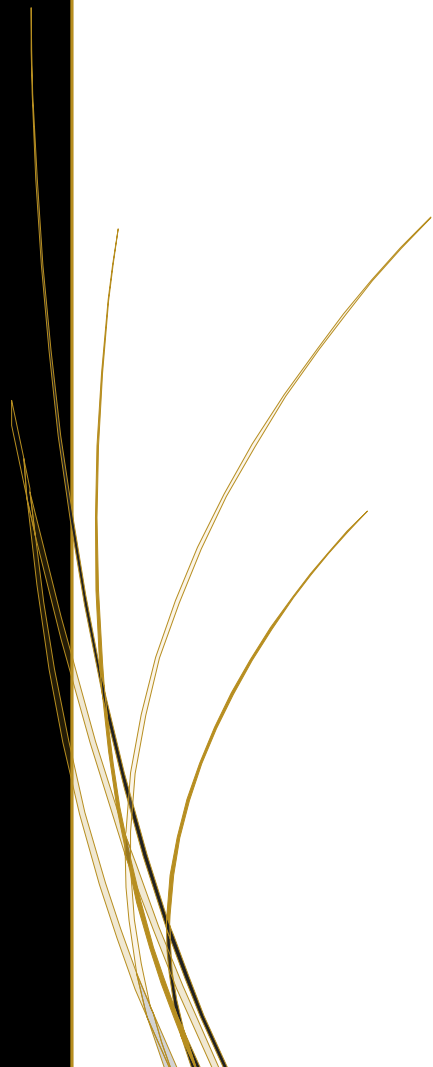




Outliers and Outsiders

(Part Two)



2014, Winter

ISSUE 6.A, IDEA: OUTLIERS AND OUTSIDERS (PART TWO)

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ABOUT IN-SIGHT

In-Sight exists as the first tri-annual, international (Mostly Canada & US), interdisciplinary, non-peer-reviewed, non-profit, academic independent interview-based journal to ask experts questions. Questions intended to elicit great breadth and depth of responses. It will include non-interview submissions. We publish individual pieces throughout and full issues in the ‘spring’, ‘summer’, and ‘winter’: January 1 to May 1; May 1 to September 1; September 1 to January 1, and so on.

OPEN, GENERAL ACKNOWLEDGEMENT AND APPRECIATION

In-Sight exists because of three identifiable sectors of support: academics, contributors, and readers. Therefore, all time and effort does have identifiable people, groups, and organizations. All of whom deserve open, general acknowledgement and appreciation. Each earned acknowledgement and appreciation for single or continuous, individual or group, contribution in the construction of *In-Sight*. Many of them without mention of name contributed time and effort to the production of the journal. Some of them groups or organizations providing much needed social media and networking support. Finally, and certainly greatest, readers create the bulk of support. For every person, group, and organization involved in this project, we express deepest gratitude to all types of direct or indirect assistance from every side for contributions to this initiative.

DESIGN AND DEVELOPMENT

In-Sight's design and development itinerary completed three of four phases circa January 1, 2014. *Phase 1* began on August 1, 2012, with the founding of ‘independent interview-based undergraduate journal’ status. *Phase 2* began with creating tri-annual status in the full year of 2013 to increase production of material. *Phase 3* ceased the undergraduate status to upgrade the journal to ‘independent interview-based journal’ to remove strictures, both implied and actual, based on ‘undergraduate’ status. *Phase 4* will incorporate various social media to increase popular presence of *In-Sight*. In the future, more phases will develop from re-design and transformations of *In-Sight*.

GENERAL PHILOSOPHY

In academic settings, integrity exists as the foundation for knowledge, where honesty becomes necessary for integrity, especially honesty of inquiry, and honesty of inquiry goes unfettered by dogma or obfuscation – commonly called ‘academic freedom’. Meaning the ability to question anything and pursue implications of findings despite any reticence, from any harbored biases and fear of backlash, and unabashedly expressing these implications without pre-mature alteration or omission to discover knowledge. In the interviews and academic material completed and uploaded to this electronic and online journal, *In-Sight* exists to attain, at a minimum, a modicum of academic freedom mainly through an interview format.

ADVISORY BOARD

Functions to provide recommendations for interviewees and feedback on content of the journal in addition to legitimation through reputations expressed on website. **Interview views do not equate to positions of Advisory Board members at individual or collective levels.**

FORMAT, OVERVIEW

Format of the issues of *In-Sight* have specified subjects or ideas per issue. Each issue divides into an interview and submission section.

