to. In fifth grade, the teacher – the nun – told us that the sun was the biggest star; obviously I knew that was not true, but said nothing, thus saving her the embarrassment of being corrected by a child. I mention this to illustrate I was not only intellectually superior to my environment, but also had the emotional maturity and constraint to handle my being thus, in defiance of the prejudice of “high I.Q. equals low E.Q.”

For secondary school I had to travel to a nearby city, 8 to 9 kilometres twice daily on a bicycle. Children were much coarser, ruder, and more intolerant there, and there were competing street gangs. My bicycle got stolen once, under the eyes of a few students. A bystander proposed to steal a new one for me for fifty guilders, and they were genuinely amazed when I refused that kind offer. The next few years, basically my puberty, were the worst period of my life, and I turned to music and started playing guitar and composing, more or less neglecting my scientific interests. Although it went extremely bad with me emotionally, I kept excelling at almost all subjects, again with the exception of those already mentioned. Once on a parents’ evening, the chemistry teacher called me a “unicum”. I also began writing, mainly short stories, and made a film of one of them, a science-fiction horror story called “Liquidatie”, wherein the main character is dissolved in concentrated sulphuric acid. At the end of secondary school I formed a rock band called Catweazle, which would exist, in varying forms, until 1987.

By way of background information, it is relevant that my youth, to my misfortune, fell in the heyday of egalitarianism; no one was supposed to be better than another. There were no honours to be earned at school, and there existed no cum laude predicate when graduating, which I with certainty have deserved. There was also no I.Q. testing of children or students, and no concept of “giftedness” or high intelligence. In short, the hostile and egalitarian environment of secondary

school changed my path from science – my biggest strength – to music and writing.

The conservatory was in an old convent, and a dance academy was housed in the same building, so all in all it was much as in the television series “Fame”. The curriculum was extremely thorough and demanding, and I devoted all of my time and energy to it. I actually studied even in my dreams, which is what happens spontaneously when one is occupied with something constantly. I was particularly good at a subject called counterpoint, which deals with writing melody and polyphony. One day, the teacher wanted us to write the exposition (the first part) of a fugue in baroque style. When I came to the next lesson I had finished an entire fugue. The teacher played it on the piano with all the students sitting around him, as was common. After my piece had died away, there was an unusual silence. When people resumed breathing, the teacher looked at me and asked, “Did you write this?” I said, “Yes”. He said, “Then you must have been moved by the Spirit”. None of the other students had more than a few bars completed.

A bit later, in the early 1990s, my scientific interest returned to some extent, and I occupied myself with an aspect of music theory, making a significant contribution to it (the quantification of discordance, not to be confused with dissonance, and involving the discovery of 96 chords that have never yet sounded). To my frustration, no one I presented it to could fully understand it. “When I see those things, that is where it ends for me”, said my composition teacher, pointing at a radical sign in my work. He would also describe teaching me as “observing an internal process develop”.

Pivotal was also the time when the psychology teacher told us that lying is normal social behaviour, and that everyone does it many times a day. Since I had never lied, that was an extreme insult to me, and I could have killed him on the spot, had it not been for my exceptional emotional constraint; again, one sees that high I.Q. equals not low E.Q. I understood that something had to be seriously wrong with the social sciences if falsehood like that was being presented as established fact. It would take me a few decades more to understand the motivation behind this spreading of lies by people posing as scientists. Around that time I wrote an essay on “giftedness”, as an assignment for psychology class, and an expert in that field whom I consulted advised me to join a certain I.Q. society, which I did a few years thereafter. By that time I was teaching guitar, and as such created a scale to express a guitarist’s level of advancedness. In 1994, that led me to try my hand at constructing I.Q. tests, which seemed to me a logical step. From early 1995 on, that became my main activity.

[\[1\]](#) See Cooijmans, P. (n.d.). Detailed personal information.

[\[2\]](#) See Cooijmans, P. (n.d.). Paul Cooijmans.

[\[3\]](#) See Cooijmans, P. (n.d.). The Giga Society.

[\[4\]](#) See Cooijmans, P. (n.d.). The Giga Society: Introduction.

[\[5\]](#) See Cooijmans, P. (n.d.). The Glia Society.

[\[6\]](#) See Cooijmans, P. (n.d.). The Glia Society: General Information.

- [\[7\]](#) See Cooijmans, P. (n.d.). Paul Cooijmans.
- [\[8\]](#) See Cooijmans, P. (n.d.). The Giga Society.
- [\[9\]](#) See Cooijmans, P. (n.d.). The Glia Society.
- [\[10\]](#) See Self-Growth.com (2015). Paul Cooijmans: High-range intelligence test Expert.
- [\[11\]](#) See Cooijmans, P. (n.d.). I.Q. Tests For The High Range.
- [\[12\]](#) See Morollo, M.K. (2014, August 28). 10 of the world's most exclusive member's clubs.
- [\[13\]](#) See [z457731] (2013, June 8). Is there an accurate online IQ test for measuring 160+ Iqs?.
- [\[14\]](#) See Barnes, H.G. (2015, February 19). Los 9 clubes exclusivos en los que jamás te van a dejar entrar.
- [\[15\]](#) See Cooijmans, P. (n.d.). Paul Cooijmans.
- [\[16\]](#) See Thompson, D. (2015, April 4). We don't think of highly gifted people as mentally disabled. Perhaps we should.
- [\[17\]](#) See Lulu.com (n.d.). Author Information: Paul Cooijmans.
- [\[18\]](#) See Google+ (n.d.). Paul Cooijmans.
- [\[19\]](#) See [irritatedattheprinter] (2014). Aphorisms by Paul Cooijmans-memorable quips for arguing.
- [\[20\]](#) See Volney, K. (2013, September 2). Interview with Paul Cooijmans: Administrator of the Giga Society.
- [\[21\]](#) See [Paul Cooijmans] (2009, February 16). Interview 1999 (Fragment).
- [\[22\]](#) See [Paul Cooijmans] (2009, February 21). Interview 1996.
- [\[23\]](#) See Cooijmans, P. (1996). Video portrait 1996.
- [\[24\]](#) See Cooijmans, P. (1999). Interview 1999 (fragment).
- [\[25\]](#) See Peden, C. (2011, September). Interview with Paul Cooijmans.
- [\[26\]](#) See n.a. (2002). An interview with Paul Cooijmans.
- [\[27\]](#) See Thorbes, S. (2004). Interview with Paul Cooijmans.

[28] See Cooijmans, P. (n.d.). Paul Cooijmans.

[29] See Cooijmans, P. (n.d.). The Giga Society.

[30] See Cooijmans, P. (n.d.). The Glia Society.

[31] See Cooijmans, P. (n.d.). Detailed personal information.

[32] Ibid.

[33] Ibid.

Paul Cooijmans: Independent Psychometitor; Administrator, The Giga Society; Administrator, The Glia Society (Part Two)

2015-07-08

*Interview with **Paul Cooijmans**. Independent psychometitor and administrator of The Glia Society and The Giga Society. He discusses: 1986 to 1993 attendance at Brabants Conservatorium, acquisition of academic qualifications through studies in conservatory, composition and guitar, and additional qualifications in the middle of life including programming (2002), web design (2003-2004), CompTIA Network+ (2004, not certified), Cisco C.C.N.A. (2004), and Basic Bookkeeping (2006), and the interest for formal certification in the middle of life; written musical compositions with personal photography or movies, and other productions, published through YouTube, extensive productions on the main website, and inspiration for musical composition, photography and filming; and personal interests in Asperger's disorder, composition, counterpoint, creativity, eugenics, genius, guitar, human quality, intelligence, justice, running, Tourette syndrome, and truth, with emphasis on the interests in Asperger's disorder, eugenics, genius, and intelligence, and the development of these prominent, relatively varied, but focused, interests.*

Scott Douglas Jacobsen: From 1986 to 1993, you attended Brabants Conservatorium.^[1] You earned one bachelor degree while studying “conservatory, composition and guitar.”^{[2],[3]} You have upgraded personal education with programming (2002), web design (2003-2004), CompTIA Network+ (2004, not certified), Cisco C.C.N.A. (2004), and Basic Bookkeeping (2006).^[3] What produced the interest in these areas of study for formal certification in the middle of life?^{[5],[6]}

Paul Cooijmans: By my own counting, I have two bachelor degrees, to wit one for guitar and one for composition, but I am uncertain if the conservatory counts that way too. The Netherlandic title is “baccalaureus” (abbreviated bc.) and the papers that go with it say I can call myself “Bachelor” (B.) in English. This was the highest degree possible at a conservatory at the time. The programming, web design, and network courses (CompTIA and Cisco) were taken because I was trying to find work in informatics. The bookkeeping course was to be able to do the bookkeeping for my own business, which I formally started in 2005.

Jacobsen: You write musical compositions with personal photography or movies, and publish other productions, through YouTube.^{[7],[8],[9],[10],[11],[12],[13],[14],[15],[16],[17],[18],[19],[20],[21],[22],[23],[24],[25],[26],[27],[28],[29],[30],[31],[32],[33],[34],[35],[36]} You provide extensive productions on the main website too.^{[37],[38],[39],[40],[41],[42],[43],[44],[45],[46],[47],[48],[49],[50],[51],[52],[53],[54],[55],[56]} What provides inspiration for musical composition, photography, and filming for you?

Cooijmans: The musical compositions are written to make others experience how I undergo life, or how my thinking goes, how it feels to be inside my head. I should emphasize that not all of my available compositions achieve this; it is hard to get musicians to play one's music, so that of a huge part of my high-quality work there exist no recordings. The recordings that are available are mostly of pieces that I can play myself or could realize through MIDI, or of pieces that I

wrote because my composition teacher now and then wanted me to write something more simple than my usual work, so that amateurs would be able to play it, and in those pieces I did not always succeed in getting my own sound idiom.

The inspiration for photography was the 1970s Netherlandic television series “Q en Q”, in which a boy by accident photographs a murder victim, not dissimilar to what happens in my favourite film “Blow up”. Photography has only been a hobby, I never reached any level of significance in it, and my talents do not seem to lie in visual-spatial fields. Actual filming I have never done, and I have never owned a film camera. The film “Liquidatie” was shot by a class mate, with me as the director, and almost all of my YouTube videos are collages of still photos. I made those videos primarily to make the music in it available through YouTube and thus reduce the amount of heavy M.P.3 sound files on my own web site. I could just put one photo over an entire composition and leave it at that, but that is too easy for me, I tend to want to make something special out of it, and even include labour-intensive stop-motion animation here and there.

The reason that many photos are of small objects is that my digital camera is from 2001 and only has two megapixels, which is not enough for landscapes or other big things. Macrophotography is what it does best. It still works on the original rechargeable battery.

Jacobsen: According to *LinkedIn* – personal profile, your interests lie in Asperger’s disorder, composition, counterpoint, creativity, eugenics, genius, guitar, human quality, intelligence, justice, running, Tourette syndrome, and truth.^[57] How did these prominent, relatively varied, but focused, interests emerge throughout the years, including ones of some controversy in the modern world, e.g. Asperger’s disorder, eugenics, genius, and intelligence?^{[58],[59],[60]}

First, I would like to add that my original childhood interests lie in fields like astronomy and physics, as said in an earlier answer. While I have not formally studied those subjects, I have attended a number of lectures on astronomical topics over the years, and am looking at the relation between solar activity and human behaviour, which involves both astronomy and psychology.

The other interests emerged at various points in my life: Truth and justice (in the sense of righteousness) are innate dedications; I was born with absolute sense of justice and the inability to lie. This has everything to do with high intelligence, as logic, which is a faculty of intelligence, is the basis of righteousness. Life is an everlasting confrontation with lies, liars, and injustice, so these interests are inevitably stimulated daily whether one likes it or not. It took me decades to figure out that much of the lying, truth-denial, and injustice stems from ideological motivations, and that many believe in lies as a result of purposeful political indoctrination.

Guitar, composition, and counterpoint are music-related interests that began in puberty as already explained. Once having started playing guitar, composing was natural to me, and was the main motivation to learn to play. I was an autodidact until going to conservatory. Counterpoint, the technique of writing melody and polyphony (= multiple rhythmically independent melodies sounding at the same time) is the summit of the development of music. It started in the Middle Ages when Gregorian chant was embellished with extra voices, resulting in organum, cantus firmus technique, Ars antiqua, Ars nova, and then Renaissance polyphony, the highest and purest

form of music. Although still practised and further developed in the baroque era, the harmonic aspect was becoming too important then, and after Bach it has really only gone downhill. This deterioration from roughly the Renaissance to the present day can be observed in other art forms too, especially and conspicuously in visual art and architecture. I link this to a decrease of visual-spatial ability in Western peoples. Musical ability is somehow related to that, in the brain.

In music, melody (= notes sounding after each other) corresponds to thinking, while harmony (= tones sounding at the same time) corresponds to emotion (do notice that I avoid the word “feeling” here, as that would create a confusion with the tactile sense and other forms of physical sensation). The decadence of polyphony into music with more emphasis on harmony, eventually resulting in homophony (= one melody accompanied by harmonies) corresponds to a decline of raw intelligence and overvaluation of emotion. Nowadays, virtually all the music one hears is strictly homophonic, and can be appreciated and created by persons of quite limited ability, as one may observe daily in the popular media.

Interest in the Asperger and Tourette syndromes arose because I appeared to have those conditions. Regarding Tourette, this became clear to me in my teenage years when I saw someone with Tourette in a television program, and at once recognized I had that too. I had been having tics since about age six. I have never received the diagnosis though, because I mainly have the tics when alone. They stay mostly away in the company of others, so a psychiatrist can not see them, and a diagnosis requires the tics having been observed by a professional. This lacuna in the diagnostic practice is a point of concern, as is the underestimation of the physical damage caused by tics. While the psychosocial problems of Tourette receive attention, it is less known that tics persisting for decades may damage or wear out the pertinent parts of the body, in my case the teeth, jaw joints, and neck. And any damage or wear of the neck may ultimately have neurological consequences, including paralysis and death.

Of Asperger’s disorder I only became aware in the late 1990s, and, as with Tourette, immediately understood that it could explain many of my experiences and traits, which I had hitherto put down to either psychological trauma or to a lack of intellectual peers. Unlike with Tourette, doctors had no problem recognizing these symptoms in me. Interesting about Asperger is its possible relation to creativity; a thing that worries me is its confusion with autism. In fact, in the current diagnostic manual, the Asperger label is even absent, due to a consensus among psychiatrists that Asperger and autism are identical conditions, which I believe is a mistaken view.

Running is an interest that began when I was 21, in bad shape, and too heavy. Since graduating from secondary school I had not had much exercise any more, as my prior physical activities had consisted of gymnastics class and bicycle rides to and from school. While I had always been bad at gymnastics, running was the only thing I was good at, and around age 16, I ran 100 metres in 13.5 seconds at school. There was a boy who belonged to an athletics club and was faster than I; at some point he claimed to be a psychic medium and predicted I would once be abducted by a U.F.O. He advised me to stay in good shape to be able to endure what would happen then. Well, having become 21, I finally took that to heart. I remember the first time I went out to run as an adult in 1986; I ran about 1500 metres slowly, stopped, turned around, and ran the same distance back. Laurel and Hardy were on television when I got home, I think it was “A chump at Oxford”.

Running improved my health and shape a lot, and is certainly the best single thing one can do for self-improvement.

Late 1988 I got the idea to compete in a local 5 km race to be held in April 1989. I became 11th in 18:44, which was surprisingly good, and ever since I have been trying to do well in races when I get the chance. It would take until 2007 to improve my 5 km time to 18:39 though, as I tend to get problems with the kinetic apparatus that hold me back. In 2014, I learnt of a training method that seemed to agree with me and began to apply it. My latest race was in April 2015, 3.8 km in 14:15 (first place). My running now consists almost exclusively of interval training of moderate intensity, and I have also switched to forefoot landing and am transitioning to minimalist shoes.

Intelligence, creativity, genius, human quality, and eugenics are fields of interest that came forth from the test-related activities and studies of psychometrics since 1994. Human evolution is another such interest.

[1] See Cooijmans, P. (n.d.). Paul Cooijmans.

[2] Ibid.

[3] See Cooijmans, P. (n.d.). Detailed personal information.

[4] Ibid.

[5] Ibid.

[6] For those with complete interest in personal information, the article entitled *Detailed personal information* provides additional resources on Mr. Cooijmans. In addition, and as stated in the core of the interview, there exist thorough representations of personal views within the website. This interview cannot provide the whole suite of interests and information within the question and response format. However, and in light of that consideration, this interview, through a separate venue, might perform a complementary role to the general research and background information in his own resources, e.g. websites, articles, music, photography, and others.

[7] A select set of footnotes relevant to the compositions by Mr. Cooijmans following this one.

[8] See [Paul Cooijmans] (2011, November 23). Fugue#2.

[9] See [Paul Cooijmans] (2012, January 2). Fugue #1.

[10] See [Paul Cooijmans] (2011, November 5). Fugue #3.

[11] See [Paul Cooijmans] (2011, December 14]. Jan met de pet.

[12] See [Paul Cooijmans] (2014, June 9). Sanctus (motet).

- [\[13\]](#) See [Paul Cooijmans] (2013, November 29). Fourth miserable Paul Paulmans blues.
- [\[14\]](#) See [Paul Cooijmans] (2014, February 14). Chromatic Phantasy.
- [\[15\]](#) See [Paul Cooijmans] (2013, November 8). Third miserable Paul Paulmans blues.
- [\[16\]](#) See [Paul Cooijmans] (2013, March 7). Second miserable Paul Paulmans blues.
- [\[17\]](#) See [Paul Cooijmans] (2012, March 22). First miserable Paul Paulmans blues.
- [\[18\]](#) See [Paul Cooijmans] (2012, January 20). Canon, 2-part, d Dorian (1987).
- [\[19\]](#) See [Paul Cooijmans] (2011, December 22). If music and sweet poetry agree.
- [\[20\]](#) See [Paul Cooijmans] (2011, December 12). Ut !.
- [\[21\]](#) See [Paul Cooijmans] (2011, November 12). Anti-hero.
- [\[22\]](#) See [Paul Cooijmans] (2011, October 26). Composition, dedicated to Pietje.
- [\[23\]](#) See [Paul Cooijmans] (2009, April 21). Composition, dedicated to the singing of a very strange little bird.
- [\[24\]](#) See [Paul Cooijmans] (2009, April 21]. Fugue, dedicated to apathy.
- [\[25\]](#) See [Paul Cooijmans] (2008, December 25). Absurd composition in plusminus B flat.
- [\[26\]](#) See [Paul Cooijmans] (2009, January 5). Liquidatie (fragment).
- [\[27\]](#) See [Paul Cooijmans] (2008, December 18). New Amsterdam Times – Computer beats Vagant.
- [\[28\]](#) See [Paul Cooijmans] (2014, December 14). I wonder....
- [\[29\]](#) See [Paul Cooijmans] (2012, December 29). Field of eternal integrity – introduction.
- [\[30\]](#) See [Paul Cooijmans] (2011, April 11). Walking with herniated disk L5-S1.
- [\[31\]](#) See [Paul Cooijmans] (2011, November 29). For who loves truth, the garrote called “life” is daily tightened a turn.
- [\[32\]](#) See [Paul Cooijmans] (2010, May 16). Murine Dinner.
- [\[33\]](#) See [Paul Cooijmans] (2008, December 29). En plezier doen.
- [\[34\]](#) See [Paul Cooijmans] (2008, December 17). Flying rhomb #0, Autumn 2001.

- [35] See [Paul Cooijmans] (2008, December 13). Flying rhomb [#2](#), December 2008.
- [36] See [Paul Cooijmans] (2008, December 13). Flying rhomb [#1](#).
- [37] See Cooijmans, P. (2015). Compositions by Paul Cooijmans.
- [38] See Cooijmans, (n.d.). op. -3, 1982-1983: Introduction (played before “Words”).
- [39] See Cooijmans, (2001). Early Guitar Compositions.
- [40] See Cooijmans, (1987). op. 10, 1987-1989: Christ lag in Todesbanden (Motet in Renaissance style, 2-part, in e Frygian, 1987).
- [41] See Cooijmans, (1987). op. 10, 1987-1989: Allein Gott (Motet in Renaissance style, 2-part, in a Aeolian, 1987).
- [42] See Cooijmans, (1987). op. 10, 1987-1989: O bone Jesu (Motet in Renaissance style, 2-part, in g Dorian, 1987).
- [43] See Cooijmans, (1987). op. 10, 1987-1989: Agnus Dei (Motet in Renaissance style, 2-part, in d Dorian, 1987).
- [44] See Cooijmans, (1987). op. 10, 1987-1989: Asperges me (Motet in Renaissance style, 3-part, in g Dorian, 1987).
- [45] See Cooijmans, (1987). op. 10, 1987-1989: Kyrie (Motet in Renaissance style, 3-part, in G Myxolidian, 1987).
- [46] See Cooijmans, (1987). op. 10, 1987-1989: Ricercar [#1](#) in Renaissance style (3-part, in e Frygian, 1987).
- [47] See Cooijmans, (1987). op. 10, 1987-1989: Ricercar [#2](#) in Renaissance style (3-part, in d Dorian, 1987).
- [48] See Cooijmans, (1987). op. 10, 1987-1989: Ricercar [#3](#) in Renaissance style (3-part, in g, 1987).
- [49] See Cooijmans, (1990). op 12b, 1990: Tja.
- [50] See Cooijmans, (1989). op. 13, 1989: First to third composition for piano.
- [51] See Cooijmans, (1991). op. 21, 1991: “Easy introduction” to the art of advanced music-making
4-part setting, instruments undefined + 3 voices, percussion, piano 3:45 Recording of middle part.

[\[52\]](#) See Cooijmans, (1991). op. 21A, 1991: “That’s a long story and the sting is in the tail...” choir.

[\[53\]](#) See Cooijmans, (n.d.). op. 21b.: Ick ging op eenen morgen.

[\[54\]](#) See Cooijmans, (1993). op. 34A, 1993: 2-part setting of “Mijn hertze en can verbliden niet”.

[\[55\]](#) See Cooijmans, (1995). op.i (unnumbered), 1995 Educational pieces: Blues (guitar).

[\[56\]](#) See Cooijmans, (n.d.). Later work, op. 41, 2004: Glia Society Canon.

[\[57\]](#) See Cooijmans, P. (n.d.). Paul Cooijmans.

[\[58\]](#) See Cooijmans, P. (n.d.). GAIA: Gifted Adult’s Inventory of Aspergerisms.

[\[59\]](#) See Cooijmans, P. (n.d.). Straight talk about asperger syndrome.

[\[60\]](#) See Cooijmans, P. (2010, September). Human degeneration.

Paul Cooijmans: Independent Psychometitor; Administrator, The Giga Society; Administrator, The Glia Society (Part Three)

2015-07-15

*Interview with **Paul Cooijmans**. Independent psychometitor and administrator of The Glia Society and The Giga Society. He discusses: public recognition of excellence through awards and their personal meaning; personal work, development of intelligence tests separated by verbal, numerical, spatial, and logical factors, and the creation, development, refinement, administration, statistical norming, and publication of a legitimate test; nature of creativity, genius, and human functioning, and associative horizon, conscientiousness, and intelligence; and the existence of alien and extraterrestrial life, absolute as opposed to relative scales of intelligence, average intelligence of previous human civilizations, variegated intelligence of the contents of the universe; and the evolution of intelligence in the possible future.*

Scott Douglas Jacobsen: You earned a number of awards.^{[1][2]} These include *Winnaar Rabohank Scholenkwis 1976 Peelland* (voor Mariaschool, Lieschout) in April of 1976, second prize in the composition content of Brabants Conservatorium in October of 1990, and the *Raadselige Roos 1994* for Prose (literature prize) in December of 1994.^[3] What does each public recognition of excellence mean to you?^[4]

Paul Cooijmans: Concerning the composition and literature prizes, they tell me that recognition, success, awards and the like are bad indicators of quality. Those works are not the best I have written, and if they had been, I would not have won the prizes. My experience is that when I make something according to my own insights and to the best of my ability, it tends not necessarily to be hugely successful, but is at best appreciated by a rather small audience. Adaptation to a more mainstream taste or to some in-group paradigm does not suit me, and neither do “networking” or any kind of “marketing” trick. I can only use my own intuition to guide me, having been born such that trying to go against it makes me vomit in unpleasant convulsions.

The 1976 school quiz is a different matter. Each school could send four participants, obviously the best they had. We won easily, and someone said afterwards I had had all the questions right. I had announced our victory beforehand in the bus driving to the quiz, and that I would eat my coat in case we did not win. In the week before the quiz, we had been preparing by reading books and following the news, and attending special classes for the four of us, led by our teacher (the nun). This was the only form of “enrichment” I have ever seen in my school years.

The prize, 500 guilders, was used to redecorate the manual training room at school. Since I hated that subject, I was not pleased.

Jacobsen: You have summarized personal work in the following terms:

Designing high-range intelligence tests and studying high intelligence, personality, creativity and genius; Providing communication fora for intelligent individuals; Writing articles and literary prose in English and Netherlandic; Composing music (mainly in the past); Guitar

playing and (in the past) teaching; Computer programming and making web sites. Focus is on the intelligence-related matters. A major goal is to explain creativity in terms of personality features

Specialties: Statistical processing of data from high-range intelligence tests, and designing such tests.^[5]

You developed a number of intelligence tests of varied difficulty separated by verbal, numerical, spatial, and logical factors – even one with a possible prize entitled *Prize of the Beheaded Man*.^{[6],[7],[8]} Other awards too.^{[9],[10]} How does one create, develop, refine, administer, statistically norm, and publish a legitimate test?

Cooijmans: Those are many questions, but I will try to briefly sketch the procedure. One needs to gather problems to include in the test, either newly created ones or problems from earlier tests or proof tests. The problems should require the candidate to utilize mental abilities, and span a range of difficulty levels. Test administration nowadays goes chiefly via the Internet and electronic mail, and is unsupervised. In the 1990s it was still done by regular mail and publication or advertising in I.Q. society journals or other magazines or newspapers. I have also created a few supervised tests, but extremely few have tried them, possibly because of the need to travel here.

Norming a high-range test is mostly achieved by anchoring it to one or (mostly) more other tests, with methods like rank equation or z-score equation. Norming, in statistical terms, means to predict one variable (for instance I.Q.) from another (raw score or scaled score on the test). The word “predict” is used here in the statistical sense, not as in fortune telling.

The tests are now published as electronic documents and delivered via the Internet or e-mail. When I started publishing tests though, I used to type them on a typewriter and make photocopies, which I sent by mail to people who responded to calls I placed in magazines and papers. My very first, unpublished, tests were written with fountain pen on paper. I have almost always been my own publisher when it comes to tests.

Tests can be refined by studying incoming answers and comments, and by statistical item analysis. One can thus identify bad items and remove or revise them.

Regarding the working mechanism of I.Q. tests, it can be said that intelligence is an all-pervasive unhideable trait that involuntarily expresses itself in virtually everything a person does or says. As a result, it is surprisingly difficult to design a test that does not measure intelligence, hence the relative success of the many dilettante high-range test constructors active today. Indeed, it is easier to create a functioning high-range I.Q. test than it is to create a test that purposely lacks any validity in the high range; the latter may take some quite intricate statistical labour.

The Prize of the Beheaded Man, and other awards and honorary societies, serve to encourage people in taking the tests, thus bringing in more data for norming and other statistical purposes.

Finally, one needs to deal with various forms of fraud, like illegal unauthorized criminal

discussing, spreading, and publishing of test items and answers by evil candidates seeking an unfair advantage. For security reasons I can not reveal the strategies used to counteract this, but we are working on a tight network of excutators to track down such offenders and kindly and humanely keep them from repeating. My novel “Field of eternal integrity” provides extensive details as to the treatment of offenders in high-range mental testing.

Jacobsen: Your personal research into the nature of creativity, and genius separates facets of human functioning. You wrote on the nature of genius based on “wide associative horizon and large amounts of conscientiousness and intelligence.”^{[11],[12],[13],[14],[15],[16],[17],[18],[19],[20]} You wrote on creativity too, which you have summarized in the following manner:

My current view on creativity (and therefore genius) could be summarized as:

Conscientiousness contributes to creativity but disposes for neurosis;

Associative horizon contributes to creativity but disposes for psychosis;

Intelligence contributes to creativity but disposes for normality.^[21]

In addition, in an interview, you stated:

There are three groups of personality traits or aspects that are important to be creative: Ability, Conscientiousness, and Associative horizon. The combination or synergy thereof is what enables the individual to bring into being what was not there before. All three are needed; Each one is of limited value without the other two. And they do not always go together. In fact it is rare to find them combined in large amounts into one individual, and when that happens, you have a genius.^[22]

Furthermore, in the same interview, you wrote:

In terms of personality, genius is the high end of creativity, and creativity in turn is a synergy of conscientiousness, ability, and associative horizon. There exists also another type of definition of genius, which says a genius is someone who makes a lasting contribution in any field, but that is of course an “after the fact” definition. Two of the three elements in my definition are related to psychiatric disorders; conscientiousness to neurosis, associative horizon to psychosis. The trick is to have exactly the right amounts of those, so that you stay just below the threshold where you would have a debilitating neurotic or psychotic illness.

Intelligence, when that term is used in relation to human personality, is the cognitive aspect of personality, the aspect that comprises mental ability. The word “intelligence” is unfortunately often used in a number of other meanings too, so that is it not usable in scientific contexts; the best term for it is probably “g”, the general factor in mental ability. In the above definition of genius, intelligence would belong to the ability element.^[23]

What sets of sub-traits exist within each of the core traits of associative horizon, conscientiousness, and ability?

Cooijmans: I have written a number of articles about that, but in short I see associative horizon as consisting of three groups of traits: (1) Divergent abilities like fluency in association and mental flexibility. (2) Resistance to narrowing mammalian phenomena, like resistance to conformism, to suggestion, to conditioning, to automating tasks, to non-verbal communication, to socialization, to empathy, and to emotion. (3) Vulnerabilities, such as high sensitivity, disposition for the placebo effect, and disposition for psychosis (but not actual psychosis).

Conscientiousness too has three divisions: (1) Ability-fostering traits, such as accuracy, carefulness, coherence, consistency, dependability, diligence, perfectionism, persistence, punctuality, respect for detail, self-discipline, and tolerance of repetitive work. (2) Ego-strength, such as being determined, driven by inner motivation, holding on to insights despite opposition, impulse-controlling, insensitive to habituation, strong-willed, and uncompromising. (3) Ethics-related traits, such as being fair, loyal, respectful, responsible, sincere, trustworthy, and truthful regardless of consequences.

Ability cascades from the most general level – general intelligence – to the most specific abilities. The more specific an ability is, the greater the degree to which it can be learnt or improved. The more general, the greater the degree to which the ability is inborn.

Jacobsen: In one previous interview, you answered a query on the existence of alien and extra-terrestrial life, as follows:

Yes, I believe extraterrestrial aliens exist. Whether they have visited Earth is a different matter. I think that would be known worldwide instantly, and not possible to cover up. I also think the vast majority of civilizations in the universe are at a lower level than current human civilization (but those smart enough to travel here would be at a higher level, naturally). I have estimated the average I.Q. of civilizations in the universe at about 80. When rising far above that, forces of a decadent-degenerative nature become active that pull society back toward that more primitive level. This can be observed throughout the history of Earth humans – all civilizations have fallen so far – and it seems reasonable to assume it will be no different on other planets. The development of civilization is not a straight upward line, but is discontinuous in time and space. While theoretically some civilization somewhere in the universe could reach the point where interstellar travel becomes feasible, we have not seen that yet, and it is not a priori certain that such is possible at all. In any case it is very naive to think that the current rate of technological improvement in our civilization will always continue. [\[24\]](#)

You have measured intelligence in absolute, as opposed to relative, terms. From this line of reasoning, and researching, you developed an absolute scale for intelligence in addition to linkages with expectations of civilizations' development at each I.Q. score. You discussed the average intelligence level of previous human civilizations, or even the variegated intelligence of the contents of the universe. [\[25\]](#), [\[26\]](#), [\[27\]](#) What might be the mean intelligence level of the human species (or of novel species developed through speciation from *Homo sapiens*) decades, centuries, millennia, hundreds of thousands, or millions of years from the present time, especially in the light of rapid scientific and technological advances in the 20th century alone?

Cooijmans: On the short term, say decades to centuries, there are mixed prospects. On the one

hand, genetic intelligence is going down in Western countries through dysgenic effects, and therewith the basis for scientific and technological advance is disappearing. During the twentieth century, this decline has been masked by the “Flynn effect”, but that rise of test scores (probably environmental and partly hollow with respect to general intelligence) seems to have maxed out and levelled off meanwhile, so that the true development is becoming more visible and felt. When average I.Q. sinks too much, progress will stop, and society may even regress to a pre-technological state. All civilizations have ended so far, and it would be a naive and fatal mistake to exclude the West from that rule.

On the other hand, the latest few sunspot cycles indicate that a long-term solar minimum is likely imminent, and such a minimum, according to research by the German psychologist S. E. Ertel, appears to cause an increase of the productivity of eminent scientists and artists, which might counteract a possible decline. Under such a minimum, one may also expect less war, uproar, revolutions, mass migrations, and other such negativity.

And, there is little doubt that a long-term minimum cools the global climate, may even cause a little ice age. Colder conditions stimulate the evolution of genetic intelligence, so help to invert the dysgenic trend, while also discouraging migration from warm (low-I.Q.) regions to moderate and cold (high-I.Q.) regions. As a word of caution, from my privileged position of knowledge I feel responsible to warn that a colder climate will also result in many deaths through decreased food production, and this will hit humanity particularly hard after having been misled by decades of political drum-beating on a coming “warming” by greenhouse gasses emitted by humans.

If the dysgenic trend wins out, average I.Q. may in a bad scenario drop to around 80 in the next several centuries. We are still *Homo sapiens* then, but technological civilization will have to start over from scratch. If eugenic times return, I believe that biological humans can theoretically reach averages around 130 in that time frame, and eventually form a new species. Cyborgs or completely artificial beings could go higher. But a problem is that the high civilization that results from high average I.Q. levels tends to introduce dysgenic factors that pull the mean down again, so that it is exceedingly hard to reach the stage where biological humans obtain averages of 130 to 140, and where cyborgs, robots, or computers reach, say, I.Q. 200 or more.

In the long run, I fear that humans or their descendants will keep regressing toward 80, with brief periods of blossoming, and if you wait indefinitely – like hundreds of millions of years – there may once be a group, species, or genus with I.Q.’s in the 200-250 range. Those would likely be capable of interstellar and/or time travel. But the fact that we have not been contacted by extraterrestrials or extracontemporaries – and what is more, that my predicted flying saucer abduction has not materialized yet! – tells us it is extremely rare and difficult to reach and sustain such heights.

Far more important than scientific feats and astronomical I.Q. numbers is the inverse and causal relation between I.Q. and evils like violence and crime. Were average human I.Q. to rise to a mere 115, I dare say we would be rid of most of that, and peace and happiness all around. For information, the present world average I.Q., depending on whether or not one weights the national average I.Q.’s by population sizes, is about 90 (weighted) to 84.5 (unweighted). This is based on national I.Q.’s published by Lynn and Vanhanen. It explains why our world is not yet

the place of peace we are yearning for.

[1] See Letter Kundig Museum (n.d.). Literaire prijzen.

[2] See Cooijmans, P. (n.d.). Detailed personal information.

[3] Ibid.

[4] Ibid.

[5] See Cooijmans, P. (n.d.). Paul Cooijmans.

[6] See Cooijmans, P. (n.d.). List of Tests.

[7] See Cooijmans, P. (n.d.). Prize Of The Beheaded Man.

[8] See Cooijmans, P. (n.d.). Awards To High-Range I.Q. Test Candidates.

[9] See Cooijmans, P. (n.d.). Imhotep.

[10] See Cooijmans, P. (n.d.). Thoth.

[11] See Cooijmans, P. (n.d.). Straight talk about asperger syndrome.

[12] See Cooijmans, P. (n.d.). I.Q. Tests For The High Range – Goals.

[13] See Cooijmans, P. (n.d.). Genius and Creativity.

[14] See Cooijmans, P. (2010). Conscientiousness.

[15] See Cooijmans, P. (2010). Associative Horizon.

[16] See Cooijmans, P. (2010, July). Synergy.

[17] See Cooijmans, P. (2010, August). Subgroups of traits clarified by their low ends.

[18] See Cooijmans, P. (2015, April). Solar activity and behaviour — A causal hypothesis.

[19] See Cooijmans, P. (2006). Rareness and discontinuity of genius.

[20] See Cooijmans (2009). Inferiority – the opposite of genius.

[21] See Cooijmans, P. (n.d.). Genius.

[22] See Cooijmans, P. (2009, February 25). Creativity and Personality.

[23] See Volney, K. (2013, September 2). Interview with Paul Cooijmans: Administrator of the Giga Society.

[24] See Ibid.

[25] See Cooijmans, P. (2010). Human evolution.

[26] See Cooijmans, P. (2010, September). Human degeneration.

[27] See Cooijmans, P. (2010, August). Extended intelligence scale.

Paul Cooijmans: Independent Psychometitor; Administrator, The Giga Society; Administrator, The Glia Society (Part Four)

2015-07-22

*Interview with **Paul Cooijmans**. Independent psychometitor and administrator of The Glia Society and The Giga Society. He discusses: high-range intelligence testing, three core interests of high-range intelligence testing, a brief warning on megalomaniacs, and the positives and negatives of the ultra-high IQ world; restrictions/qualifications based on specific tests and test scores, issues related to intelligence assessment, and the two groups which join high IQ societies, and the foundation of GliaWebNews, Young and intelligent?, Order of Thoth, The Glia Society, Order of Imhotep, The Giga Society, and The Grail Society with an emphasis on The Glia Society and The Giga Society.*

Scott Douglas Jacobsen: You describe the continuous fascination with high-range intelligence testing, especially in the “gifted” ranges of high-range intelligence tests.^[1] With respect to the three core interests in these high-range intelligence tests, you state:

The attraction of these tests, to the testee, lies in three aspects: One may derive pleasure from taking them, similar to solving difficult puzzles. Also one learns how one’s score compares to those of other high-range candidates, and thus gains insight into one’s performance level on different types of hard problems. And finally, there is a wide array of high-IQ societies that accept scores on the tests.^[2]

However, and intimately linked to these positive interests, there exist negative reasons for entrance into the world of high-range intelligence testing.^[3] You wrote about this one article, *Beware of megalomaniacs*.^[4] You have joked about intelligence tests for the high range as a “megalomaniac’s Waterloo.”^[5] You describe, quite frankly, the nature of serious problem behaviors within the intelligence testing business.^[6] For Instance, you wrote:

The truth is there are people, well known in and sometimes outside high-I.Q. circles, who have based their reputation on certain high test scores they claim. They use those scores for publicity, mention them in interviews, have them listed in biographical reference works, put themselves on self-published lists of “highest I.Q. scores” with their own score on top as the god-king with the world’s highest I.Q., and so on. The scores help them to become and stay famous, sell books, and make money.^[7]

What other positives and negatives exist in this rare and rarefied world of the ultra-high IQ?