FORMAT, SUBJECT ISSUES

For interview sections of subject issues, one issue contains *only* graduate students, instructors, professors, or experts from *one* field because of emphasis on *a subject*, e.g. Psychology, English, and so on. For submission sections of subject issues, one issue accepts *only* professors, instructors, graduate students, or undergraduate students from *one* field because of emphasis on *a subject*, e.g. Psychology, English, and so on. Some exceptions of non-academic contributions acceptable with sufficient reason sent to the Editor-in-Chief.

FORMAT, IDEA ISSUES

For interview sections of ideas issues, one issue contains *many* graduate students, instructors, professors, or experts from *many* fields because of emphasis on *an idea*, e.g. Epistemology, Crime, and so on. For submission sections of ideas, one issue contains *many* professors, instructors, graduate students, and undergraduate students from *many* fields because of emphasis on *an idea*, e.g. Epistemology, Crime, and so on. Some exceptions of non-academic contributions acceptable with sufficient reason sent to the Editor-in-Chief.

FORMAT, SECTIONS 'A', 'B', AND 'C'

Titles of issues specify format for issues, e.g. 'Issue 1, Subject: Psychology', 'Issue 2, Idea: Epistemology', and so on. Interview, essay, and response sections have tags to provide requisite indication of their part in the issue. Interviews have the mark 'A'; submissions have the mark 'B'; responses have the mark 'C', e.g. 'Issue 1.A, Subject: Psychology', indicating only psychology interviews, 'Issue 2.B, Idea: Arts', indicating Arts-based submissions, 'Issue 2.C, Idea: Arts', indicating responses to interviews or essays.

FREQUENCY

We publish individual pieces throughout and full issues in the 'spring', 'summer', and 'winter': January 1 to May 1; May 1 to September 1; September 1 to January 1, and so on. Regardless of idea or subject issues, or section 'A', 'B', or 'C', *In-Sight* publication dates for each month include the following: 1, 8, 15, and 22. Overall frequency depends on material quantity and completion dates. Provision of bibliography in all section for further independent research of readers. **In cases of multiple delayed publications, publication dates will change for the issue at an accelerated rate until completion of the whole issue.**

INTERVIEW, RESEARCH

Depending on the interviewee, much research needs doing prior to any soliciting of an interview, which means preliminary research. If an interviewee consents to an interview, **a typical, but not absolute, minimum of one to four weeks** for comprehensive research needs doing prior to conducting an interview. This includes purchasing and acquisition of articles, books, prior interviews, watching of video material, reading of social media material, and the synthesizing of those works to produce questions.

INTERVIEW, CONSENT

Interviewees either provide written or verbal consent based on an interview request. The written or verbal consent relate to the interviewee having the power to deny/accept conducting the interview, and for final decision of publication as a single interview on the website or in the full issue publication with all other issue-interviews in PDF and on the website. See 'Copyright' for information on ownership of publications.

INTERVIEW, CONDUCTING

Interview form depends on interviewee preference: in-person, Skype, phone call, question set, or via e-mail. Most prefer question sets provided via e-mail. Most questions mix between standardized and specialized forms. Standardized for consistency of journal format. Specialized for relevant-to-interview questions. All questions have design to elicit in-depth and full responses from interviewees.

INTERVIEW, EDITING STAGE ONE

Editing consists of the interviewees original interview with minimal editing to keep the intended meaning and message of the interviewees intact, even where certain answers may contain controversial or 'politically incorrect' statements, opinions, or information.

INTERVIEW, EDITING STAGE TWO

The interviewer sends the interview draft back to the interviewee to confirm the originally intended meaning and message seem sustained to the satisfaction of the interviewee. If the interviewee requires any further alterations, omissions, or edits, the interviewer repeats the cycle of edit to confirmation of accuracy of message and meaning to re-edit until the interviewee evaluates the final version of the interview as sufficiently accurate to their intended meaning and message. Any major editing consists of corrections to grammatical and/or spelling errors. This editing aims to optimize the correspondence between the interview and the interviewees intended message and meaning to the satisfaction of the interviewee.

RESEARCH ETHICS

The nature of the journal does not aim to answer an overarching research question, gives interviewees full control over editing and publication, and provides readers an accurate representation of the interviewee in their own words. Therefore, no ethics board approval necessary for the operation of *In-Sight*, especially given the detachment of both funding and constraint of publication from any institution, despite academic positions or alma maters of staff. See 'Internal and External Funding' for information on funding.