Paul Cooijmans: Apart from the megalomania and fraud with tests and scores, a negative development I observe in some I.Q. societies are the committees of quack therapists, occultists, and psychics of all sorts, some using hollow “doctor” titles, who have clearly joined to prey on unsuspecting members. This has to do with the notion, popular in those circles, that “giftedness” is a kind of problem or disorder, and that one needs “help” with it. On several occasions I have attended “Giftedness day” in the Netherlands, and most of the stands were occupied by vultures like this, eager to get their claws on anyone “diagnosed” with “giftedness” and “help” them with

methods including astrology, tarot, clairvoyance, and so on. And what is worse, there is an abundance of easy meat for them in I.Q. circles.

But the biggest disappointment about the high-I.Q. world is the lack of females. The higher the pass level, the greater the male/female ratio. When selecting strictly and without compromise at the 99.9th centile, one gets about 15 times more men than women. For males interested in eugenic mate selection, I.Q. societies are thus not the ideal place to be. This phenomenon is not unique to high-range mental testing, but seen in other fields with high cognitive demands too, be it professions, hobbies, or sports; wherever high intelligence is needed, you tend to find more males than females. While answering this interview, I saw a newspaper article about a “high frequency trading” company. The journalist asked an officer of the firm why there were only men sitting behind all of those computer screens, and if women were not interested in the job. He replied, “Oh yes, we get many female applicants. But our standards are high and we test candidates thoroughly before hiring them. Women just do not seem to get through the selection procedure. They are very welcome though”. At moments like that, almost by accident, one is confronted with a truth one would perhaps rather not know.

To avoid misunderstanding, I should add that men are not necessarily smarter than women on average. But when focusing on the high range, one sees more men than women. I have tried to attract more females to high-range testing, and even constructed a test consisting exclusively of tasks on which females are known to outscore males, but to no avail. The low representation of females remains a serious shortcoming of high-I.Q. societies.

The biggest plus about I.Q. societies, or at least about the good ones among them, is that they offer possibilities for publication and self-realization to creative individuals who are too unusual, deviant, original, or far ahead of their time to be accepted by the mainstream media or scientific world. Another good thing is that one can get in contact with intellectual equals. Since the rise of the Internet though, those purposes are also served outside the I.Q. societies.

Jacobsen: Qualification for high IQ societies requires restrictions. Restrictions based on the specific test and test scores.^[8] You have described with typical clarity the issues related to assessment or measurement of intelligence.^[9] In addition, you provide the relevant definitions of assessment, measurement, and statistical terminology too.^{[10],[11],[12],[13],[14],[15],[16],[17],[18],[19],[20],[21],[22],[23],[24],[25],[26],[27],[28],[29],[30],[31],[32],[33],[34],[35],[36],[37],[38],[39],[40],[41]} You note, in an interview from 2002, two apparent groups take tests and join societies. You wrote:

About people joining societies and taking tests, there seem to be two groups, probably with some overlap: the “mainstream” and the “outsiders.” The latter are the ones who initiate things like IQ societies. The first start coming in once a group is growing well, and when the group gets to be a certain size – maybe like 300 to 400 – the “mainstream” tends to take over, maybe because of their better persuasive/manipulative skills which do well in democratic and group processes.

Once the “mainstream” is in power, which I think is the case in larger Mensa chapters, the ISPE and Triple Nine in some of its periods, the freedom goes and the censorship comes. The “mainstream” want things like a journal that is suitable for the whole family, professionalism,

official status, tax exemption, etc. They keep adversary things out of the journal, without ever admitting to censorship, they use euphemisms like “editing for length and civility.” (This was a Triple Nine term.) Perhaps a certain organizational structure could avoid the “mainstream” from getting into power.^[42]

You founded high intelligence societies including *GliaWebNews*, *Young and intelligent?*, *Order of Thoth*, *The Glia Society*, *Order of Imhotep*, *The Giga Society*, and *The Grail Society*.^{[43].[44].[45].[46].[47].[48].[49].[50]} Two seem like core societies: *The Giga Society* and *The Glia Society*.^{[51].[52].[53].[54]} *The Giga Society* as on “honorary society for very high scorers on my tests.”^{[55].[56].[57].[58].[59].[60]} *The Glia Society* for provision of “a forum for intelligent individuals and assisting in research after high intelligence.”^{[61].[62]} Each devoted to individuated and interrelated personal interests with provision of journals, games, fora, tests, and general means of fulfillment for the high-range.^{[63].[64].[65].[66].[67]} How did you create, develop, and sustain these societies up to the present?

Cooijmans: I started in the mid-1990s by formulating the outline of a type of society for which I felt a need, and that did not exist at the time: Nerve-centred in Europe, strict admission requirements, allowing members to express themselves in their own way and at their own level without censorship or editing (so, a verbatim journal that does not make the author look smarter or stupider than one is) and without formal democratic organs and procedures (to prevent the riff-raff from taking over). Thus, I hoped, the society would remain faithful to the real anarchistic-from-within outsiders, and not regress to a mainstream type of club with members of barely above-average I.Q’s in official positions and spoiling it for the few truly intelligent ones, whom they see as a burden and would expel if they could.

This became the Glia Society. The first several years were offline, with only a paper journal, and went excellently. In 2001, the transition to an online presence was made with success. A few years thereafter, with a few hundred members meanwhile, occasional problems began to occur with people sending offending messages to the electronic mail forum, which, because of its ease of use, facilitates such behaviour by unconscientious persons, makes them rise to the surface. In a traditional journal, filled with copy by members, one would never hear of such trolls, because the effort involved in writing a proper essay or letter is too high a hurdle for them. It became needed to have “netiquette” rules on the forum, and of course there were one or two idiots who purposely began to break the rules to provoke their expulsion from the forum, to see how far they could go. After having been removed temporarily (not expelled from the society though) such specimens sometimes play victim and act as if they are the ones who have been wronged.

In the late 2000s, the admission policy was improved with regard to homogeneous (one-sided) tests, requiring two qualifying scores on two different types of such tests for admission, while only one qualifying score remained needed on a heterogeneous test. This works to satisfaction. A bit later, an “assessment” procedure was added to facilitate the admission of candidates without qualifying scores on accepted tests. This became useful as a result of the vast number of tests today available on the Internet; it is not doable to establish suitability for admission purposes for every single test separately.

To make an observation about I.Q. societies in general, striking is the individualism: much

disagreement, low sense of loyalty to the group, no sense of a common goal, little willingness to conform to rules, tending to treat non-members the same as members, speaking negatively of the group to non-members, joining and leaving multiple societies on a whim, and more. Such behaviours are typical of I.Q. society members, and less likely to be seen in political parties, religious cults, ideological interest groups, hobby groups, business enterprises and so on. This individualism is the achilles heel of I.Q. societies, and the answer to the question, “if they are so smart, then why do they not solve the world problems?” There is no group synergy in a group of high-I.Q. individualists. Rather, the outer appearance of the group tends to be determined by the least able members; intelligence is recessive in the group as a result of the members’ individualism. What the world sees of high-I.Q. societies is mainly the loud-mouthed braggers and fraudulent claimants of the highest I.Q.

[1] See Cooijmans, P. (2008, March 19). The fascination with high-range intelligence testing.

[2] See Self-Growth.com (2015). Paul Cooijmans: High-range intelligence test Expert.

[3] See Cooijmans, P. (n.d.). Beware of megalomaniacs.

[4] Ibid.

[5] See Cooijmans, P. (n.d.). I.Q. Tests For The High Range.

[6] Ibid.

[7] See Cooijmans, P. (n.d.). Beware of megalomaniac’s.

[8] See Cooijmans, P. (n.d.). Qualification.

[9] See Cooijmans, P. (n.d.). Assessment.

[10] See Cooijmans, P. (n.d.). Balanced g factor loading.

[11] See Cooijmans, P. (n.d.). Congruence coefficient.

[12] See Cooijmans, P. (n.d.). Correction for attenuation.

[13] See Cooijmans, P. (n.d.). Correlation.

[14] See Cooijmans, P. (n.d.). Correlation with national I.Q.s

[15] See Cooijmans, P. (n.d.). Covariance.

[16] See Cooijmans, P. (n.d.). The g factor.

[17] See Cooijmans, P. (n.d.). Frequently encountered fallacies regarding test-related statistics.

- [\[18\]](#) See Cooijmans, P. (n.d.). Hardness.
- [\[19\]](#) See Cooijmans, P. (n.d.). I.Q..
- [\[20\]](#) See Cooijmans, P. (n.d.). Median.
- [\[21\]](#) See Cooijmans, P. (n.d.). Normalization.
- [\[22\]](#) See Cooijmans, P. (n.d.). Number of candidates.
- [\[23\]](#) See Cooijmans, P. (n.d.). Preliminary norms.
- [\[24\]](#) See Cooijmans, P. (n.d.). Proportion outscored.
- [\[25\]](#) See Cooijmans, P. (n.d.). Protonorms.
- [\[26\]](#) See Cooijmans, P. (n.d.). Quality.
- [\[27\]](#) See Cooijmans, P. (n.d.). Quality of norms.
- [\[28\]](#) See Cooijmans, P. (n.d.). Quartile deviation.
- [\[29\]](#) See Cooijmans, P. (n.d.). Range.
- [\[30\]](#) See Cooijmans, P. (n.d.). Raw score.
- [\[31\]](#) See Cooijmans, P. (n.d.). Reliability.
- [\[32\]](#) See Cooijmans, P. (n.d.). Resolution.
- [\[33\]](#) See Cooijmans, P. (n.d.). Section statistics.
- [\[34\]](#) See Cooijmans, P. (n.d.). Standard deviation.
- [\[35\]](#) See Cooijmans, P. (n.d.). Standard error of measurement.
- [\[36\]](#) See Cooijmans, P. (n.d.). Standard score.
- [\[37\]](#) See Cooijmans, P. (2012, January). Test data structure.
- [\[38\]](#) See Cooijmans, P. (n.d.). Total proportion selected on two tests with known correlation.
- [\[39\]](#) See Cooijmans, P. (n.d.). T-scores.
- [\[40\]](#) See Cooijmans, P. (n.d.). Variance.

- [\[41\]](#) See Cooijmans, P. (n.d.). Weighted median.
- [\[42\]](#) See Cooijmans, P. (2002). An interview with Paul Cooijmans.
- [\[43\]](#) See Cooijmans, P. (n.d.). GliaWebNews.
- [\[44\]](#) See Cooijmans, P. (n.d.). Glia Web Young and Intelligent.
- [\[45\]](#) See Cooijmans, P. (n.d.). Young and Intelligent?.
- [\[46\]](#) See Cooijmans, P. (n.d.). Thoth.
- [\[47\]](#) See Cooijmans, P. (n.d.). The Glia Society.
- [\[48\]](#) See Cooijmans, P. (n.d.). Imhotep.
- [\[49\]](#) See Cooijmans, P. (n.d.). The Giga Society.
- [\[50\]](#) See Cooijmans, P. (n.d.). The Grail Society.
- [\[51\]](#) See Cooijmans, P. (n.d.). The Giga Society.
- [\[52\]](#) See Cooijmans, P. (n.d.). The Glia Society.
- [\[53\]](#) See Cooijmans, P. (n.d.). The History Of I.Q. Test For The High-Range.
- [\[54\]](#) See Cooijmans, P. (n.d.). The Glia Society: Animated Presentation.
- [\[55\]](#) See Cooijmans, P. (n.d.). Paul Cooijmans.
- [\[56\]](#) See Cooijmans, P. (n.d.). Latest Insights Regarding The Giga Society.
- [\[57\]](#) See Cooijmans, P. (n.d.). Contact Information Of The Giga Society.
- [\[58\]](#) See Cooijmans, P. (n.d.). Do You Qualify For The Giga Society?.
- [\[59\]](#) See Cooijmans, P. (n.d.). Letters of Appreciation To The Giga Society.
- [\[60\]](#) See Cooijmans, P. (n.d.). Frequently Asked Questions To The Giga Society.
- [\[61\]](#) See Cooijmans, P. (n.d.). Paul Cooijmans.
- [\[62\]](#) See Cooijmans, P. (n.d.). Constitution.
- [\[63\]](#) See Cooijmans, P. (n.d.). Mind Games: Glia Society Mind Games.

[\[64\]](#) See Cooijmans, P. (n.d.). Glia Society Crossword.

[\[65\]](#) See Cooijmans, P. (2003). Glia Society Memory Game.

[\[66\]](#) See Cooijmans, P. (n.d.). Glia Society Mastermind.

[\[67\]](#) See Cooijmans, P. (n.d.). I.Q. Tests For The High Range.

Paul Cooijmans: Independent Psychometitor; Administrator, The Giga Society; Administrator, The Glia Society (Part Five)

2015-08-01

*Interview with **Paul Cooijmans**. Independent psychometitor and administrator of The Glia Society and The Giga Society. He discusses: consistent theme of humor or dry humor with samples, and purpose of humor in the high-range intelligence testing business; and the final question from another interview from September, 2011, answered about Mr. Cooijmans by Mr. Cooijmans.*

Scott Douglas Jacobsen: You write on topics including intelligence with analyses connected to definitions. [\[1\],\[2\],\[3\],\[4\],\[5\],\[6\],\[7\],\[8\],\[9\],\[10\],\[11\],\[12\],\[13\],\[14\],\[15\],\[16\],\[17\],\[18\],\[19\],\[20\],\[21\],\[22\],\[23\],\[24\],\[25\],\[26\],\[27\],\[28\],\[29\],\[30\]](#) Furthermore, you wrote on Asperger's syndrome, psychology, personality and other tests, Psi tests, human evolution, the occult, ethics, music, interviews, and even books. [\[31\],\[32\],\[33\],\[34\],\[35\],\[36\],\[37\],\[38\],\[39\],\[40\],\[41\],\[42\],\[43\],\[44\],\[45\],\[46\],\[47\],\[48\],\[49\],\[50\],\[51\],\[52\],\[53\],\[54\],\[55\],\[56\],\[57\],\[58\],\[59\],\[60\],\[61\],\[62\],\[63\],\[64\],\[65\],\[66\],\[67\],\[68\],\[69\],\[70\],\[71\],\[72\],\[73\],\[74\],\[75\],\[76\],\[77\],\[78\],\[79\],\[80\],\[81\],\[82\],\[83\],\[84\],\[85\],\[86\],\[87\],\[88\],\[89\],\[90\],\[91\],\[92\],\[93\],\[94\],\[95\],\[96\],\[97\],\[98\],\[99\],\[100\],\[101\],\[102\],\[103\],\[104\],\[105\],\[106\],\[107\],\[108\],\[109\],\[110\],\[111\],\[112\],\[113\],\[114\],\[115\],\[116\],\[117\],\[118\],\[119\],\[120\],\[121\],\[122\],\[123\],\[124\],\[125\]](#) You wrote on running, economics, politics, philosophy, informatics too. [\[126\],\[127\],\[128\],\[129\],\[130\],\[131\],\[132\],\[133\],\[134\],\[135\],\[136\],\[137\],\[138\],\[139\],\[140\],\[141\],\[142\],\[143\],\[144\],\[145\],\[146\],\[147\],\[148\],\[149\],\[150\],\[151\],\[152\],\[153\],\[154\],\[155\],\[156\],\[157\],\[158\]](#) Even further, you, with generosity, provide hyperlinks to extensive resources and others' writings – even tests. [\[159\],\[160\],\[161\],\[162\],\[163\],\[164\],\[165\],\[166\],\[167\],\[168\],\[169\],\[170\],\[171\],\[172\],\[173\],\[174\],\[175\],\[176\],\[177\],\[178\],\[179\],\[180\],\[181\],\[182\],\[183\],\[184\],\[185\],\[186\],\[187\],\[188\],\[189\],\[190\],\[191\],\[192\]](#) What inspires the breadth of intellectual interests for you?

Paul Cooijmans: The inspiration has remained the same as in childhood: the desire to know and understand everything. I can not stand it when I do not know and understand the essence of something. Over time, this has driven me to look at an ever wider range of topics. I fear it is a weakness rather than a strength; a sustained focus on one field would have been better to reach my potential, but one has forgotten to explain that to me when I was young. I believe this wide scope of interests is characteristic of intelligent individuals, and also has to do with a lack of guidance, with there being no one to push you in the right direction.

Jacobsen: One consistent theme, connected to the presence of information relevant to the high intelligence world, remains humor, sometimes dry humor. [\[193\],\[194\],\[195\],\[196\],\[197\],\[198\],\[199\],\[200\],\[201\],\[202\],\[203\],\[204\],\[205\],\[206\],\[207\],\[208\],\[209\],\[210\],\[211\],\[212\],\[213\],\[214\]](#) For instance, in the contact information web page under a heading called *Legally required public health warning*, you state:

Communication with Paul Cooijmans has proven stressful and traumatic for a small minority of correspondents, and may lead to involuntary hospitalization of persons thus disposed. Please take no chances with your mental health; have a good strong cup of coffee before initiating correspondence, and keep telephone numbers of emergency services within reach. If needed, consult your physician or psychiatrist first. [\[215\]](#)

Further, I bring to bear some of the individual photographs based in the sets of photographs from the 1960s, 1970s, 1980s, 1990s, 2000s, and 2010s.^{[216],[217],[218],[219],[220],[221],[222],[223],[224],[225],[226]} Other sets of photographs remain more regular, mundane of various local objects and areas.^{[227],[228],[229],[230],[231],[232],[233],[234],[235],[236],[237],[238],[239],[240],[241],[242],[243],[244],[245],[246],[247],[248],[249],[250],[251],[252],[253],[254]} What purpose does humor serve in the independent psychometric business from the view of the psychometitor? (For those harboring further desire for contact information, these hyperlinks exist too, in the following footnotes of this sentence.^{[255],[256],[257],[258],[259]})

Cooijmans: Humour is an extremely powerful and robust test of intelligence and associative horizon, of which it is a combination. One can cheat when taking an I.Q. test, but one can not feign a sense of humour. When I once announced that candidates not satisfied with their score could buy additional I.Q. points from me, quite a few indignant reactions followed, most notably from at least two (2) admissions officers of I.Q. societies, who therewith involuntarily exposed their low level of comprehension. When chumps like that are in charge of a society's admission policy, that explains the ineffectiveness thereof, explains the acceptance of many tests lacking any validity in the relevant I.Q. range, and explains the large numbers of clearly unqualified members in such societies.