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Scott Douglas Jacobsen provides all internal funding for *In-Sight*. All internal funding includes purchasing of articles, books, chapters, prior interviews, video material, social media material, and all marketing efforts of *In-Sight* such as the website. In the case of external monetary funding, only monetary funding not restricting academic freedom for *In-Sight* will have consideration. **At this time, *In-Sight* operates with zero external funding.**

ATTACHMENTS

In-Sight's attachments means constraints or restraints based on functioning out of institutions or groups. For instance, an institution or group would consist of a university, an agency, a think-tank, and/or an interest group of some form. *In-Sight* functions autonomously from any institution or group. This provides total freedom of content for consistency with principles of operation for academic freedom.

ADVERTISING POLICY

All advertising for the journal exists as open-access for any individual. See 'Open Access' for more information.

OPEN ACCESS

In-Sight exists as open access for online contents, where any content of *In-Sight* becomes accessible for **reading or downloading** to any interested individual/group.

EDITOR-IN-CHIEF

SCOTT DOUGLAS JACOBSEN

Scott Jacobsen presents posters, panels, and papers independently and with varied research labs and groups. University of California, Irvine's *Interdisciplinary Center for the Scientific Study of Ethics and Morality* awarded him with the distinction of *Francisco Ayala Scholar* for mentoring, presenting, researching, and writing during the summer of 2014. He coauthored two books entitled *Inquiry: Musings from Mentorship* (2014) and *Rick G. Rosner: Collected Journal Writings* (2014). He works on two new books entitled *Women of the Academy: Reflections, Biographies, and Insights from Female Academics* and *Tweets to the Universe*. He published numerous articles in *The Peak*, *The Ulysses*, *In-Sight*, *Synapse*, *American Enterprise Institute* (AEI), and *Noesis: The Journal of the Mega Society*. He wrote and edited for *TransplantFirstAcademy* and *ProActive Path*. He sings bass in a university choir, performed with the *Vancouver Symphony Orchestra*, and competes in *Model United Nations* (MUN) conferences including *Harvard World MUN*. If you want to contact Scott, you may inquire or comment through e-mail: Scott.D.Jacobsen@Gmail.com.

ADVISORY BOARD

FATHER GEORGE V. COYNE, S.J.

Fr. George V. Coyne, S.J., born January 19, 1933, in Baltimore, Maryland, completed his bachelor's degree in mathematics and his licentiate in philosophy at Fordham University in 1958. He obtained his doctorate in astronomy from Georgetown University in 1962. After several decades on the faculty at the University of Arizona (UA), Coyne became Director of the Vatican Observatory (VO) in 1978. He became the founding director of the VO Foundation (VOF) in 1986. In 1980 he established the VO Research Group in Tucson, AZ. During his time as Director he founded the VO Summer Schools, which over the years have introduced more than 300 students from more than 60 countries to professional astrophysics.

PAUL KRASSNER

Paul Krassner published *The Realist* (1958-2001), but when *People* magazine labeled him "father of the underground press," he immediately demanded a paternity test. And when *Life* magazine published a favorable article about him, the FBI sent a poison-pen letter to the editor calling Krassner "a raving, unconfined nut." "The FBI was right," George Carlin responded. "This man is dangerous — and funny, and necessary." While abortion was illegal, Krassner ran an underground referral service, and as an antiwar activist, he became a co-founder of the Yippies (Youth International Party). Krassner's one-person show won an award from the *L.A. Weekly*. He received an ACLU (*Upton Sinclair*) Award for dedication to freedom expression. At the Cannabis Cup in Amsterdam, he was inducted into the Counterculture Hall of Fame — "my ambition," he claims, "since I was three years old." He won a *Playboy Award* for satire and a Feminist Party and in 2010 the Oakland branch of the writers' organization PEN honored him with their Lifetime Achievement Award. "I'm very happy to receive this award," he concluded in his acceptance speech, "and even happier that it wasn't posthumous."

DR. AUBREY DE GREY

Dr. Aubrey de Grey is a biomedical gerontologist based in Cambridge, UK and Mountain View, California, USA, and is the Chief Science Officer of SENS Research Foundation, a California-based

501(c) (3) charity dedicated to combating the aging process. He is also Editor-in-Chief of *Rejuvenation Research*, the world's highest-impact peer-reviewed journal focused on intervention in aging. He received his BA and Ph.D. from the University of Cambridge in 1985 and 2000 respectively. His research interests encompass the characterisation of all the accumulating and eventually pathogenic molecular and cellular side-effects of metabolism (“damage”) that constitute mammalian aging and the design of interventions to repair and/or obviate that damage. Dr. de Grey is a Fellow of both the Gerontological Society of America and the American Aging Association, and sits on the editorial and scientific advisory boards of numerous journals and organisations.

DR. WAYNE PODROUZEK

Dr. Wayne Podrouzek works as an Instructor for the Psychology Department of University of the Fraser Valley and Head of the Psychology Department of Kwantlen Polytechnic University. Dr. Podrouzek earned his a Bachelor of Arts in Child Studies and a Bachelor of Science (Honours) from Mount Saint Vincent University, a Master of Arts from Simon Fraser University, and Ph.D. from Simon Fraser University under Dr. Bruce Whittlesea.

DR. DANIEL M. BERNSTEIN

Dr. Daniel M Bernstein works as the *Canada Research Chair in Lifespan Cognition* for the Psychology Department of Kwantlen Polytechnic University. Dr. Bernstein earned his Bachelor of Arts at the University of California, Berkeley, Master's at Brock University, PhD at Simon Fraser University, and did Post-Doctoral work at the University of Washington. His research interests lie in “Belief and memory; Developmental metacognition; Hindsight bias; Mild head injury; Sleep and dreams.”

DR. SVEN VAN DE WETERING

Dr. Sven van de Wetering works as an Instructor for the Psychology Department of University of the Fraser Valley. Dr. van de Wetering earned his BSc in Biology at The University of British Columbia, and Bachelors of Arts, Master of Arts, and PhD in Psychology from Simon Fraser University. His research interest lies in “conservation psychology, lay conceptions of evil, relationships between personality variables and political attitudes.”

DR. MANAHEL THABET

Dr. Manahel Thabet is the president of *World IQ Foundation (WIQF)* and *Smart Tips Consultants*, Vice President of *World Intelligence Network (WIN)*, Vice-Chancellor of *The Gifted Academy*, and the patron of the first *Women's Leadership MBA* program in the Middle East operating out of Synergy University. WIQF and WIN are devoted to the high IQ communities. For educational background, Dr. Thabet earned a Ph.D. in Financial Engineering at the age of 25. Furthermore, Dr. Thabet earned a second Ph.D. in Quantum mathematics at the age of 31. In addition, her distinctions range through awards such as 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 numerous others. Recently, Dr. Manahel established The Gifted Academy (www.thegiftedacademy.com) and earned the *Avicenna Award* as a successor to Tony Buzan (Founder of *Mind Mapping*).

DR. AZRA RAZA, M.D.

Dr. Azra Raza, MD works as a Professor of Medicine and Director of the MDS Center at Columbia University in New York, N.Y. Dr. Raza completed her medical education in Pakistan, training in Internal Medicine at the University of Maryland, Franklin Square Hospital and Georgetown/VA

Medical Center in Washington, D.C. and completed her fellowship in Medical Oncology at Roswell Park Cancer Institute in Buffalo, New York.

DR. SALLY SATEL, M.D.

Dr. Sally Satel, MD is a resident scholar at AEI and the staff psychiatrist at the Oasis Clinic in Washington, D.C. Dr. Satel was an assistant professor of psychiatry at Yale University from 1988 to 1993. From 1993 to 1994 she was a Robert Wood Johnson policy fellow with the Senate Labor and Human Resources Committee. She has written widely in academic journals on topics in psychiatry and medicine, and has published articles on cultural aspects of medicine and science in numerous magazines and journals. Dr. Satel is author of *Drug Treatment: The Case for Coercion* (AEI Press, 1999) and *PC, M.D.: How Political Correctness Is Corrupting Medicine* (Basic Books, 2001). She is co-author of *One Nation Under Therapy* (St. Martin's Press, 2005) and co-author of *The Health Disparity Myth* (AEI Press, 2006).

DR. MARYANNE GARRY

Dr. Maryanne Garry is a Professor in Psychology at Victoria University, and the Deputy Dean of the Faculty of Graduate Research. For nearly 20 years, she has studied a puzzle of memory: how is that otherwise intelligent, rational people can remember things they never really saw, or experiences they never really had? Professor Garry's interests in applying science to the law predate her interest in memory research or even in psychological science. Her undergraduate degrees are in Forensic Science and Chemistry. Professor Garry received her PhD in 1993 from the University of Connecticut, and did postdoctoral research at the University of Washington under the direction of Professor Elizabeth Loftus, the world's foremost researcher on human memory distortions.