Jacobsen: To conclude this interview, you were asked in an interview from September 2011 about desired questions from interviewers.^[260] You responded:

There are many such questions, and it would take the rest of my life to list and answer them. But a few that come to mind are: "How on Earth is it possible that someone of your quality is not married or otherwise reproducing his genetic material, given that, from the viewpoint of eugenics, those of higher ability should procreate lavishly?"^[261]

Therefore, I ask, "How on Earth is it possible that someone of your quality is not married or otherwise reproducing his genetic material, given that, from the viewpoint of eugenics, those of higher ability should procreate lavishly?"^[262]

Cooijmans: That is an excellent question, and I could hardly have phrased it better myself. The answer is that girls and women tend to have extraordinarily bad taste in men, presumably as a relic of earlier stages of evolution when the men who made the most kills in tribal warfare or hunting acquired the greatest procreative results. Not for nothing do or did many cultures entertain the so attractive custom of arranged marriages. When mate choice is left free, the best are left over, as my case so painfully illuminates.

To repair this, may I suggest the implementation of a delightful array of measures to encourage and facilitate the breeding of those of higher quality, who in modern society are at risk of reduced fertility: think of (genome-based) matchmaking services with binding outcome, sperm and ovum banks, and D.N.A. banks. This includes both the natural mode of procreation and methods like artificial insemination, in vitro fertilization, and in certain cases cloning; cloning is the only way to retain a precise genetic configuration underlying genius.

On the other side of the spectrum, it is imperative that criminals are forcefully kept from

reproducing; after all, one does not want to be mopping with the tap running, does one? The current softness on crime, with the disproportionately high reproductive fitness of violent evildoers in particular that results therefrom, is a deceptive dead end on our path to a world of peace and safety for all the good people.

There are two modes of contributing to society: procreation and creation. The procreative person passes one's genes on to posterity, the creative individual produces scientific or artistic work for generations to come. Imagine the two biblical arks as symbolizing these modes; Noah's ark housed a male and a female of each species, the Ark of the Covenant contained the laws. Schemes as advised above reconcile the two arks, feeding the modes back into each other in an upward spiral of human quality, leading to a world without violence, crime, terror, or war. Our magnum opus is to realize that Arcadia.

[\[1\]](#) See Cooijmans, P. (n.d.). I.Q. and real-life functioning.

[\[2\]](#) See Cooijmans, P. (2010, August). I.Q. development with age modelled.

[\[3\]](#) See Cooijmans, P. (n.d.). Beware of megalomaniacs.

[\[4\]](#) See Cooijmans, P. (2015). Sex differences in intelligence.

[\[5\]](#) See Cooijmans, P. (2013, September). Sex differences on high-range I.Q. tests analysed.

[\[6\]](#) See Cooijmans, P. (n.d.). Hardness.

[\[7\]](#) See Cooijmans, P. (n.d.) Statistics explained.

[\[8\]](#) See Cooijmans, P. (n.d.). The *g* factor.

[\[9\]](#) See Cooijmans, P. (n.d.). Accepting high-range mental ability tests for admission purposes.

[\[10\]](#) See Cooijmans, P. (n.d.). Estimate *g* factor loading.

[\[11\]](#) See Cooijmans, P. (2010, August). Extended intelligence scale.

[\[12\]](#) See Cooijmans, P. (2009, August). Why "I.Q." is spelt with periods.

[\[13\]](#) See Cooijmans, P. (2008). Robustness, validity and reliability.

[\[14\]](#) See Cooijmans, P. (2014, December). Findings *versus* expectations: In the study of high-range mental testing.

[\[15\]](#) See Cooijmans, P. (2013, October). The differentiation hypothesis of *g* tested.

[\[16\]](#) See Cooijmans, P. (2010, July). Why quoting percentages of I.Q.'s betrays incompetence.

- [\[17\]](#) See Cooijmans, P. (2004). Interpretation of Childhood I.Q..
- [\[18\]](#) See Cooijmans, P. (2006, December). Correlation versus causation.
- [\[19\]](#) See Cooijmans, P. (2006, December). Ability types measured by high-range tests.
- [\[20\]](#) See Cooijmans, P. (2006, April). The size of the vocabulary disadvantage in a non-native language.
- [\[21\]](#) See Cooijmans, P. (2008, March). Reasons to avoid the term “gifted”.
- [\[22\]](#) See Cooijmans, P. (2010, May). Recommendations for conducting high-range intelligence tests.
- [\[23\]](#) See Cooijmans, P. (2010, December). Pitfalls for high-range psychometricians.
- [\[24\]](#) See Cooijmans, P. (2013). Norming of high-range I.Q. tests.
- [\[25\]](#) See Cooijmans, P. (2013). Issues in the norming of high-range tests.
- [\[26\]](#) See Cooijmans, P. (2013). Reasons to express I.Q. with a standard deviation of 15.
- [\[27\]](#) See Cooijmans, P. (2006). On the relative weight of item types in a mixed-item test.
- [\[28\]](#) See Cooijmans, P. (2014). The location of the 99.9th centile.
- [\[29\]](#) See Cooijmans, P. (2014). Individualism: the plague of the high-I.Q. community.
- [\[30\]](#) See Cooijmans, P. (2006). On the admission of psychologists.
- [\[31\]](#) See Cooijmans, P. (n.d.). Straight talk about asperger syndrome.
- [\[32\]](#) See Cooijmans, P. (n.d.). Gifted Adult’s Inventory of Aspergerisms.
- [\[33\]](#) See Cooijmans, P. (2009, September). Asperger’s 1944 article summarized.
- [\[34\]](#) See Cooijmans, P. (2014, October). Some thoughts on Bettelheim’s *The Empty Fortress*.
- [\[35\]](#) See Cooijmans, P. (2003). Spatial ability and autism.
- [\[36\]](#) See Cooijmans, P. (2010). Body language: The walking ink blot.
- [\[37\]](#) See Cooijmans, P. (2011, March). Mistaking inquiry for request.
- [\[38\]](#) See Cooijmans, P. (2014, May). Recognizing pseudoscience.

- [\[39\]](#) See Cooijmans, P. (2005). The psychology of false information.
- [\[40\]](#) See Cooijmans, P. (2005). The psychology of the occult.
- [\[41\]](#) See Cooijmans, P. (2004). Genius, Gifted, Prodigy, or Savant?.
- [\[42\]](#) See Cooijmans, P. (2006). Early Memories.
- [\[43\]](#) See Cooijmans, P. (2014). Introversion *versus* extraversion.
- [\[44\]](#) See Cooijmans, P. (2005). Comment on the Unabomber's Manifesto.
- [\[45\]](#) See Cooijmans, P. (1999). Definition of G.
- [\[46\]](#) See Cooijmans, P. (1999). Explanation of G.
- [\[47\]](#) See Cooijmans, P. (n.d.). GAIA: Gifted Adult's Inventory of Aspergerisms.
- [\[48\]](#) See Cooijmans, P. (2009, September). Gifted Adult's Inventory of Aspergerisms (GAIA) – Statistical Report.
- [\[49\]](#) See Cooijmans, P. (2007). Personality Scales for Intelligent Adults (P.S.I.A.).
- [\[50\]](#) See Cooijmans, P. (2012). Explanation of the Personality Scales for Intelligent Adults.
- [\[51\]](#) See Cooijmans, P. (n.d.). Old articles.
- [\[52\]](#) See Cooijmans, P. (1995, July). Test For Genius.
- [\[53\]](#) See Cooijmans, P. (1996, February). Letter about Test For Genius.
- [\[54\]](#) See Cooijmans, P. (1994, June 21). Graduator.
- [\[55\]](#) See Cooijmans, P. (1997, September). The Nemesis Test – Introduction.
- [\[56\]](#) See Cooijmans, P. (2014, February). The Nemesis Test – Statistics.
- [\[57\]](#) See Cooijmans, P. (1998, January). Letter about Test For ESP.
- [\[58\]](#) See Cooijmans, P. (1998, March). Editorial policy.
- [\[59\]](#) See Cooijmans, P. (1998, June). Letter about awareness.
- [\[60\]](#) See Cooijmans, P. (1998, September). Institute For Advanced Study.
- [\[61\]](#) See Cooijmans, P. (2012). Psi Tests.

- [\[62\]](#) See Cooijmans, P. (n.d.). Personality tests.
- [\[63\]](#) See Cooijmans, P. (n.d.). Psychology.
- [\[64\]](#) See Cooijmans, P. (n.d.). Asperger syndrome.
- [\[65\]](#) See Cooijmans, P. (n.d.). GliaWeb I.Q. Societies.
- [\[66\]](#) See Cooijmans, P. (n.d.). Intelligence.
- [\[67\]](#) See Cooijmans, P. (n.d.). Challenge Distinction: Brennan Martin Prize for ESP.
- [\[68\]](#) See Cooijmans, P. (n.d.). PSIMETRIC REMOTE VIEWING EXAMINATION: The World's Most Difficult PSI Test.
- [\[69\]](#) See Cooijmans, P. (2006). Test for psychokinesis.
- [\[70\]](#) See Cooijmans, P. (2007, July). Interview with Craig Smith.
- [\[71\]](#) See Cooijmans, P. (n.d.). References regarding the possible mechanism behind psi phenomena.
- [\[72\]](#) See Cooijmans, P. (2010). Human evolution.
- [\[73\]](#) See Cooijmans, P. (n.d.). I.Q. and real-life functioning.
- [\[74\]](#) See Cooijmans, P. (2014, May). The paradox of inherited homosexuality.
- [\[75\]](#) See Cooijmans, P. (2015). Eating meat.
- [\[76\]](#) See Cooijmans, P. (2008, April). Interview with Sarah Kraak.
- [\[77\]](#) See Cooijmans, P. (n.d.). Developments in the 21st century.
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[\[227\]](#) Each of the following footnotes referencing photos have copyright from 1978 to the present, as stated in the index for them. Therefore, their reference dates shall list 2015 rather than some other references with “n.d.” standing for “no date.”

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- [255] For those with further information, especially with respect to newsletters, personal contacts, the footnotes following this one give some appropriate web pages.
- [256] See Cooijmans, P. (n.d.). Contact information.
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An Interview with Marco Ripà, B.Econ.Sc. (Part One)

2016-01-01

*An interview with **Marco Ripà**. He discusses: geographic, cultural, and linguistic familial background; influence on personal development; pivotal moments; loneliness and associated fear in youth, and its frequency in gifted youth; physique sculpting and personal combat training; B.Econ.Sc., magna cum laude; autodidactic proclivities; expertise and knowledge and its benefit for personal and professional life; contents of the big IQ projects; inspiration for mathematics competitions, papers in number theory, and the creation of integer sequences for OEIS; title, contents, and interest in the discrete mathematics book; academic papers on currency speculation, market failures, social justice, and sub-prime mortgage crisis; common intelligences with lower than expected occurrence and flourishing; a society that provides for the gifted and talented; summarization of the research subjects completed by him; entrance into the high-IQ and ultra-high-IQ world; and the inter-relationship development up to the present between the high-IQ, and ultra-high-IQ, community and himself.*

Scott Douglas Jacobsen: In terms of geography, culture, and language, where does your family background reside?

Marco Ripà: I was born in Rome (Italy), 31 years ago, and I still live here. My parents' IQ is average and my family belongs to the Catholic middle class (let's say, none of them talks a second language or knows how to create a P.D.F. file – sad but true), despite this I became agnostic at the age of 17 and I started to read foreigner thinkers such as Nietzsche, Voltaire, Goethe, Rousseau and so on...

Jacobsen: How did this influence personal development?

Ripà: I think that this environment has not influenced my cultural development in a positive way, even if I opened my mind and started to think deeper about myself when I discovered the World Wide Web and Google.

Jacobsen: What about influences and pivotal moments in major cross-sections of early life including kindergarten, elementary school, junior high school, high school, and undergraduate studies (college/university)?

Ripà: Well, when I was a child I was afraid of school (I was in a kindergarten just for one year or so). The loneliness was triggering the fear but, sometimes, the fear of being rejected by others was driving the loneliness itself... I started feeling better during my high school years, practicing karate (wado-ryu style at agonistic level) and starting to lift some weights. From my very personal point of view, it could be good to change something in your lifestyle in order to make a change in the way you relate with others and to make them feel good with you, starting to listen more their words rather than just talking.

Jacobsen: You noted the fear brought on by loneliness in youth. Does this happen with frequency among the gifted?

Ripà: I think so. Obviously, it is not a general rule, but I think that it can be a very common condition, especially if you have some Asperger traits too.

Jacobsen: You mentioned weightlifting and karate, “wado-ryu style.” What does physique sculpting and personal combat training provide for you?

I started practicing karate during my second High School year. My initial thought was that it would be helpful to gain some respect in my classroom, to avoid myself from getting bullied. Keep training, I gained many injuries and I started to realize what is the real meaning of this discipline, looking at it not just as a sport. Later I started to train myself also at the gym, hoping to become stronger and I gradually reduced my commitment in karate, looking for something more flexible to practice during my college years. At the end of the journey I can say that I have gained many injuries and a lot of respect for the sports, their practitioners and their common values.

Jacobsen: You earned a B.Econ.Sc., *magna cum laude*.^[5] What expertise and knowledge comes with this qualification?

Ripà: I consider myself a self-taught man with a wide range of interests (including Psychometrics, Statistics, Divergent Thinking and Mathematics) but, at the time, my thought was that a degree in Economics would have been better than a degree in Physics, so I left the “Physics and Astrophysics” course and I spent a few years studying Keynes, Friedman, Wicksell, Hayek and their ideas about the trade-off between equity and efficiency. I did not appreciate Economic theories very much, because I prefer more abstractive and rigorous subjects, so I finally left university when the sub-prime mortgage crisis reached my country.

Jacobsen: “Psychometrics, Statistics, Divergent Thinking and Mathematics” provide a solid foundation for research into intelligence. Intelligence research observes and examines the gifted and talented. Gifted and talented individuals might tend towards autodidactic education. Your own autobiography given before describes this. As a general rule about and for the gifted and talented, do autodidactic proclivities seem true about them to you?

Ripà: I read being a self-taught person as a natural response to an inner discomfort, when you cannot find enough challenge in the school or if it cannot put you in the right perspective. I do not know if a general rule exists, but I think that any unrecognized gifted individual can easily develop many interests in the world wide web era. Speaking about talented people, it is probably true that if they can taste their passion (at least) one time, they can usually find the way to follow it.⁸

Jacobsen: How did this expertise and knowledge benefit personal and professional life?

Ripà: To be honest with you, I have to say that I did not use very much what I learned in the Economics field. When I left the College/University (here in Italy they are basically the same thing) I participated in a few projects within the private sector, unfortunately my colleagues did not keep their word about them... so, during the last few years, I have worked alone on some projects involving abstract conceptualization, 3D modeling, giftedness and proficiency analysis.

By the way, I am currently working, as a member of two different teams, on two big projects relating to IQ.

Jacobsen: With respect to those two different teams purposed to the study of IQ in big projects, what remain the contents of those projects?

Ripà: Well, the aim of the first project is to establish a not yet existing link between the high IQ world and the job world, for an interesting exchange never realized, where very selected “brains” are offered for companies searching for special abilities: this is “BrainsJob”, indeed. The second project is the implementation of my spatial dynamic IQ tests (ENSDT): the original idea was explained in my ebook “<https://books.google.it/books?isbn=8863699461>” in 2012.

Jacobsen: You earned an honor prize in high school and second place in the high school mathematics competition around the same time. In addition to these accomplishments, you authored papers on number theory and created some integer sequences for OEIS. What inspired taking part in these for you?

Ripà: As previously mentioned, since I was a child I liked discrete mathematics very much. Thus, after the undergraduate degree I started to write a novel involving cryptography and a book about hyperoperations. This book focused on the p-adic convergence of tetration contains many integer sequences and a few of them were not listed on the OEIS, thus I decided to submit them. To date I have contributed to the OEIS with more than 40 new sequences. I have published also a few papers on peer-reviewed journals (such as “Notes on Number Theory and Discrete Mathematics” and “Matematicamente”) relating to prime numbers and a couple of papers about the classic *Nine Dots Puzzle* extended to any k-dimensional space ($k > 2$), the latest paper will be published soon on the same journal.

Jacobsen: Regarding the title of the book based on discrete mathematics and personal interest in it, what was the title of the book and its contents?

Ripà: “La strana coda della serie $n^{n^{\dots^n}}$ ” is a book that I have published in 2011 and it is focused on hyperoperators and their p-adic convergence properties. In particular, I presented some new results about tetration (or hyper-4).

To easy understand what tetration is, you can take a look at the following relations,

addition : multiplication = multiplication : exponentiation = exponentiation : tetration .

Jacobsen: You authored academic papers on currency speculation, market failures, social justice, and sub-prime mortgage crisis. Why these topics?

Ripà: I wrote them in Italian. The first one was relating to my essay “International organizations facing the current crisis” and then I shared my thoughts about social justice: I think that it is very important in order to reduce the gap in education due to economic factors or constraints. Some constraints of a subjective nature, ethics, morals and various prejudices may still persist: intelligence is not focused in specific areas or specific regions of the planet. This implies that, anywhere, in different social, religious, economic and environmental situation, we may find the

presence of intelligences that, under the right conditions, might be able to put to use their gift. Thus, contexts in which the dynamics of social, religious, environmental but also economic and infrastructure aspects do not allow personal development, could drive us to miss the great chance to give these humans like us the opportunity to develop their talents. And this could be done with the intelligence as well with artistic talents. Moreover, social issues (religious, environmental, and so on...) can affect the development of the personality of “gifted” children and “gifted” adults.

Jacobsen: With respect to the underutilization of gifts and talents of the gifted and talented, what common intelligences seem to have lower than expected occurrence and flourishing?

Ripà: Very hard to say, and I am not a big fan of Gardner’s theory of multiple intelligences. Could I argue for a quite common lack of “relational skills” or so? This would be the main key, in my opinion.

Jacobsen: What society appears to provide for the gifted and talented?

If we assume that we live in a modern country where liberalism and *laissez-faire capitalism* belong to the mainstream, and where the idea of the self-made man (such as Jobs, Gates, and so on) is often embodied by gifted and/or talented people, we could imagine a good scenario, even if it cannot be the best of all. Gifted and talented individuals sometime need to be understood, supported and feeling themselves to be appreciated by others, unconditionally.

Jacobsen: What summarizes each of these research subjects completed by you?

Ripà: Mathematics is my first love and I need to deal with her occasionally, while the hope to support gifted children is my main goal and now I am very happy about what me and my associate, Roberto Enea, are doing in this field: we are implementing the first dynamic spatial IQ test in the world with a unique norm and immune from the risk of cheating! It would be a dream that become reality one day, to have this new generation of tests to be, administrated to measure cognitive abilities with a clinical approach.

Jacobsen: You have deep involvement in the high-IQ world. For examples, you founded the sPIqr Society, co-founded the World IQ Foundation (WIQF), constructed the *X-Test*, presented at the 12th Asia-Pacific Conference on Giftedness in the United Arab Emirates, Dubai (2012), and hold memberships in about thirty high-IQ societies.^{[6],[7],[8]} In addition, you have an interesting proposal for a new computer-based intelligence test for the high-range.^[9] How did this entrance into the high-IQ and ultra-high-IQ world begin for you?

Ripà: Good question, thanks for letting me tell this story. I discovered IQ tests in early 2009, searching for something to relax my brain after my last exam. I found the M-FACE/L test and I took it. A few months later I took the 916 test by Laurent Dubois scoring well in either cases... I put the blame on Google.

Jacobsen: How did this inter-relationship develop up to the present between the high-IQ, and ultra-high-IQ, community and yourself?