DR. DIANE PURVEY

Dr. Diane Purvey is the Dean of Arts at Kwantlen Polytechnic University. She is the co-editor of *Child and Family Welfare in British Columbia: A History* (Detselig Press) and, with John Belshaw, the co-author of *Private Grief, Public Mourning: The Rise of the Roadside Shrine in British Columbia* (Anvil) as well as *Vancouver Noir, 1930-1960* (Anvil). Her research interests include the history of deinstitutionalization as part of a Canada-wide project and educational leadership internationally. She is a contributor to *Vancouver Confidential* (Anvil). A homegrown Vancouverite, Diane attended the University of British Columbia (B.A., Ph.D.) and the University of Victoria (M.A.) and for several decades taught history in various BC colleges and universities.

LETTER OF APPRECIATION

Outsiders and Outliers continues with the third issue for spring, 2015. Some format changes to the journal for another phase of production. It includes interviews of three or more parts constructed into special PDFs at the end of the issue. Issue 6.A had two, viewable in the [Ebooks](#) section of the website: [The Dr. Jonathan Wai Interview](#) and [The Rick G. Rosner interview](#). American Psychological Association and Modern Language Association reference style have inclusion in each publication for 6.A. You can use these for future reference and personal research. American Psychological Association, Chicago/Turabian, Harvard, and Modern Language Association will have inclusion in subsequent issues in addition to inclusion on the website. Bibliographic references will continue to select from a broad palate of possible venues, publications, and media. Bibliographic references and footnotes will have listing in PDFs.

I would like to end this issue's letter with further acknowledgement of the following individuals: Mr. Richard "Rick" G. Rosner for the extensive time, focus, and contributions to this issue for a book-length production; Dr. Kristen Monroe for mentoring, research opportunities, publishing opportunity, absolute kindness, and complete support; Dr. Daniel M. Bernstein for mentoring, research opportunities, and consistent, thoughtful feedback; Dr. Betty Rideout for mentoring, consistent presence in my life, and extraordinarily thoughtful correspondence; Dr. Wayne Podrouzek for mentoring and needed tough love in academic life; Dr. Aubrey de Grey for support and the opportunity to meet in person; Dr. Manahel Thabet for encouragement, positivity, and concrete additions to independent work; Dr. Sadrollah Alborzi for generosity of spirit – best of blessings in these continued difficult times for your wife; Dr. Sven van de Wetering for consistent presence and acceptance of wild, crazy research proposals, and principled living; Dr. Mahtab Jafari for mentoring, research opportunities, and collaboration for women in leadership; Dr. Francisco Ayala for recommendations for possible research and collaboration; Dr. Azra Raza, M.D. for consistent support; Abbas Raza for consistent, long-term support; Dr. Neda Kerimi and Elina Halonen for collaborative opportunities; Dr. Roger Tweed, Dr. Gira Bhatt, and Dr. Arleigh Reichl for research opportunities and kindness; Fr. George V. Coyne, S.J. for the opportunities and support; Dr. Sally Satel, M.D. for work opportunities and encouraging remarks; Dr. Evangelos Katsioulis, M.D. for an example of quality correspondence and writing; Paul Krassner for support and connections; Dr. Maryanne Garry for support; Dr. Diane Purvey for consistent support; Dr. Jonathan Wai for the extended interview and permission for a small electronic publication; Dr. Wendy Suzuki for patience in publication; Reverend Ivan Stang for a fascinating interview; and the advisory board for their respective interviewee recommendations and feedback.

This journal would fail to reach fruition without librarians. I have a great amount of gratitude and respect for the Simon Fraser University, The University of British Columbia, Kwantlen Polytechnic University, and University of California, Irvine librarians, I appreciate all assistance in collaboration necessary for required sufficient comprehension of new disciplines, research, and interviewees involved in this project coinciding with improvisatory and comprehensive feedback.

Scott Douglas Jacobsen
Editor-in-Chief

DR. JONATHAN WAI (PART ONE)²³



² Research Scientist, Talent Identification Program, Duke University & Case Western Reserve University.

³ First published on September 1, 2014 at www.in-sightjournal.com.

ABSTRACT

Part one of a three-part in-depth, broad interview with Research Scientist, Dr. Jonathan Wai, of the *Talent Identification Program*, Duke University, and Case Western Reserve University. He discusses the following subject-matter: family background regarding culture, geography, and language; development; universalizing intelligence testing with non-verbal tests; commentary on new global increases in flourishing with a focus on India and Mainland China, and an example of Mathematician, Srinivasa Ramanujan; *Finding The Next Einstein*; *Who's Smarter? Republicans and Democrats in Congress* (2013), and the top 1% of the ability spectrum based on extremely high standardized test scores for admissions to highly selective undergraduate and graduate institutions; *Why the SAT Needs to Be Harder* (2014); *Could We Create Another Einstein?* (2012), and serving those with intellectual and creative talent; *Even Nerds Need to be Appropriately Challenged* (2014), and focus on average and below-average students with consequential neglect on the talented sector of the young; interview with Dr. James Flynn called *Can The Magic of Great Literature Take You Around The World?* (2011), and problem with a-historicity of incoming students.

Key Words: 'g', Arthur Jensen, Bellingham, Case Western Reserve University, communists, Dr. James Flynn, Dr. Jonathan Wai, Duke University, engineering, G. H. Hardy, Hong Kong, IQ Tests, Mathematician, Mega Test, physics, Robert Kanigel, Shanghai, Srinivasa Ramanujan, Talent Identification Program, Titan Test, Washington.

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1. In terms of geography, culture, and language, where does your family background reside? How do you find this influencing your development?

My father was born in Hong Kong. My mother was born in Shanghai. They met as graduate students in the U.S. They were educated in engineering and physics, respectively, so they valued these disciplines, and education, quite highly. My mother would often tell me the story of her father, who was wealthy before the communists came, took away everything, and sent him to jail for being a capitalist. My grandfather, at age 50, would start over again in Hong Kong with next to nothing, and become a successful entrepreneur all over again. The idea that someone with brains and hard work can rise from anywhere is something I heard of often when growing up, because it was my grandfather's story. It was also my parent's story.

2. How did you find developing from childhood through adolescence into young adulthood?

I was born and raised in Bellingham, Washington and enjoyed both academics as well as sports. I played just about every sport growing up, focusing on soccer and tennis at a competitive level. Probably one academic activity I have always enjoyed is reading. I remember going every week to the public library to check out piles of books as a kid. Today, I am fortunate that as a researcher and writer reading is a part of my job. I get up every day and have the opportunity to read, think, and create. I have never stopped reading.

3. In terms of universalizing the testing of intelligence, 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?

In college, I spent some time solving puzzles, which I have always enjoyed. Exploring puzzles online led me to what one might call "high-range tests" or basically extremely difficult puzzles that you could take as much time as you wanted to solve. I spent some time solving these puzzles, which were designed to be IQ tests with greater headroom, and met a lot of interesting people from around the world who also enjoyed creating and solving such puzzles. I don't know if this will ever be standard practice for intelligence testing, because most people don't have the free time to take an extremely difficult untimed puzzle solving challenge than can span weeks, months, or even longer. I don't know what the future of intelligence testing will hold, but see Arthur Jensen's *Clocking The Mind* for a vision of intelligence testing that is based on reaction time, nearly the opposite of an untimed puzzle test.

4. For those having the talent, but lacking the opportunity – especially in India and Mainland China, what of those hundreds of millions of people having increasing standards of living and the educational opportunities to take advantage of natural talent for further flourishing? On the one hand, the increased access for personal and global gain of utilizing the best human talent in international contexts. On the other hand, the allowance – based on technological innovations and increased standards of living – of presenting the real possibility for human flourishing at all levels, i.e. the potential for a global renaissance of the human spirit in, at a minimum, intellectual terms. How do you see identification in the long-term for the high-end (4/5/6 standard deviations, or SD, above the norm)? What of 'g' tests for those ranges above the relatively high ceiling of the *Ravens Advanced Progressive Matrices* (RAPM)?

One of the greatest stories of talent from a poor background was that of the Indian Mathematician Srinivasa Ramanujan, which I first read about in the great science writer Robert Kanigel's *The Man Who Knew Infinity*. However, in Ramanujan's case, he was still "discovered" by G. H. Hardy, yet there are likely a number of people with similar potential who did not end up flourishing. One of the most systematic and cost effective ways to identify talent is to make sure that all students are first given an opportunity for a good education, but also that they are tested. Although testing is viewed as favoring wealthy students, in fact testing is entirely objective in the sense that the test does not know or care what you look like, how much money you or your parents have, and will measure with high reliability and validity your degree of competence and what you are ready for educationally.

5. **While reading through all of your *Finding The Next Einstein* and academic work to date, I noticed the common themes of creativity, intelligence – naturally, and critiques of the gifted world – especially regarding assistance to the gifted. Why did you begin writing this series of articles? Where did your interest in the topic originate?**

I am a nerd. I have a soft spot for nerds. I have also always recognized that there is wide variation in brainpower, creativity, and problem solving ability. I always enjoyed reading biographies of great people because I tried to learn how they solved problems and overcame difficulties, both personal and professional. How did these people become successful? Although there are many factors at work, including many years of hard work, the role of creative brainpower intrigued me. I also enjoy the craft of writing, and

decided I would start trying to educate the public about my areas of expertise and maybe even help some talented kids.