Ripà: When I discovered my giftedness I started to learn more about this topic and I sadly understood that in my country the word “gifted” is almost unknown and there is not any support in our schools (no acceleration, no curriculum compacting nor curricular enrichment). Thus, I decided to found the sPIqr Society after I joined some well-known high-IQ groups. Now I have many pen friends all over the world and I can see our society from a lot of different perspectives.

Appendix I: Footnotes

[1] Founder, sPIqr Society; Co-Founder & Co-President, World IQ Foundation (WIQF).

[2] Individual Publication Date: January 1, 2016 at www.in-sightjournal.com; Full Issue Publication Date: May 1, 2016 at www.in-sightjournal.com.

[3] B.Econ.Sc. (*magna cum laude*), University of Roma Tre.

[4] Photograph courtesy of Marco Ripà.

[5] Please see LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.

[6] Please see sPIQr Society. (2015). sPIQr Society. Retrieved from <http://www.spiqrsociety.com/>.

[7] Please see World IQ Foundation. (n.d.). Organizers. Retrieved from <http://wiqf.org/international-titles/organizers/>.

[8] Please see World Intelligence Network. (n.d.). SPIQR. Retrieved from <http://www.iqsociety.org/win/societies/spiqr/>.

[9] “High-range” defined as “at or above 3 standard deviations or 3 sigma from the norm.”

An Interview with Marco Ripà, B.Econ.Sc. (Part Two)

2016-01-08

*An interview with **Marco Ripà**. He discusses: positives and negatives in the world of the high-IQ and ultra-high IQ; famous flames in the high-IQ and ultra-high IQ; personality difference among the gifted generalists and gifted specialists; creating, developing, and sustaining the sPIqr Society up to the present; total number and personality profile of the sPIqr Society membership; source of linguistic talent; accrued benefits for professional and personal life; YouTube channel; aerobic, balance, and strength health recommendations; source of aforementioned interests; Asperger's Syndrome advantages and disadvantages; utilization of advantages and adaptation of disadvantages of Asperger's Syndrome; Tim Page, Glenn Gould, friendship, companionship, and Asperger's Syndrome; audio-visual media for self-expression and its contrast with print media; most correct general philosophy; most correct ethical philosophy; most correct political philosophy; most correct social philosophy; most correct economic philosophy; and the singular philosophical framework of the most correct general, ethical, political, social, and economic philosophy in civilization.*

Scott Douglas Jacobsen: You co-founded WIQF with Dr. Manahel Thabet. How did this collaboration develop and influence the growth of WIQF up to the present?

Marco Ripà: The WIQF would not have been founded without Dr. Manahel Thabet. The original idea come-up in my mind a few years ago. At the time, my thought was that high IQ people should ask for a more reliable and strict ranking than the WGD. People tend to report only their top scores forgetting the rest, but this partial info would lead to inflated scores, so I reported this issue to Manahel and we finally decided to create the WIQF: she helped me with the WIQF formula, its registration, with the website and later bringing inside the group (as advisory board members) Prof. Tony Buzan and the chess Grandmaster Raymond D. Keene OBE. One year later, WIQF does not count many members, but the average level is really good.

Jacobsen: With respect to the *X-Test* and other high-range intelligence tests, how does one create, develop, refine, administer, statistically norm, and publish a legitimate test?^[5]

Ripà: The X-Test is no longer in use since May 2013, because I analyzed the main problems related to high range tests. You can find the whole story here: [http://www.researchgate.net/publication/251238254_X-Test Solutions Finally Revealed!](http://www.researchgate.net/publication/251238254_X-Test_Solutions_Finally_Revealed!)

By the way, high range tests (even my ENSDT 20 and ENSDT Prototype) cannot be an exact science not because their norm cannot be based on thousands of testees, norms are usually based on z-score, I mean on the scores achieved by a testee on most reliable, recognized and supervised tests. It is not easy to do, but I hope to provide a useful tool to guess the ultra-high-IQ taking a Gf loaded test at home, without any time limit.

Jacobsen: How did the opportunity arise to present in Dubai in the United Arab Emirates?

Ripà: It was Dr. Manahel Thabet to give me this opportunity and I am really grateful for having had the chance to present a couple of papers about gifted children features and their needs, plus a screening method to easily identify gifted pupils inside the school. It was a great experience and a memory that will last a lifetime.

Jacobsen: What positives and negatives exist in the world of the high-IQ and ultra-high IQ?

Ripà: In my humble opinion, the world of the high-IQ is not very different from common life. High-IQ groups are groups of different people, from different countries, religions, ideas and so on. We usually talk in English or Spanish and sometimes a flame can be hard to be resolved, especially if you are talking about an IQ related topic. The best gift I have received from high IQ people is a 360° understanding, sharing a lot of interesting ideas and projects, while on the other side of the coin I can see some lack of self-confidence and existential loneliness.

Jacobsen: Based on the response, flames in the high-IQ community remain hard to extinguish at times. However, most should self-exhaust because most societies most of the time continue to persist, even grow and adapt to internal changes. Any famous flames which continue in high-IQ and ultra-high-IQ community?

Ripà: A famous personal flame is the one against the Figure test (by N. Soulios and L. Papadioti), since I started it asking for its norm to the authors: as I got no response, I guessed that Figure has not any serious norm. Now I am trying to avoid this topic, keeping the focus on my own online (dynamic) IQ tests.

Jacobsen: A panoramic perspective can come from the gifted, but numerous gifted individuals specialize and think deep thoughts about a single topic. What personality characteristics seem to separate the gifted generalists and the gifted specialists?

Ripà: First of all, their persistence and the interest in the specific topic, but there could be so many elements that we should take into account. Modern sciences require to do so if we hope to achieve something great. Perhaps, the last person with a very deep knowledge of an entire field of science was the Italian physicist Enrico Fermi.

Jacobsen: How did you create, develop, and sustain sPIqr Society up to the present?^[6]

Ripà: I founded sPIqr at the beginning of 2010, creating a website and a mailing list while, a few months later, I created the Facebook group too. I cover its costs using the small (one time) membership fee paid by members who join the 1/5000 society, even if I let somebody join for free if he has a real reason that prevent him from paying.

Jacobsen: What is the total number and general personality profile of the sPIqr membership – aside from nationality and IQ rarity?

Ripà: sPIqr full members are obviously very smart, we have a member who gained his bachelor degree as a teenager and a few other child prodigies, but there are also some gifted underachievers. The full membership status requires to go beyond the 153 SD=15 mark on two

different kind of tests, so sPIqr members are usually skilled in different fields, loving mathematics, poetry, writing and so on. Many of them are listed on a lot of high IQ societies and they like logics and IQ tests, caring about the cause of the group: to try and help gifted pupils in their schools, spreading IQ knowledge and related issues all over the world.

Jacobsen: You speak five languages at various levels of proficiency including Italian (native), English (professional), French (professional), Spanish (limited working), and Latin (limited working).^[7] Where does this linguistic talent source itself?

Ripà: I do not consider myself very good at languages, including English. However, trying to understand what I read I have learnt some English by myself and a little Spanish in just two weeks when I was at the university (in Italy we study Latin during our high school years, translating ancient poets and statesman from Latin to Italian). Last year I started to study French because my (former) girlfriend and I were planning to go and live in Geneva, together. Unfortunately our relationship broke-off before our common project could have been realized.

Jacobsen: What benefits have accrued throughout professional and personal life because of them to you?

Ripà: Let me skip this point answering the question with another one: “Can we say that this wonderful interview is not enough?”

Jacobsen: You host an Italian language (with English translation possibilities) YouTube channel.^[8] What is the core content of the channel?

Well, thanks for asking. I opened the channel in 2006 when YouTube was far smaller than the large community we can see nowadays... it was just a (small) fitness channel focused on home training: I used the channel to share my lifts on a thematic forum to improve my form and technique.

A few months ago I decided to move the channel on IQ related topics, talking about giftedness, IQ tests, Asperger Syndrome (yeah, I am an Aspie too), physics, etc... I would like to share the first spatial dynamic IQ test and the other project (related to IQ as well) we are working on through this powerful platform at the right time (very soon).

Jacobsen: Fitness training regimens can differ in the scope and intensity of recommendations for the trainees by the trainer. In terms of the long-term fitness training regimen recommendations from you, such as those through the YouTube channel, what general fitness training regimen recommendations should most people most of the time practice for general health in terms of aerobic, balance, strength, and stretch health?

Ripà: My personal suggestion is to avoid powerlifting and bodybuilding, while aerobic training and/or practicing a good martial art as an amateur would be a good idea. I regret the hard lifts I did in the past ten years.

Jacobsen: Where do these interests source themselves for you?

Ripà: Very hard to say, I guess they can be in some way related to the giftedness plus Asperger combo. I do not think that I could have been influenced by family, peers or school in this way.

Jacobsen: Asperger's Syndrome exists as a pervasive developmental disorder (PDD). Insofar as this ubiquitous developmental disorder expresses itself in the daily lives of those with its symptoms across its spectrum, and from the 31 years of personal experience, if I may ask, what advantages and disadvantages come with Asperger's Syndrome?

Ripà: I tried and explained what Asperger is in a video loaded on Youtube a couple of months ago. However, generally speaking, living with the Asperger is not very nice and Aspies are hardly understood by neurotypicals. We are hypersensitive people, reconnecting ourselves with our childhood; we can feel depressed for no reason, there is an higher risk of suicide and meltdowns are not so infrequent between us. I admitted to have the Asperger as an adult and I simply lived my life without caring so much about this PDD, my thought was that I was simply "uncommon", with my occasional fixations and hobbies.

Jacobsen: How can an individual with the syndrome capitalize on the advantages, and reformulate thoughts and behaviour around the disadvantages, to create a better life for their self and those of value to them?

Ripà: As I just said, forgetting to be "so strange" (sometime) could be a good strategy to avoid to use the Asperger's Syndrome as an excuse for not achieving our best in everything we start. On the contrary, being an Aspie can turn into an advantage too, because it helps us to stay more focused on the project we are involved in. As an example, you can think to Satoshi Tajiri, the creator of the Pokémon!

Jacobsen: Some stories come to mind about the nature of someone living with Asperger's Syndrome and the need for companionship. In light of this line of discussion, if I may, I will relate one narrative for a moment. Tim Page, a music critic, lives with Asperger's Syndrome, and the late Glenn Gould, had, quite probably, either autism or Asperger's Syndrome, and Page notes the loneliness for himself in a life with the syndrome and without friendship and companionship in terms of relationship with kin. Once Page met Gould, Page described that as a friendship at first sight – so to speak. Music existed as a deep passion for them and the bridge for the oft-sought friendship and companionship for them. For those in the present or the far future who happen to read this portion of the interview and live with Asperger's Syndrome, any advice to them on acquiring the kinship of mind desired by possibly some, or even most, with Asperger's Syndrome?

Ripà: It would be very hard to predict when "friendship" and/or "love" will knock at your door, but if you will keep it open no one will knock at it... thus, Asperger individuals have a good chance to open it at the right person, bearing in mind that we are hypersensitive too. I met my best friend when we were 5 years old and he is a neurotypical man, even if many people I know teasingly call me "Sheldon", referring to the famous BBT character.

Jacobsen: What does audio-visual media provide in contrast to print media for self-expression?

Ripà: I think that both of them can reach the same goal through different paths, it depends on who uses them and how he communicates to his audience. In general, the audio-visual can be a more informal way to share yourself and your character, while print media are more professional and better to communicate, technical and professional contents. To be more specific, I found YouTube very good for tutorials.

Jacobsen: What general philosophy seems the most correct to you?

Ripà: “Est modus in rebus”. It is a quote by the Latin poet Horace (Quintus Horatius Flaccus) from his “Satires 1” that resumes the idea of “Aurea Mediocritas”, meaning that extremes are dangerous and it would be better to try and reach moderation in everything. This is what I would like to achieve, even if I am still far from this personal goal.

Jacobsen: What ethical philosophy seems the most correct to you?

Ripà: I have a strong set of moral and ethical values. I am aware of the fact that morality is derived from evolutionary rules of mankind looking at man as a “social animal” by nature; despite of this my keywords are: benevolence, meritocracy (in employment settings) and social justice.

Jacobsen: What political philosophy seems the most correct to you?

Ripà: Italy is well known for its food and for Mafia, so I have to put my two cents on a governance or authority able to enforce justice, laws and to establish a legal code that remains the same for every citizen.

Jacobsen: What social philosophy seems the most correct to you?

Ripà: I think that every human being should have the same opportunities: the true substantive equality is the enhancement of individuality.

Jacobsen: What economic philosophy seems the most correct to you?

Ripà: Considering the tradeoff between efficiency and equality, I would choose the second one...

Jacobsen: General moderation, and benevolence, meritocracy, and social justice grounded in evolutionary theory, and enforcement of justice, laws, and a legal code for each citizen by governance, and true equality through enhanced individualism, and a focus on economic equality. What unites these in a singular philosophical framework?

Ripà: Civilization.

Appendix I: Footnotes

[1] Founder, sPIqr Society; Co-Founder & Co-President, World IQ Foundation (WIQF).

[2] Individual Publication Date: January 8, 2016 at www.in-sightjournal.com; Full Issue Publication Date: May 1, 2016 at www.in-sightjournal.com.

[3] B.Econ.Sc. (*magna cum laude*), University of Roma Tre.

[4] Photograph courtesy of Marco Ripà.

[5] Please see LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.

[6] Please see LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.

[7] Please see LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.

[8] Please see YouTube. (n.d.). Marco Ripà. Retrieved from <https://www.youtube.com/user/marcokrt>.

An Interview with Marco Ripà, B.Econ.Sc. (Part Three)

2016-01-15

*An interview with **Marco Ripà**. He discusses: interest in arts and culture, children, economic empowerment, human rights, education, and science and technology; accrued benefits from them; changes to the educational systems of the world; development of an educational system to provide for the needs of the gifted population; most important global problems; solutions to them; policies and economic system for “equitable redistribution”; remedies for problems of diet, fitness, and social connections; a general moral, intellectual, spiritual, and emotional progression or development; ultimate relationship between consciousness and the universe; differentiation of “mankind” from the rest of the animal kingdom; relationship of mathematics to the operation of the universe; ease of correspondence due to accident/chance, design/teleology, or an alternate possibility; reasonableness of artificial intelligence with consciousness in the near future; major organizations devoted to similar causes; Gino Strada and his wife; myths around the gifted and talented population; possible motivation for the one third of underachievers in the gifted population; truths to dispel the myths; shared concern for the gifted population, especially the young; responsibilities of the gifted population towards society and culture; reason for thinking this; argument for provision for this sector of society; person of most influence on him; personal heroes in history; personal heroes in the present; smartest person he’s ever met, Evangelos Katsioulis; most creative people he’s ever met, Manahel Thabet and Enrico Preziosi; most intelligent person to have ever lived in human history without necessary overlap with IQ; the future for gifted and talented education in Italy; best untimed, power, intelligence test; technological advancement and the gifted and talented landscape influence in education, in governmental policy, in socio-cultural life, in their definition; upcoming collaborative projects; upcoming solo projects; and near and far future for the ultra-high-IQ community.*

Scott Douglas Jacobsen: You have in interest arts and culture, children, economic empowerment, human rights, education, and science and technology.^[5] Why these interests?

Ripà: When you feel that something is wrong around you and inside you, almost every day of your life, you start to search a response, but there is no solution and every answer brings two or more questions. An endless process, a continuous search for the unknown.

Jacobsen: What benefits accrue from them?

Ripà: Keep thinking in order to avoid what I prefer to forget, I mean: “To preserve a flexible and curious brain”, just as children do.

Jacobsen: If you could, how would you change the educational systems of the world?

Ripà: My dream would be to see an educational system that is not stereotyped, that can adapt itself to individualities, allowing pupils, children and boys to express their full potential and capabilities for the benefit of society. There should not be “better” or “worse”, just different people on the same world.

Jacobsen: In particular, how would you develop an educational system to provide for the needs of the gifted population?

Ripà: Through acceleration, curricular enrichment and curriculum compacting, this means to let the educational system be more flexible, introducing a preliminary screening for every pupil of a class. A good solution would be to combine a collective IQ test with an individual one (e.g., Raven's Coloured Progressive Matrices with a cut-off at the 90th percentile plus WISC for pupils above 120 SD=15). You can find more info here: <http://www.slideshare.net/marcokrt/identifyng-gifted-children-and-dyslexia-early-diagnosis-risk-of-cheating-on-iq-tests>

Jacobsen: What global problems do you consider most important at the moment?

Ripà: Food. Food is life and there is a very strong link between food and global health: unfortunately this is still a massive issue for too many people around the world.

Jacobsen: How would you solve them?

Ripà: Reducing the inequality of income and wealth, forcing towards a more equitable redistribution of them, spreading the growth opportunities from the most privileged people to the forgotten ones.

Jacobsen: What policies and economic system would further this “equitable redistribution”?

Ripà: Inequality directly undermines equality of opportunities: it entrenches immobility also affecting opportunity on a daily basis, leading to inefficiency. Thus, the classic and aforementioned trade-off between equity and efficiency is not a dogma, if we can find a good approach to use the new “capabilities” for achieving and sustaining the growth. So, my favorite model is definitely Martha Nussbaum's theory of justice: it is focused on some fundamental capabilities, dignity and a threshold, expanding Sen's capabilities approach.

Jacobsen: Insofar as the global health issues relate to poor diet – noted in question 45, poor fitness regimens, and poor social connections with the introduction of modern technology too, what means seem to provide the remedies for each of these problems of diet, fitness, and social connections aside from equitable redistribution?

Ripà: Informing children and their families about the risks of those “modern age mistakes”, as much as possible, would be a good starting point.

Jacobsen: If you do consider a general moral, intellectual, spiritual, and emotional progression or development, how do you view development from the basic to most advanced levels at the individual and collective level?

Ripà: This is a hard question for me and I can only guess something about living in peace as a group rather than living for ourselves looking for others approval, hoping in their envy to be

recognized as “winners”. I do not know why I am here, on this strange world, nor if there exists any reason to be here, but here we are and I feel that it is important to help those who are unlucky to be proud of us. We cannot forget that we are just men, calling us “mankind”.

Jacobsen: What is the ultimate relationship between consciousness and the universe?

Ripà: Being conscious of ourselves is what makes us to feel alive. The whole universe is around and inside us: an exterminate, multidimensional, place in the pocket of a single brain.

Jacobsen: Based on personal analysis, what differentiates “mankind” from the rest of the animal kingdom?

Ripà: As Albert Einstein explained to a little child, we are smart animals, but just animals: our brain should be the key to raise mankind above animal level, and a good help was given by the opposable thumb. Unfortunately there would be a second answer to the same question: human beings are more cruel than the rest of the animal kingdom, what a big difference a smart brain makes!

Jacobsen: What explains the relationship of mathematics to the operation of the universe?

Ripà: This is the task of the philosophy of mathematics and I do not want to take away the big answer to Hilary Putnam and his heirs.

Jacobsen: Does this ease of correspondence seem based on accident/chance, design/teleology, or an alternate possibility to you?

Ripà: The only thing I can argue here is that both mathematics and the Universe seem to equipoise their rules and formulas, Galois showed this with his group theory too. I like very much asymmetrical formulas such as Maxwell’s equations, describing all classical electromagnetic phenomena. Electromagnetism is one of the four fundamental forces (interactions) of Nature, indeed.

Jacobsen: Does the creation of an artificial intelligence with consciousness seem reasonable in the near future?