6. **Of particular note in your article *Who's Smarter? Republicans and Democrats in Congress*⁴ (2013), though a small point from a relatively short piece, you provide a bar graph of those in various fields sufficing to qualify for the top 1% of the ability spectrum based on requiring extremely high standardized test scores for admissions to highly selective, and 'elite', undergraduate and graduate institutions. What did you find?**

This bar graph was taken from my research article *Investigating America's Elite*⁵. Basically I found that among Fortune 500 CEOs, billionaires, federal judges, Senators, and House members, a larger portion of each of these groups were in the top 1% of cognitive ability. This shows that the U.S. elite are largely drawn from the cognitive elite. Also, a lot of really smart and motivated people end up attending the very top schools in the U.S.

7. **You wrote an article on the *Scholastic Aptitude Test* (SAT) entitled *Why the SAT Needs to Be Harder*⁶ (2014). In short, it does not discriminate the highest levels of ability well-enough. There exist many tests with 4+ standard deviation (SD) ceilings within many societies, e.g. the Mega Society's (one-in-a-million cutoff) *Titan Test* or *Mega Test*. What about coordinating with those involved in the construction of tests at the high-range to develop SAT-style questions to probe the ultra-high range of 4 and 5 sigma? Or to the prior point, what about constructing a non-verbal/'culture fair' test with high ceiling at 4.5 or 5 SD?**

⁴ See Wai, J. (2013, November 4). Who's Smarter? Republicans and Democrats in Congress.

⁵ See Wai, J. (2013). Investigating America's elite: Cognitive ability, education, and sex differences.

⁶ See Wai, J. (2014, March 7). Why the SAT Needs to Be Harder.

This is an intriguing idea. Although I enjoy high range tests and puzzles, I'm not entirely sure what constructs they measure. One solution to the problem you describe is to use a test such as the SAT designed for the average 17-year-old on a talented student at a much younger age. This provides sufficient headroom for the talented student and also gives the benefit of reliability and validity in a timed setting.

8. **You close the excellent article, *Could We Create Another Einstein?*⁷ (2012), with “Overall, *Creating Innovators* is an important book because it emphasizes developing the talent of students who are essential to the future of America and profiles some extremely bright minds and their parents, teachers, and mentors to provide some insights into ways to develop intellectual and creative talent.” How can we best serve those of exceptional intellectual and creative talent?**

The key, really, is to make sure that all students are intellectually stimulated each day and are learning something new. Another way I think we can serve talented students is to help them become challenged early and in many areas so they might develop a sense of humility and understand what it means to fail. Many of these students end up in leadership positions in society where they make decisions that impact people of various levels of ability, including people who are very different from them. So they need to be wise and humble in addition to being smart.

9. **I felt struck by a statement in *Even Nerds Need to be Appropriately Challenged*⁸ (2014), “A majority of Americans believe in equity rather than excellence.” It seems to argue for a pervasive cultural value of mediocrity**

⁷ See Wai, J. (2012, April 29). *Could We Create Another Einstein?*

⁸ See Wai, J. (2014, March 23). *Even Nerds Need to be Appropriately Challenged*.

based on disadvantaging the talented for the sake of equity with the average and below-average. What do you think? Would you change this cultural value? If so, how would you restructure the educational funding based on the changes to the cultural value?

For whatever reason, in the U.S. today the culture places a primary value on helping below average and average students. I think we should definitely help these students, but also not forget about challenging talented students.

10. **You conducted an interview with Dr. James Flynn called *Can The Magic of Great Literature Take You Around The World?*⁹ (2011). In it, he states, “Anyone who is a-historical lacks autonomy. They live in the bubble of the present that is defined for them by their government and the media. They have no accumulated knowledge that allows them to criticize what they are told.” How would you remedy this problem with the incoming generations of students?**

There is tendency in each new generation to want to create something new, to distinguish itself from past generations. And it is true that the young often will find new ways of innovating that will bring us ideas and things that we never dreamed of. However, an understanding and appreciation of the past is important especially for students who end up rising to positions of leadership in society, because there are many patterns in history that can teach new generations about what has already been done so that they don't repeat those patterns, or at least understand the patterns they see around them in society, which seem to arise often. The solution is that students should have a deep appreciation for and education in history, but also not be

⁹ See Wai, J. (2011, June 6). *Can The Magic Of Great Literature Take You Around The World?*

constrained by that history in a way that prevents them from innovating in an entirely different manner.