Ripà: I do not think so, but... “Who knows?”. It is very hard to predict this: I am still trying to answer to “Why am I conscious about myself?” I think about it since I was a child and I have not solved the riddle after so many years.

Jacobsen: What other major organizations devoted to similar causes can you recommend for resources and support?

Ripà: UNICEF and Emergency (an Italian humanitarian NGO founded by Gino Strada and his wife in 1994).

Jacobsen: Please expand, who are Gino Strada and his wife?

Ripà: He is a brave medical doctor (surgeon) who said about himself “I am not a pacifist: I am against war!”. He and his wife, Teresa (who died in 2009), founded the humanitarian medical organization “Emergency”, officially not recognized as a NGO, with the aim to provide basic medical services to civilians in many countries devastated by wars. He is also an author and he openly opposed the Italian government for its support to the NATO in a peacekeeping mission in Afghanistan (the ISAF Operation).

Jacobsen: What myths exist around the gifted and talented population?

Ripà: It is quite common to assume that a gifted person should be good at school or that he will live a happy life: on the contrary, there is about one third of the gifted population that is composed of underachievers. Moreover, too many gifted men are nihilists or depressed, feeling sad most of the time.

Jacobsen: What might motivate this one third of underachievers in the gifted population to begin to achieve to some small, or even large, degree?

Ripà: They need to find a subject to study both challenging and interesting for them, feeling good at school and inside their class. It is not easy at all to achieve such a goal, but we have to do our best in order to reduce this big loss.

Jacobsen: What truths dispel them?

Ripà: “Truth” is relative and, in my humble opinion, it would have to be declined in as many meanings as we can see different cases and situations to apply it. Gifted or not, talented or not, first we are men who dream to be accepted as we are.

Jacobsen: You share a concern of mine. In particular, the sincere desire to assist the gifted population in flourishing, especially the young. Now, many organizations provide for the needs of the moderately gifted ability sectors of the general population, most often adults and sometimes children. However, few provide for the needs of children (and adults) in the high, profound, exceptional, or ‘unmeasurable’ ability sectors of the general population. Some organizations and societies provide forums, retreats, journals, intelligence tests, literature, or outlets for the highest ability sub-populations. What can individuals, organizations, and societies do to provide for the gifted population?

Ripà: It is just a matter of priority: “in primis” gifted children need to be accepted and supported by their family and by their school. Thus, they need to be identified during their early childhood... I think that this would be a very good starting point. We can do more for them, such as focusing our attention on their relationships with peers, the third pillar of a gifted children development in addition to “family” and “school” according to many experts (Monks et al.).

Jacobsen: In turn, what responsibilities do the gifted population have towards society and culture?

Ripà: If they are well-supported starting from their childhood, they will gain more chances to

bring significant benefits to society contributing to science and human arts. In addition, they have to develop a deeper comprehension of mankind and the need of social justice, because they have the tools to better understand the world and the human behavior.

Jacobsen: Why do you think this?

Ripà: Because I am a gifted myself, I guess. Who knows?

Jacobsen: What argument most convinces you of the need to provide for this sector of society?

Ripà: It would be very sad to waste talent, because it is not true that gifted people always create their own opportunities if they cannot be supported by a good environment to let them grow-up in the right way. This would be a pity and a great loss for the whole society.

Jacobsen: Who most influenced you?

Ripà: When I was young, I was inspired by Dante Alighieri and Voltaire. Now that I am over 30, I still admire rebel geniuses, such as Évariste Galois and Friedrich *Nietzsche*.

Jacobsen: What personal heroes exist in history?

Ripà: I like very much Rostand's Cyrano de Bergerac, but some of my favorite historical heroes are Socrates, William Wallace, Newton, Tesla, Ettore Majorana, Mahatma Gandhi, the Tank Man and the Italian carabinieri Salvo D'Acquisto.

Jacobsen: What about in the present?

Ripà: Three Nobel Laureates fighting poverty for more global justice: Malala Yousafzai, Kailash Satyarthi, Amartya Sen and his "*Capability Approach*".

Jacobsen: Who is the smartest person you've ever met?

Ripà: This is a really hard question, but, basing my guess on IQ performances only, my best choices are Evangelos Katsioulis and an Italian fellow student I met when we both attended Physics courses, his name is Sergio Simonella. I think he is a mathematician now and I remember he was really smart, a fast thinker too.

Jacobsen: Who is the most creative person you've ever met?

Ripà: Someone I see almost every time, walking next to a mirror... but I have not met a lot of people in my life. However, a couple of very creative person I met years ago are the entrepreneurs Manahel Thabet and Enrico Preziosi (owner of a famous toys brand).

Jacobsen: Who appears to be the most intelligent person to have ever lived in human history – not by necessity an overlap with IQ?

Ripà: In order to answer this question we should previously agree about a embraceable definition of “intelligence”. Anyway, could I guess “Johann Wolfgang von Goethe” instead of “Leonardo da Vinci” without making my compatriots getting angry? Perhaps it would be better to choose “the one who invented the wheel” and stay in peace.

Jacobsen: What lies in the future for gifted and talented education in Italy?

Ripà: Unfortunately, I cannot see any good news on the horizon. People keep talking about their “professional work” in this field, pushing parents to pay for a private screening, but nothing is moving in Italian children’s future, gifted or not. Considering how many spots about gambling our children watch, I fear a (big) blind future for them.

Jacobsen: What untimed, power, intelligence test seems the best to you?

Ripà: My favourite untimed test for the high range is Lato’s LS36, because IMHO it still remains the best Gf loaded HRT. You can find similar ideas in latest HRTs and this proves that LS36 is a great test and that newest ones can suffer from the learning contamination effect, as explained here: <http://www.scribd.com/doc/144702702/HRTs-Big-Flaws>.

Jacobsen: How will the continued increase in the pace of technological advancement alter the gifted and talented landscape, for example, in education, in governmental policy, in socio-cultural life, in their definition, and so on?

Ripà: Looking at the Flynn effect, we could argue that the technological advancement increases people’s IQ (gifted or not) as well. It is clear that computer based skills will become more and more important but, if you want to know more, I have to take the crystal ball and tie my turban.

Jacobsen: Any upcoming collaborative projects?

Ripà: I am currently involved in two “big” collaborative projects dealing with IQ: the first one will be an 8 hands platform to connect high IQ people and smart jobs offers, while the second one is the aforementioned implementation of the Dynamic Spatial IQ Tests. I and Roberto Enea will work on it for the most part of the 2016 in order to achieve this ambitious goal. We have already started making a prototype of the system that let us check all the transformations we are going to use for every test. This tool will let us deepen the study of the tests in order to detect error conditions (e.g., multiple solutions) and it has been developed as a stand-alone application, even if our aim is to turn it into a web application during the first step and later into a smartphone application. In the web application we are going to apply all the security features necessary to guarantee the correctness and non-hackability of the test and at the same time the privacy of the scores.

Jacobsen: Any upcoming solo projects?

Ripà: I am currently focused on my YouTube channel [<https://www.youtube.com/user/marcokrt>] and I am still working on a few math papers concerning primes and the extended “Nine Dots Puzzle” [<http://nntdm.net/volume-20->

[2014/number-1/59-71/](#)].

Jacobsen: What near and far future seems most probable for the ultra-high-IQ community?

Ripà: In the near future I think that we keep on arguing about who has the highest IQ (sometimes taking many low quality tests and reporting only the top score). Many of us will continue to quietly writing books, feeling frustrated about the small numbers of people to talk to, and probably slightly more contact with one another online through Google Glass or so, ignoring bigger problems related with food lack, resources shortage, terrorism and overpopulation. I hope there will not be a third world war and it will come true just my prediction concerning who has the highest IQ and Google Glass. Time will tell.

Jacobsen: Thank you for your time, Mr. Ripà.

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Appendix I: Footnotes

- [1] Founder, sPIqr Society; Co-Founder & Co-President, World IQ Foundation (WIQF).
- [2] Individual Publication Date: January 15, 2016 at www.in-sightjournal.com; Full Issue Publication Date: May 1, 2016 at www.in-sightjournal.com.
- [3] B.Econ.Sc. (*magna cum laude*), University of Roma Tre.
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An interview with Dr. Jason Betts, B.Sc., Dip.M.Sc., Ph.D., D.Sc.: Emerald Alchemist (Part One)

2016-06-01

*An interview with **Dr. Jason Betts, B.Sc., Dip.M.Sc., Ph.D., D.Sc.** He discusses: geographic, cultural, and linguistic family background; growing up; first awareness of abilities; responsibilities based on electronic exposure; written books; the content of the books; creation, development, refinement, administration, statistical norming, and publication of legitimate tests; and the test with the most accurate analysis of general intelligence.*

Scott Douglas Jacobsen: In terms of geography, culture, and language, where does your family background reside?

Jason Betts: They arrived in the 1950's post WWII Europe and were told to learn English and become Australian, a mostly-UK conformist annex of the world. I currently believe that Australia is a very good place to be in the world, with minimal corruption, rich natural resources, high educational and living standards, firm protection (due to natural geography and governmental support) and a high level of civil liberties and democracy. Australians are lucky.

Australia is a country with a rich diversity in people, geography, nature, opportunities and much more. It truly is the lucky country; no man can fail unless he really tries to. I was raised in an environment where things that occur in other counties are foreign and unknown here, evil ... unheard of. It is hard to consider the differences of a normal life (here) and a hard life (there) while watching the international news.

Jacobsen: What was growing up like for you?

Betts: It was difficult. I was different. I was strange – lived in my own world, talked to myself, and understood everything as a commentary between myself and I – in secret, of course, because no-one else would understand what I meant; and even, if (!) I were to explain, they wouldn't have understood, for while I could not understand mental spacial relationships, my internal thinking was about half pictures and half visual symbolic representations, like some coloured-energy-cloud that breathed and evolved, like pictures coming together and merging, each with its own meanings and intentions understood – so I couldn't explain these to others, especially as I didn't like most other people.

I played music at seven years (guitar), then moved into brass instruments from nine until seventeen (trumpet through tuba) and have played the bass guitar since then; I tinker with different musics like pan flutes/wine bottles, vocal toning/chanting, keyboard and am a mad lap-tabletop-drummer if inspired enough.

Always excelling in the classroom, I usually failed exams because I argued the semantics of the questions and the test. I always failed school out of the classroom too, finding solace in the school library. In each school, I worked my way, day-by-day, page-by-page, volume-by-volume, set-by-set, through the encyclopaediae, and then moved onto their psychology, philosophy and

science sections. Dewey was my friend.

Jacobsen: When did you first become aware of or first try to develop your abilities?

Betts: I died at the age of seventeen and experienced an out-of-body-experience, viewing my whole body on an operating table and many hospital staff around me, after a road accident. My heart and breathing stopped and I was revived, but I was consciously observing in real-time what was happening to my body, seeing my face and self dying there, a purplish-indigo glow around everything. Until that point, I was a scientist and didn't go for any religious nonsense; but afterwards, I explored yoga, OOBes, psychic phenomena and the like.

Soon after, while learning to walk again around the hospital, I could look at a person and tell if they were going to survive or not. They psychically 'reeked' of death – a feeling – and also what they felt. As a latter-diagnosed Asperger's Autistic, this was very new to me – I could 'feel' in a new way, new doors of my mind had opened, and – like it or not – it was coming to me, ready or not.

My first profound psychic experience was with my school friend Ryan, whom I am still in-touch with. Mum and Dad were driving me to Ryan's 18th birthday party along the West Tamar Highway of Launceston, Tasmania. I screamed as I saw a white 4-door car overturn on the other side of the highway. Then, it disappeared. My parents didn't see it. They said it was the painkillers. Mental, I was. No matter. We went to the party, a sleepover/gaming session. It was a good night, and I told everyone about my vision, and they all agreed with my parents, and we continued to play Archon (a RPG-style video-chess game). Ryan's older brother even turned up for a few hours and played and then left late that night. We went home late next morning. That afternoon I got a phone call from Ryan saying his brother, who left late the night before, driving his white 4-door car, crashed and overturned on the highway driving back to Launceston, just where I had seen it. That was a very spooky moment. My life was never the same.

Jacobsen: You have numerous online resources with reference to, or published by, you. [\[5\].](#)[\[6\].](#)[\[7\].](#)[\[8\].](#)[\[9\].](#)[\[10\].](#)[\[11\].](#)[\[12\].](#)[\[13\].](#)[\[14\].](#)[\[15\].](#)[\[16\].](#)[\[17\].](#)[\[18\].](#)[\[19\].](#)[\[20\].](#)[\[21\].](#)[\[22\].](#)[\[23\].](#)[\[24\].](#)[\[25\].](#)[\[26\].](#)[\[27\].](#)[\[28\].](#)[\[29\].](#)[\[30\].](#)[\[31\].](#)[\[32\].](#)[\[33\].](#)[\[34\].](#)[\[35\].](#)[\[36\].](#)[\[37\].](#)[\[38\].](#)[\[39\].](#)[\[40\].](#)[\[41\].](#)[\[42\].](#)[\[43\].](#)[\[44\].](#)[\[45\].](#)[\[46\].](#)[\[47\].](#)[\[48\].](#)[\[49\].](#)[\[50\].](#)[\[51\].](#)[\[52\].](#)[\[53\].](#)[\[54\].](#)[\[55\].](#)[\[56\].](#)[\[57\].](#)[\[58\].](#)[\[59\].](#)[\[60\].](#)[\[61\].](#)[\[62\].](#)[\[63\].](#)[\[64\].](#)[\[65\].](#)[\[66\].](#)[\[67\].](#)[\[68\].](#)[\[69\].](#)[\[70\].](#)[\[71\].](#)[\[72\].](#)[\[73\].](#)[\[74\].](#)[\[75\]](#) What responsibilities come with this public, professional exposure into the electronic world?

Betts: Ah, the internet. The greatest observable library of the World. Ah, the internet. Well, with great responsibility comes great power (lol, but true), and the key virtue to all leadership – for that is the pathway of power – is trust. Trust is earned, demonstrated and kept by keeping integrity. Anyone can be anyone, but their standing, reputation and value to society is 'held' by integrity, whatever that may be, whatever their values may be, and whatever their actions may hold them accountable for. I believe that for me to do the work I do, which I've not consciously chosen to do – it's just what has happened – that we must adhere to our True Selves, and be the best we can be, and not for our own reputation, but for the sake of others, and indeed, the World.

Jacobsen: You wrote a number books, e.g. *Zen Master: the Art of Perfection* (2008), *Maths Experiments for Year 9* (2005), *Sapientia Diploma of Metaphysics – Knowledge Master*

Program (2000), *MLM Secrets: Networking in the Y2K* (1999), and *A Guide to the New Age* (1996).^[76] How did these become topics of interest to you?^[77]

Betts: Zen seems to appeal to my perfectionist nature and philosophy, MLM Secret was a practical thing, as was Maths Experiments, and Sapiientia is my basic instructional manual in the ‘ways of the world’ self-empowerment and how to learn as much as possible and how to think intelligently and spiritually in as short amount of time as possible.

Jacobsen: What does each book cover?^[78]

Betts: A Guide to a New Age was a spin-off from my ‘Tasmanian Directory of Alternative & Natural Therapies’ where I was the editor and publisher. We did 1000 copies for statewide distributor every two years and this started as a brief explanation of the modalities; but because I was drunk, it was midnight and there was a full moon playing with the harquelin of my mind, I decided to write sillilly, and asked a uni mate of mine (Jon Kudelka, now a famous award-winning national political cartoonist) to match them with images. He did. It was. It sold, went national, became a bit famous – it was a hoot.

MLM Secrets was the publication of a set of notes I’d written after a decade in the industry, Maths Experiments was a collection of mathematical experiments I’d used as a high school math teacher and Sapiientia was a 1-year personal growth program of applied philosophy that drew from the Hebrew Qabala and medieval mysticism (the topic of my PhD research and thesis). Students come for 3-hours every Wednesday night for 44 weeks and get a Diploma of Sapiiential Metaphysics. (Zen is still a work-in-progress.

Jacobsen: You constructed intelligence tests, high-range intelligence tests, namely: *Lux25*, *WIT*, *Mathema*, *Asterix*, and others.^{[79],[80]} How does one create, develop, refine, administer, statistically norm, and publish a legitimate test?^{[81],[82]}

Betts: This question is a book unto itself, and so, I cannot answer it. I may describe the answer in a sentence, perhaps: it takes time, experience, cleverness, cunning and a devious attitude to mettling-out the truth. Publishing is easy. Administering is easy if a home-test providing everything in honest (checking IDs etc) and norming can be complicated. Creating ‘tests that work’ as IQ tests is an art and skill. There are many methods that converge to the Ultimate Truth of the Matter. I have found one that works for me.

Jacobsen: What test provides the most accurate analysis of general intelligence out of the total set of personal tests?^{[83],[84]}

Betts: Asterix (http://www.psiq.org/*.pdf) is my most accurate test. For those that take my four best tests and find their TrueIQ (a term I coined) then Asterix is the closest to their TrueIQ.

Appendix I: Footnotes

[1] Abbot, The Order of the Mystic Rose; Member, HOTA High IQ Societies; Member, Helliq Society; Member, Prometheus Society; Member, Australian Mensa; Member, The Triple Nine

Society; Member, Australian Psychics Association; Member, Masonic Grand Lodge of Tasmania; Member, Infinity International Society; Member, Triple Nine Society; Member, ISI-Society; Australia's #1 Distributor (2007), ForeverGreen's FrequenSea Health Tonic; Owner (2004), Emerald Alchemy, Mail-Order Vitamins, Minerals, Antioxidants; Owner (2000), Taslife Intl, Mail-Order Vitamins, Minerals, Antioxidants; Self Employed (1998), Acupuncture, Massage, Reiki, Nutritional Therapist; High School Teacher (Science/Maths, 1996), Dept. of Education, Tasmania; Editor/Publisher (1995), Tasmania's Alternative & Natural Therapy Directory; Founder/Organiser (1995), Tasmanian Psychic Expos; Started Teaching Magical Tarot (1993), Numerology and the Hebrew Qabala; Started Reading Playing Cards (1990); Professional Magical Tarot (1992); Member of the Order of Merit (2015), Supreme Council of the Thirty-third Degree; Knight Kadosh Thirtieth Degree (2012), Holy Grail Sovereign Chapter, Tasmania; Most Wise Sovereign (2012), Holy Sepulchre Sovereign Chapter, Tasmania; Knight of St John the Evangelist (2004), Patriarchal Council of Scotland; Knight of Rome and the Red Cross of Constantine (2004), Grand Imperial Council of Scotland; Knight of HRM and the Rosy Cross (2003), Grand Lodge of the Royal Order of Scotland.

[2] Individual Publication Date: June 1, 2016 at <http://www.in-sightjournal.com/an-interview-with-dr-jason-betts-bsc-dipmsc-phd-dsc-part-one>; Full Issue Publication Date: September 1, 2016 at <https://in-sightjournal.com/insight-issues/>.

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A218146); Discoverer, base-prime integer sequences (OEIS A21551, A126359); Founder, Tasmanian Natural Therapy Directory; Editor, World Genius Directory; Editor, IQ Societies List; IQ Test Constructor, Lux25, WIT, Mathema, and Asterix; Creator, Betts Square Arithmetic Tool and Number Representation, The Betts Virtuegrams; *30th Anniversary Psychic Ambassador Award* (2013), Australian Psychics Association; Australia's Top Psychic, ABC TV's Unbelievable, Episode One; TV Star Psychic (2008), Channel 7's 'The One', Fox Studios Sydney; Founder, EarthHeart.com.au; Member, Mensa International.

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An interview with Dr. Jason Betts, B.Sc., Dip.M.Sc., Ph.D., D.Sc.: Emerald Alchemist (Part Two)

2016-06-08

*An interview with **Dr. Jason Betts, B.Sc., Dip. M.Sc., Ph.D., D.Sc.** He discusses: reasonable considerations of intelligence tests; advantages of online tests; disadvantages of online tests; pitfalls in measurement of intelligence and creation of intelligence tests; strengths and weaknesses of culture fair intelligence tests; definition of general intelligence; most reasonable other positions; personal hopes for high-IQ sub-population; hoped for accomplishment of IQ tests and the World Genius Directory; suffered canards of geniuses and reflection in personal and social experience; common attributes that demarcate geniuses; common characteristics among geniuses; things wrong with portrayals of geniuses in books, televisions, movies, and journalism; Internet's alteration to the high-IQ landscape; possibility to increase IQ, intelligence, or both; and ways this might occur.*

Scott Douglas Jacobsen: Criticism exists around online intelligence tests, especially high-range online intelligence tests. Mainstream standardized general intelligence tests such as the *Wechsler Adult Intelligence Scale* (WAIS), *Raven's Advanced Progressive Matrices* (RAPM), or the *Stanford-Binet Intelligence Scales, Fifth Edition* (SB-5) tend not to garner criticism.

Major differences exist between the two. Mainstream intelligence tests work within the reasonable extrapolations of the normal range of the bell curve, have a high sample size, implement time limits, and require professional supervision, to name a few.

Online high-range intelligence tests work within the upper limits of reasonable bell curve sigmas at 4 to 6, even rarer, standard deviations, have low self-selected sample sizes, do not implement time limits – except, maybe, suggested limits, and do not require professional supervision, to name another related few.

Fault-finding toward mainstream intelligence tests might emerge in the form of theoretical critiques of the intelligence quotient (IQ) measurements and its purported complete isomorphism with the concept “intelligence.” Each, the WAIS, RAPM, and SB-5, seem to provide the most accurate intelligence scores. The gold-standard, so to speak.

For instance, as noted, four standard deviations remains the highest reasonable extrapolation for them. A standard deviation of 15, 16, or 24, would produce a positive four standard deviation intelligence test score of 160, 164, and 196, respectively. Statistical analysis dictates a theoretical rarity of 1 in 30,000 people. Any further reduces the possible sample from the population. America, for one example, contains an estimated 322,000,000 people.^[5]

322,000,000/30,000 comes out to ~10,733.^[6] In the United States, which seems to utilize 16 as its standard deviation, this would leave about 11,000 individuals with possible IQ scores of 164 or greater.^[7] 11,000 people remains small in terms of the population. Even higher, some minor, and some legitimate, concerns emerge with respect to critiques about online high-range intelligence tests.

Online intelligence tests constructors appear to not have the equivalent resources, staff, and net time. This limits, in theory, their tests' accuracies in measurement of the highest level of ability, which defines their existence, or purpose, for the most part.

From the theory, this might happen in practice too. Some online high-range tests calculate rarities into one in several million, one in several ten or hundred million, and even one in one/several billion. On face value, this can appear unreasonable. With some of this in mind, what seems like a reasonable consideration of the issue to you?

Jason Betts: This is an ongoing issue of high-range IQ testing and also, like many things, always evolving. Not going into history, but things are looking better, in general, as long as some basic rules and regulations are kept. For starters, online testing as we currently know it, i.e. one set test of unchanging questions, is not acceptable as it is easy to cheat by multiple submissions. I am working on a version with dynamic questions (not static), but credit should be given to Marco Ripà whom has created two such tests already – truly, world firsts.

Statistical Deviation = 15 (SD15) seems to be the world standard at the moment for it's ease of use and fitting into two structural metrics, being Mensa ($130 = 100 + 15 + 15$) and 15 having a factor of 5 and a semi-factor of 10.

The major point of IQ tests is to test IQ but with two extras: to test the type of intelligence that cannot be tested by standard IQ tests, and to test the range of intelligence that cannot be tested by standard IQ tests. To do this, high-range tests allow unlimited time, such that the answers should not be easily found by research, but only by thinking, and secondly – and most importantly – that no amount of thinking will unlock a specific item – but intelligence will, i.e. for any item, no amount of research nor time (practically, not including exponential experience in a finite lifetime) will reveal the correct answer for a high-range IQ test item. This is a sacrosanct truth that differentiates a difficult test and a high-range one.

Jacobsen: What advantages come with online tests?^[8]

Betts: The opportunity to practise doing IQ tests and usually not having to pay money for it. And the opportunity to cheat using fraudulent email identities so one can claim a higher (false) score.

Jacobsen: What disadvantages come with online tests?^[9]

Betts: Non-accurate results due to low quality test-designs by non-geniuses, over-inflated scores by over-estimation and bad extrapolation of the data, the ability to cheat by multiple test-taking and not being able to use the score to list or join online institutions, such as the World Genius Directory.

Jacobsen: What exists as some of the pitfalls in the measurement of intelligence and creation of intelligence tests in general?^[10]

Betts: Not being smart enough, generally. If not that, then wise enough. If not that, then cunning. IQ is a tricky thing, like water; it flows, moves around, is solid, is fluid, has resistance, yet

pushes – testing can be tricky, and so must test the force of it's power, yet the subtlety of it's elegance, the measure of it's flow (fluid intelligence) and the structure of it's firmness and grounding (crystal intelligence), and finally, test the true measure of intelligence – genius! – by way of seeing the unseen, capturing the uncapturable (by normal thinking methods) and knowing the unknowable (with current knowledge and methods). Genius is where it's at, and IQ tests and measurement is just path and doorway into the doorway of the future of thinking.

Jacobsen: Intelligence does not equate to quantitative, verbal, or written ability by necessity.^[11] These remain variables, *proxies*. Non-verbal intelligence tests provide the possibility to tap into this for those without formal educational credentials. What strengths and weaknesses come with non-verbal/culture fair intelligence tests?^[12]

Betts: As stated in the statement previous to the question, non-verbal tests offer those without language skills (either uneducated or without the relevant language or localised knowledge) a way of thinking that is either symmetric, mathematical or aesthetic in nature, and rewards them as such for appreciating it.

NVIT offer a way of expressing mathematical truths in new and interesting ways, open to interpretation and offer new pathways of cognitive recognition that can be measured and appreciated. (Sagan: if it can't be measured, it's not Science!) I cannot think of any negative reasons for NVIT other than the instructions, which is why I keep mine (Asterix, Xpwmatrix, Register, etc) to a minimum.

The weakness of NVIT are that they lack the subtlety of verbal language, where words can mean more than one thing, so that a lower IQ will assume one definition and an higher-IQ person will assume other definitions; also, word-play for other languages is a favourite of mine (especially Greek and Latin) as is the use of number of letters, palindromes, anagrams, Spoonerisms and the like. The point is, the smarter the person, the more they will 'see' with their mind – the definition of the Latin word 'intelligere'.

Jacobsen: What defines general intelligence to you?

Betts: 'The ability to see with the mind', from the Latin.

Jacobsen: Some intelligence researchers posit a general intelligence, "g." Others posit a triplet intelligence or multiple intelligences. Of these, or other, positions, what seems the most reasonable?

Betts: I created a Theory of Mind of 10 Intelligences, of which I am yet to publish as a book, but do so at:

<http://psych.igsociety.org/typesmodes-of-intelligence>. The question is loaded on the definition of 'reasonable', which can mean any Occam-thing that makes the most sense at that time. However, I believe there are, by example of the varieties of genius and savant, different types of genius, and thus, intelligence. Modern psychology recognises a differentiation between emotional feelings, higher judgements, basic learnt knowledge, higher rational knowledge and intuitive knowledge/judgements. Even psychic phenomena fit into this empirical schema. The

thing is: reason is anything that seems reasonable, so here I will define it thus: a singular intelligence is one where a skill or talent can be describe and measured which is different to another skill or talent in nature.

Jacobsen: What personal hopes come to heart with respect to the high-IQ sub-population – the highest level of ability?

Betts: Dr Jason Betts, Editor/Publisher of the World Genius Directory, will continue to work and act as such, for is long as able, and will continue to advance the field with such advancements as have already been seen and published, leading the field in innovation, education and research.

Jacobsen: What do you hope to accomplish via creation of IQ tests and the World Genius Directory?^{[13], [14], [15]}

Betts: My IQ tests started as experiments, personal testings, of what is intelligence and how one measures it. The WGD came a bit later, personally frustrated at what was available online as a resource for High IQ Societies and lists of tests, &cet. The WGD being a listing of the ‘highest of the high’ was a novel idea for making it interesting, to really see, who was who, and what was what, and how they got there. Many ethical problems had to be solved to create the WGD as it is, being that it has 5,000 unique visitors per month and ten times as many hits (2015 annual figures). Ultimately, the World Genius Directory is a directory for geniuses, those of high intelligence or just those interested in intelligence – it points them to ports of information, testing, help, society and friendship; it lists the famous (or those that desire it, lol) and those that want to be accessible and known as such. It list all of the high-IQ societies, high-IQ tests, publications of our members and even our annual Genius of the Year Awards. It is accomplished, consummatum est.

Jacobsen: Geniuses suffer from canards, even outright slander, e.g. lack of social skills, inept emotional expression, and poor self-care. Does this reflect personal and social experience to you?

Betts: Since my death-experience I have grown and grown and grown. I was 5’10” for 3 years previous and then grew 8 inches over the next 8 years. Last year, I only grew 1cm, and went from 4XL to 5XL shirt, and from Size 11.5 to 12 in shoes, plus another 8kg in body mass. I think it’s fair to say I’m a jolly green giant now. Since my autistic beginnings, university hardships, relationship sufferings, I have survived. Despite everything, I have found love, procreated, loved, and lost. My wife (Wendy) died in 2014 and I have not recovered. I talk to her daily and it is so very hard, that nothing else matters, and every day is either hard or sad, or both. In IQ terms, I have learnt to see people for what they are, to understand what motivates them, and discern what is important and what is not, so that I manage my time and energy wisely – for, after all – that’s ‘all’ we have.

Jacobsen: What common attributes demarcate geniuses?

Betts: LOL. Alienation, usually.

Jacobsen: Do you find that geniuses typically have characteristics in common, and if so, what are those characteristics?

Betts: Intelligence, usually, and sometimes, wit. Trite, but true.

Jacobsen: What seems wrong with portrayals of geniuses in books, television, movies, and journalism?

Betts: Geniuses **are** superheros, no doubt about that; it just seems that those in the media are those that solve really big ‘social’ problems, whereas the common genius (no contradiction) solves non-social, scientific and very-specific problems, such that their light doesn’t shine in the global daynight; however, just as the Earth turns day into night, their glory and glow is noted by those that it affects and is written into those annals, recorded for the future, to be recognised later for their contribution to humanity’s greatness.

Jacobsen: How did Internet alter the high-IQ landscape?

Betts: It gave people a place to be, as it did many other special interest groups. The internet is wonderful, yet horrible, for those same reasons. Oh, for yesterdecade – bring back the 70s!

Jacobsen: Insofar as numerous professionals argue about general intelligence, it appears, for the most part, genetic with increasing hereditary influence with more complete development of the organism, e.g. an individual human being’s growth from infant to toddler to adult. However, some argue for the possibility to increase IQ, intelligence, or both. Can people increase their IQ, intelligence, or both to you?

Betts: Ha! Seeking to test my Boolean intelligence, I see! So, the answer to the last sentence is yes, to the first part yes, the second part no, and of course, the whole, as yes.

I think IQ can rise by 10% over 10 years if the right factors can come into play; namely, that the IQ is measured correctly in the first year, then many years of brain-training takes place over the concurrent years, and that proper testing takes place at the end, also. I have witnessed many people take my tests from a decade ago and now are ten points higher, slowing fighting the years in a reverse relationship of IQ to year. IQ, strictly speaking, was the relationship of a person’s mental to physical age; nowadays it is the relationship of that person in the statistical population – a much more accurate and meaningful figure.

Jacobsen: If this can occur to you, how might this occur to you?

Betts: Like King Solomon, I hope to awake in an enlightened state, and become filthy rich, revered by men and adored by women. Unlike the same, I will probably work very hard for a very long time and slowly glean away at the reflection of intellectual riches and only hope that – at the end of it all – some kind of final illucidation will arrive and satisfy me.

Appendix I: Footnotes

[1] Abbot, The Order of the Mystic Rose; Member, HOTA High IQ Societies; Member, Helliq Society; Member, Prometheus Society; Member, Australian Mensa; Member, The Triple Nine Society; Member, Australian Psychics Association; Member, Masonic Grand Lodge of Tasmania; Member, Infinity International Society; Member, Triple Nine Society; Member, ISI-Society; Australia's #1 Distributor (2007), ForeverGreen's FrequentSea Health Tonic; Owner (2004), Emerald Alchemy, Mail-Order Vitamins, Minerals, Antioxidants; Owner (2000), Taslife Intl, Mail-Order Vitamins, Minerals, Antioxidants; Self Employed (1998), Acupuncture, Massage, Reiki, Nutritional Therapist; High School Teacher (Science/Maths, 1996), Dept. of Education, Tasmania; Editor/Publisher (1995), Tasmania's Alternative & Natural Therapy Directory; Founder/Organiser (1995), Tasmanian Psychic Expos; Started Teaching Magical Tarot (1993), Numerology and the Hebrew Qabala; Started Reading Playing Cards (1990); Professional Magical Tarot (1992); Member of the Order of Merit (2015), Supreme Council of the Thirty-third Degree; Knight Kadosh Thirtieth Degree (2012), Holy Grail Sovereign Chapter, Tasmania; Most Wise Sovereign (2012), Holy Sepulchre Sovereign Chapter, Tasmania; Knight of St John the Evangelist (2004), Patriarchal Council of Scotland; Knight of Rome and the Red Cross of Constantine (2004), Grand Imperial Council of Scotland; Knight of HRM and the Rosy Cross (2003), Grand Lodge of the Royal Order of Scotland.

[2] Individual Publication Date: June 8, 2016 at www.in-sightjournal.com; Full Issue Publication Date: September 1, 2016 at <https://in-sightjournal.com/insight-issues/>.

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Masons of Tasmania; Discoverer (2012), hexagonally symmetrical circles sequence (OEIS A218146); Discoverer, base-prime integer sequences (OEIS A21551, A126359); Founder, Tasmanian Natural Therapy Directory; Editor, World Genius Directory; Editor, IQ Societies List; IQ Test Constructor, Lux25, WIT, Mathema, and Asterix; Creator, Betts Square Arithmetic Tool and Number Representation, The Betts Virtuegrams; *30th Anniversary Psychic Ambassador Award* (2013), Australian Psychics Association; Australia's Top Psychic, ABC TV's Unbelievable, Episode One; TV Star Psychic (2008), Channel 7's 'The One', Fox Studios Sydney; Founder, EarthHeart.com.au; Member, Mensa International.

[4] Images/photographs/portraits/sketches courtesy of Dr. Jason Betts.

[5] United States Census Bureau. (2015). U.S. and World Population Clock. Retrieved from <http://www.census.gov/popclock/>.

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An interview with Dr. Jason Betts, B.Sc., Dip.M.Sc., Ph.D., D.Sc.: Emerald Alchemist (Part Three)

2016-06-15

*An interview with **Dr. Jason Betts, B.Sc., Dip. M.Sc., Ph.D., D.Sc.** He discusses: possible reasons for smart people joining the high-IQ world and high-IQ testing; reasons they should join; serving exceptional intellectual and creative talent; provisions for the gifted populations; inculcation of prosocial values for the gifted individual and society; convincing reason to provide for this sector of society; assisting the gifted population; responsibilities of the gifted and talented towards society; definition of genius; hastening discovery of the world's geniuses; accidental repetition of the question on definition of genius; genius in an era with technology making everyone smarter; impressive intelligence tests; definition of the spiritual; the heart of valid spiritual traditions; personal interest in joining chapters, councils, lodges, and orders; important lessons from the chapters, councils, lodges, and orders; and unification of mystic traditions across culture, geography, and time.*

Scott Douglas Jacobsen: What might motivate smart people to join the high-IQ world and high-IQ testing?

Jason Betts: Curiosity and the search for friendship on an intellectual basis. Self-knowledge is a powerful thing and many find this IQ a part of their process, learning about themselves, their abilities, and also the social side that is available with it. Some stay, some leave, some just visit when they feel the need – but we're always here. 😊

Jacobsen: Why should smart people join the high-IQ world and high-IQ testing?

Betts: They shouldn't. They can if they want to, but there's no judgement they should. Most smart folk know they're smart and don't need an IQ test to prove it, which is a bit of a pity because the rest of the world – and especially those in HiQ World – would be really interested. High-IQ testing is an ever-growing and evolving field, with new tests, types of tests and theories of intelligence always being produced – that's not going away, just because it's really interesting!

Jacobsen: How can we best serve those of exceptional intellectual and creative talent?

Betts: I think the answer to that is the same as if you're asking about any group of people on Earth: with honesty, compassion and helpfulness, so they can grow and thrive, develop and evolve, just like any other class of people. I would hope, though, and wish, that intellectuals would have a bigger say in the running and management of this planet. So far, the existing oligarchy isn't doing such a good job. Likewise, religion should be kept separate from politics, and never have anything to do with policy. Time is short.

Jacobsen: Many organizations provide for the needs of the moderately gifted ability sectors of the general population, most often adults and sometimes children. However, few provide for the

needs of children (and adults) in the high, profound, exceptional, or ‘unmeasurable’ ability sectors of the general population. (Of course, this does not mean pity or special privileges for those with the advantage of gifts and talents in life, especially early life.) Some organizations and societies provide forums, retreats, journals, intelligence tests, literature, or outlets for the highest ability sub-populations. What can individuals, organizations, and societies do to provide for the gifted population?

Betts: I think that’s a bit like the previous question, and the answer is the onus of each specific organisation. For example, in Australian Mensa, we have a Gifted Childrens Fund, which grants successful applicants (including non-members) financial assistance to achieve specific goals they could not afford themselves.

Jacobsen: From the vantage of the adult and senior gifted set, how might we inculcate prosocial values most net beneficial to both the gifted individual and society?

Betts: Careful now, this might lead to the Dark Side of Philosophy, a.k.a. religion. Seriously, teach all kids philosophy. Get them to think for themselves, and question their thinking, intentions, consequences. There’s so much good, basic and useful philosophy from many cultures one doesn’t have to look far to find thinking tools that are useful for teaching children to think, and then teach, thinking and teaching.

Jacobsen: What argument most convinces you of the need to provide for this sector of society?

Betts: Does one throw seed upon the rocky and sandy field, or upon the rich, moist and fertile soily field? If the choice is there, we chose the one with the most potential for good and consequence, the one with the higher rung upon Aristotle’s Ladder; we should teach all, help all, but where possible, help to create the bright and best possible, for those are the leaders of thought and the finest of the Human Mind, so far.

Jacobsen: How can parents, mentors, educators, and policymakers assist the gifted population?

Betts: I am so glad this has started to happen. As a past educator of high school science and math I have witnessed it as a grass-roots movement of parents making choices and voices to their children’s schools and the schools and education departments responding. Of course, it was the private schools first, motivated by simple economic carrots, but of course, that did lead to a revolution of ‘gifted children’s programs’. Well, at least here in Australia!

Jacobsen: What responsibilities do the gifted and talented population have towards society and culture?

Betts: Sapientia est Potentias, and of course, from Ben Parker again, “With great power comes great responsibility.” Gifted and talented are not quite the same, either, and every person has within them a knack – a thing – that they can do. Not everyone finds theirs, nor even develops it; but those that do know it, perform it, and can use that to find their place in the World and make it just that little bit better. For the moral duty, I ask you, if you have the power to help – if you could, and you know you should – would you? It’s a self-judgement and internal motive that

begs the answer, and truly, it's everyone's own choice of freedom.

Jacobsen: What defines genius to you?

Betts: One of my IQ mentors, Dr Greg Grove, says it best with the motto of his Mysterium Society: "Originality, Creativity and Ingenuity". To me, this is to be original and unique, to create works of use and beauty, and doing it in a clever and new way that defines an intellectual perspective. Otherwise, you're just smart, perhaps foolish, and even one of many, working in a difficult field but not achieving genius results. A genius creates things – new and wonderful things – that are just not clever, but useful, helpful, and profound, that will change the way we enjoy and experience life, enriching the human race and survival.

Jacobsen: What might hasten discovery of the world's geniuses?

Betts: IQ testing is the trite answer, but what we really have is a steady-state situation, where the flux is the number of geniuses in the world and the level is the number recognised. So, as per the rules of steady-state, there's three main activities to maximise this and the strategy should encompass all three. 1) Create more geniuses. Do this by teaching children to think with values that are humanistic in nature, like honesty, science, reason and the creative arts, and not influenced by any ulterior motive or bias. 2) Nurture the geniuses you have, in mind and body, and cultivate an environment (or environments, be they physical centres of learning and growing, or electronic environments, like IQ societies, etc) of sharing, support and growth of their ideas, 'genius' (creativity, originality, ingenuity) and of course focussed on the topics and matters of need in the day. 3) Search for geniuses, in an active, ordered, arranged and determined way, with specific purpose and plan for implementation once you've found them. This is done via educational networks (universities), institutions for publishing excellence (Nobel, TEDx, etc) and of course there's the societal cultus (YouTube, FaceBook, etc), including the desire of one's self to be tested and deliberately work with IQ.

Jacobsen: What defines genius to you?

Betts: Embracing the Intellectual Godhood within. Using it, and being better, creating better, evolving self.

Jacobsen: Does genius matter in an era where technology makes everyone smarter than before?

Betts: Of course! Who created the technology, repairs it, and whom will make the next lot of technology?! Smart is not genius. Genius is taking stock of that you've got, seeing what's there and what's needed, and then creating something new, different, useful and brilliant that's not been done before (no one's thought of it yet) and create a new paradigm and set of possibilities for that situation – to open a new door, and walk through.

Jacobsen: Whose intelligence tests impress you?

Betts: Well, mine, of course! I often surprise myself in creating them, be they Eureka! style moments or those created in the genius-flow, or sometimes even in the mundane mechanisms of

ordered thought. To be fair, I consider my tests an art form and have created many new formats of tests, in originality, creativity and ingenuity, so I'm pretty pleased with myself. In terms of other people, there are different classes, so it's hard to mention just one or two names. Of the old guard, Ron Hoeflin, Nik Lygeros and Paul Cooijmans are all worthy of respect and greatness, pioneers in the modern field. Of special note, Paul's practical guidelines and statistical devices have been regarded very useful and revolutionary in the field.

Jacobsen: What defines the spiritual to you?

Betts: 'The Spiritual' is the non-physical world that intersects with humanity through our consciousness to our minds and brains, of things dead, distant and unknowable, but still within the reach of thought. In connection there is a high incidence of an awareness of an inner morality and self-awareness that may previously have been ignored in behaviour and judgements but may be 'awakened' due to stressful or intense events, such as near-death experiences, drugs, extreme sensory stimulation and extreme suffering.

Jacobsen: What seems like the heart of valid spiritual traditions – their superset?

Betts: This is a very good question. I would say Truth and Understanding of Nature and Reality as a basis, and then, perhaps, a technology of control and mastery of that reality. As I have been taught, "Honesty is the doorway of self-knowledge" and "Before one can know everything, one must know one's self." Likewise, self-mastery is required before becoming a 'Master of the Universe.' Interestingly, Truth and Understanding and two of the three components for communication (according to I), the third being Clarity. All three are powerful metaphysical concepts which is why I write them as proper nouns.

Jacobsen: You hold positions in various chapters, councils, lodges, and orders including Abbot of the The Order of the Mystic Rose, Member of the Order of Merit (2015) for the Supreme Council of the Thirty-third Degree, Knight Kadosh Thirtieth Degree (2012) for the Holy Grail Sovereign Chapter in Tasmania, Most Wise Sovereign (2012) of the Holy Sepulchre Sovereign Chapter in Tasmania, Knight of St John the Evangelist (2004) for the Patriarchal Council of Scotland, Knight of Rome and the Red Cross of Constantine (2004) for the Grand Imperial Council of Scotland, Knight of HRM and the Rosy Cross (2003) for the Grand Lodge of the Royal Order of Scotland. Where does personal interest originate for you?

Betts: My patriarchal line consists of teachers and priests for many generations, my grandfather an ordained minister within the Anglican Church, my father lay preacher/liturgical assistant, both Freemasons. Further up is an Indian chap (5th gen) and to him I attribute my skin tone, green eyes and some innate mannerisms and memories to this cultural heritage. Specifically and directly, my interest in the Western Mystery School Tradition has been since a young age, before my near-death accident; but upon awakening my 'other consciousness' in that event I have memberance of other skills, other experiences, affinities for the obscure and antient ... other lives. Finally, 'I have arrived', and am now known as Dr Jason Betts, Emerald Alchemist, as says my letterhead. My carriage is the Mystiqmobile and has its name MYSTIQ upon the plate.

Jacobsen: What important lessons come from these chapters, councils, lodges, and orders for

you?

Betts: Each degree has its own lesson. This is the same for most orders but also any kind of school of initiation where ‘the knowledge changes you’. This is not the same for most knowledge, which is largely information. Data may inform (or not), but knowledge *changes*. It creates ‘knowing’. These systems of thought and initiation guide the student into higher and higher states of being and awareness. Yes, there are requirements, but not religious ones, for free-thought and imagination are requirements, and faith, of sorts, so that the incomprehensible may be comprehended. There is a common format, across the organisations over time and space, and that is that the lessons are taught in parts, and that it’s the initiates work to integrate them into the concept-answer-solution. Even then, the fuller-wisdom does not descend until the ‘fullness’ of the lesson is integrated into their life and being – such is the way of the Western Mystery School Tradition. As an example, the first mystery comes in these symbolic parts: 1) Latin: Lux ex Tenebris, 2) Virtue: Consciousness, 3) Visual: Black and White (Chinese, the Taiji; Western: Chequers), 4) Contemplation: Knowledge and Ignorance, 5) Exercise: Personally given by the Master to the student to seek and find the nature of the concept such that it become apparent to the seeker.

Jacobsen: What unites mystic traditions across culture, geography, and time?

Betts: I can only suppose that it is the fibre of their being, in structure, content and purpose, that connects them in similarity, rather than any other definition. To me, this is ‘the method of intellectual awakening’ by words of wisdom that take the initiate from hither to yon, whereas they wouldn’t take the ignorant to anywhere; these words fall only upon those with ears to hear, only upon those with eyes to see, and ne’er the unworthy nor corrupt see or hear the Truth, lest they use it for purposes malicious and dastardely.

Appendix I: Footnotes

[1] Abbot, The Order of the Mystic Rose; Member, HOTA High IQ Societies; Member, Helliq Society; Member, Prometheus Society; Member, Australian Mensa; Member, The Triple Nine Society; Member, Australian Psychics Association; Member, Masonic Grand Lodge of Tasmania; Member, Infinity International Society; Member, Triple Nine Society; Member, ISI-Society; Australia’s #1 Distributor (2007), ForeverGreen’s FrequenSea Health Tonic; Owner (2004), Emerald Alchemy, Mail-Order Vitamins, Minerals, Antioxidants; Owner (2000), Taslife Intl, Mail-Order Vitamins, Minerals, Antioxidants; Self Employed (1998), Acupuncture, Massage, Reiki, Nutritional Therapist; High School Teacher (Science/Maths, 1996), Dept. of Education, Tasmania; Editor/Publisher (1995), Tasmania’s Alternative & Natural Therapy Directory; Founder/Organiser (1995), Tasmanian Psychic Expos; Started Teaching Magical Tarot (1993), Numerology and the Hebrew Qabala; Started Reading Playing Cards (1990); Professional Magical Tarot (1992); Member of the Order of Merit (2015), Supreme Council of the Thirty-third Degree; Knight Kadosh Thirtieth Degree (2012), Holy Grail Sovereign Chapter, Tasmania; Most Wise Sovereign (2012), Holy Sepulchre Sovereign Chapter, Tasmania; Knight of St John the Evangelist (2004), Patriarchal Council of Scotland; Knight of Rome and the Red Cross of Constantine (2004), Grand Imperial Council of Scotland; Knight of HRM and the Rosy Cross (2003), Grand Lodge of the Royal Order of Scotland.

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[4] Images/photographs/portraits/sketches courtesy of Dr. Jason Betts.

An interview with Dr. Jason Betts, B.Sc., Dip.M.Sc., Ph.D., D.Sc.: Emerald Alchemist (Part Four)

2016-06-22

*An interview with **Dr. Jason Betts, B.Sc., Dip. M.Sc., Ph.D., D.Sc.** He discusses: real religious/mystical experiences; recounted experiences; The Grand Architect of the Universe; attributes of the The Grand Architect of the Universe; evidences and arguments; freemasonic community thought on agnostics, atheists, humanists, irreligious, non-believers, and skeptics; purported psychic ability and its means; psychic activity compared to the more pragmatic field of intelligence measurement; varied background influence on perception of the future; thoughts on the future; Reiki; reasonable response to skeptics; point to skeptics; ten steps followed by a particular topic and what interrelates the advisements; reports from them; foundational, driving, philosophy for life's research; future of the gifted population in relation to society; near and far future of the gifted population in general; influences; inspirations; and emergences in the near and far future.*

Scott Douglas Jacobsen: What counts as real religious/mystical experiences?

Betts: Especially when talking about internal and personl experiences! My, goodness. Wittgenstein would be turning in his grave, the poor thing! As best as I can manage, under the limitations of language, meaning and understanding, this concept of a mystical experience is 'something that affects the person with knowledge'. It gives him something to think about, something to work on and understand, so that when that oyster of datum is opened, the flesh of information threshed, the dross of excretion excised, the pearl of wisdom remaining is adorned, gifted, accepted and absorbed. It changes him, and no-one else was there to share it, only him, in his internal world, and cannot be elsewhere-evidenced. This is the Revealing of the Mysteries. Now, of religious, that's everything else, because religion serves it's own master, Control, the brother of Truth, and while Truth seeks the solice of nature and beauty, Control seeks the power of people and policy. In saying, religious experience is either the mind creating what it wants to see, or a mystical experience being portrayed to the religious believer in a manner that their brainwashed minds can accept, such that their belief system filters and edits the true insights that may appear, but still illude them due to their choice to believe other people's truth and not the nature of reality itself, with all of its Truth and Beauty. Such poor fools, they. Pity them.

Jacobsen: Can you recount some in detail?

Betts: Yes.

Jacobsen: Freemasons look at the universe, observe structure, infer design, necessitate some designer, and call this designer The Supreme Being or The Grand Architect of the Universe. Does The Supreme Being in some form exist to you?

Betts: Yes. The best definition of my deity is pan-enthiesm, where 'God' is seperate from the Universe but still operates within it, all through it, but is still seperate from it, in essence. 'God' first, Universe second, then God in the Universe third. This also alludes to the concept of a

divine plan, an order of Platonic Forms and the spiritual structure of forms and beings upon Aristotle's Ladder. For discussion, do these potential forms attract us forward to a greater evolution or do they just wait patiently for us to get there? God knows.

Jacobsen: What attributes comprise The Grand Architect of the Universe to you?

Betts: To typify the GAOTU as human is an anthropomorphic error. God is incomprehensible, to the infinite limit of understanding, and as such, cannot be so simply defined – God may as well be a rock. Or a paper aeroplane. Or both, even. The point is that we revere God as a Force and Intelligence, not a virtuous being. Yes, we have virtues and intelligence, and the lessons teach us to use them, but God, well, that's another matter. God is 'the connexion' of all things to all things, which sounds very quantum to me. God is not a person nor a personality. God might turn out to be some chaotic strange-attractor for the matrix we call the Universe, or perhaps a set of Gödelian Exceptions that are not mutually-exclusive, or even a set of quantum equations that allow self-observation without effect, and hence, a true pure consciousness.

Jacobsen: What arguments and evidences most convince you?

Betts: Of what? Existence is, so I believe that. Consciousness is, so I believe that too. And rocks. Especially rocks. And especially rocks when I'm not wearing shoes along the beach. I believe that no conviction is necessary. Each truth should stand on its own merit, and stand and fall as such; prove it true or let it go. If there is some kind of phenomena then surely it can be tested and eventually understood, ad infinitum, to understand God and the Universe we inhabit – this may take some time. Considering the advances made in the last one hundred years it may not be as long as we think, but surely, it is a thing worth working towards. To be clear: God, the Universe, Consciousness and FTL-communication (EPR Interpretation) – I see these things as being the One-and-the-Same. The Mystery Schools of the West and East have some of these Truths, which some have been proven true, and others will follow. How and where they manifest is anyone's guess, but I am damn sure it's going to be really very interesting.

Jacobsen: What does the freemasonic community think of agnostics, atheists, humanists, irreligious, non-believers, and skeptics?

Betts: Nothing. We don't talk about them. We don't consider them and they do not form any part of policy, instruction or teaching. We do not discriminate them in any way, unlike the way most religions do, other than they can't join. Can't see the Light if they ain't got no eyes, see?

Jacobsen: You work as a psychic. Does this purported ability occur through hidden realms, through better intuition than others, or another means than these two common explanations?

Betts: It's not purported by me and I take offense at the insinuation. I demonstrate psychic ability and do it very well. My information comes only from my mind and not from any other mundane source.

Jacobsen: How do you reconcile the ethereal realm of psychic activity with the more pragmatic field of intelligence measurement?

Betts: I don't. They are separate. I have wondered, however, that my unique set of abilities might be the mix of three factors: a near-death experience, Asperger's autism, and my two decades of building my Reiki power.

Jacobsen: You have expertise in ethereal and practical realms. How does your varied background influence how you see the future?

Betts: I think you misunderstand how psychic powers work – at least, for me. Seeing in the ethereal realm is like seeing in other dimensions as defined by mathematics as used in science, but still from the observer's current perspective. The 'future' is a set of probabilities and there is no definite future. Many answers from psychics that seem clear and definite are based on truths currently resting inside the concerned parties. Making predictions relies on sensing the variables and 'sitting with it' until your subconscious can calculate the most likely outcome. There is research on this called 'superpredictors', which is not psychic at all, but which many psychics have intuitively as they get asked to perform this mundane task all the time. Psychics' real ability is to know many things – many factual items of data, and their relevance – without being told, just from listening or seeing their client for an instant. This is beyond questioning.

Jacobsen: How do you think the future will play out?

Betts: Slowly, like it always does.

Jacobsen: You have qualifications in Reiki. How does Reiki work?

Betts: Now that is a book I'm writing, so I don't want to spoil it here. The simplest explanation I can give is electro-dermal transmission of neural-para-electricity. It can be taught to anyone from a properly-qualified Sensei such as myself. By touching a person and connecting to their nervous system one can sense organ failure in another, such as colour-blindness, taste malfunctions and also favourite tastes, high/mid/low range deafness in each ear, heart problems, inflammation in internal organs (lungs, intestines, liver, etc), plus the emotional states of the person and their psychological drives. This is done without any information from the recipient by placing one hand on their back over their spine.

Jacobsen: Proper skeptics, or even cynics masquerading as skeptics, harbor doubts as to the efficacy of Reiki, psychic abilities, and online high-range intelligence tests and their respective communities – publications too. Burden of proof resides in both sides of the issue, skeptics and practitioners – by definition, for their legitimacy. What seems like the reasonable response on each topic to you?

Betts: I am open to being researched. I think that's pretty reasonable. One should always test what one is buying. Most of my students take my class because they sit with me for five minutes and with them silent and my hand on their back, they feel the Reiki flow from my hand to different parts of their body while I also tell me those body parts, their physical and emotional problems, and other claircognient thoughts.

Jacobsen: Do skeptics have any point to you?

Betts: No, not that I've had any evidence about.

Jacobsen: You proposed sets of ten steps followed by a particular topic. [\[5\],\[6\],\[7\],\[8\],\[9\],\[10\],\[11\],\[12\],\[13\],\[14\],\[15\],\[16\],\[17\],\[18\],\[19\],\[20\],\[21\],\[22\],\[23\]](#) What interrelates these topics/advisements?

Betts: My website, www.emeraldalchemy.com. Seriously, they are some basic life strategies that people suggested I publish online so others could benefit. I wrote those in the year 2000.

Jacobsen: What reports came back from them?

Betts: Letters of thanks and appreciation. The website gets 500,000 hits per year.

Jacobsen: What foundational philosophy drives this life's research?

Betts: The desire to be the best I can be; to be me, to be true, to know.

Jacobsen: Where do you see the future of the gifted population in relation to society?

Betts: I would hope that the intelligencia of the future would be greater respected and useful and more greatly participatory in creating a better future for the survival of our planet and as many of its life forms as possible. Sadly, I cannot see this happening with the currently political structure of capitalism and political economics, international warfare, religion and the building pressure of resources-rarity caused by increasing population growth.

Jacobsen: What about the near and far future of the gifted population in general?

Betts: I would hope that the higher-IQ population community of Earth continues to work together and support each other, until such time that it can actually do something significant, such as enter the global political area, either directly in collective or by individual infiltration. There are so many challenges facing us over the next two decades I fear that much of what we are talking about will become irrelevant and that the fate of the future will rest with those not best equipped to deal with it.

Jacobsen: Who most influenced you?

Betts: I have had many mentors, like my parents, Haydn & Ilona Betts for their wisdom and understanding, Simon Turnbull of the Australian Psychics Association, Bill Pearson of the CHI-MED College of Natural Medicine, Ken Atherton of the Pindari Herb Farm and Hatton & Laws Pharmacy, John Donaldson of Tasmania University Math Department, but mostly, I'd say would be Anton Jayasuriya of the Open International University of Sri Lanka, who taught me 'The Art of Healing' but also of that of people. He was a truly great man. I would have loved to continue to work and learn in his hospital in Colombo.

Jacobsen: Who inspires you?

Betts: My wife, now deceased, continues to inspire me. She was a complete woman, full of grace and elegance, and always was understanding of the real situation and its consequences. She taught me so much and still does. Her values were perfect and she always gave the best advice. I am a pretty good counsellor and philosopher but she really did know a thing or two about people and truth, by golly, she did. And I miss her so very much.

Jacobsen: What will emerge in the near and far future for you?

Betts: More time, I expect, if the past is anything to go by. Or maybe not, *chao semper*.

Jacobsen: Thank you for your time, Dr. Betts.

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Appendix I: Footnotes

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