DR. JONATHAN WAI (PART TWO)¹⁰¹¹



¹⁰ Research Scientist, Talent Identification Program, Duke University & Case Western Reserve University.

¹¹ First published on September 8, 2014 at www.in-sightjournal.com.

 ABSTRACT

Part two of a three-part in-depth, broad interview with Research Scientist, Dr. Jonathan Wai, of the *Talent Identification Program*, Duke University, and Case Western Reserve University. He discusses the following subject-matter: Tom Vander Ark in *The Educational World Is Flat* (2012), an interview between Marilyn vos Savant and Harold Channer in 1986, and specialists and generalists; Salman Khan and the *Khan Academy*, Einstein's *Ideas and Opinions* (1960), and universality of English; risks of rote learning with Khan Academy, asian educational systems, and Bill Gates; flourishing of the gifted population with focus on the young; myths of the gifted population; responsibilities of the gifted population to society and culture; near and far future of the gifted population; *The SAT Is Too Easy* (2012) and a higher SAT ceiling; Karl Bates, *The Art Of Communicating Science* (2013), and C.P. Snow; and *Project Scientist: Inspiring The Next Generation Of Females* (2013), women in STEM, business, and leadership, and the example of Japan.

Keywords: Bill Gates, C.P. Snow, Canada, Einstein, English, Flynn, Gifted Population, Google, Harold Channer, Japan, Karl Bates, Khan Academy, Marilyn vos Savant, Salman Khan, STEM, Talented Youth, Tom Vander Ark, U.S.

American Psychological Association (APA, 6th Edition, 2010): Wai, J. & Jacobsen, S.D. (2014, September 8). Dr. Jonathan Wai: Research Scientist, Talent Identification Program, Duke University & Case Western Reserve University (Part Two). *In-Sight: Independent Interview-Based Journal*, 6.A. Retrieved from <http://in-sightjournal.com/2014/09/08/dr-jonathan-wai-research-scientist-talent-identification-program-duke-university-case-western-reserve-university-part-two/>.

Modern Language Association (MLA, 7th Edition, 2009): Wai, Jonathan, and Scott D. Jacobsen. "Dr. Jonathan Wai: Research Scientist, Talent Identification Program, Duke University & Case Western Reserve University (Part Two)." *In-Sight: Independent Interview-Based Journal* 6.A (2014): Sep. 2014. Web. <<http://in-sightjournal.com/2014/09/08/dr-jonathan-wai-research-scientist-talent-identification-program-duke-university-case-western-reserve-university-part-two/>>.

11. One of the items most striking to me came from an interview with Tom Vander Ark entitled *The Educational World Is Flat*¹² (2012), “In America we appear to have a strong emphasis on being well rounded. Einstein was someone who focused on subjects that he was interested in and tended to ignore subjects that he didn’t care much about.”¹³ It reminded me of an interview by Harold Channer with Marilyn vos Savant (1986).¹⁴ In it, she says, “...What I call a misguided effort to be well-rounded. Why not let one person go and become another Einstein in his or her field? It doesn’t have to be something as impressive as physics. There are all kinds of things. But in this effort to make a well-rounded individual, we sort of turn them all off to everything, give them things too early.”¹⁵ It seems further reason to consider catering to the most talented. What do you think of specialists and generalists? How might the US alter the educational streams for the gifted to allow to more specialization in an area of sole interest?

Today there is so much knowledge that specialization is almost a necessity. I think, at least in the U.S., the value of being well rounded comes from parents who want their children to be happy in every sense. Parents want their kids to fit in and be accepted by society. Not being well rounded means you are more of an outlier, and especially if you are a social outlier, you have less chance of being accepted. But this is always an issue for people who go on to become great. Oftentimes the path to greatness is quite lonely because you are going where nobody else has gone before. I think a general education is necessary, for example being familiar with history as Flynn pointed

¹² See Wai, J. (2012, January 8). The Educational World Is Flat.

¹³ Ibid.

¹⁴ See Channer, H. & Mach vos Savant, M. [Harold Channer] (October 29, 2008).

out earlier. But if a student knows what they want to do at an early age and wishes to specialize, I think we should let them do that and not hold them back.

12. You have had interviews and articles on the use of modern technology such as computers and software to design, and upgrade, education. Even though, Salman Khan in one interview with you discusses the changes brought on through a decent online educational system called *Khan Academy*, which, of course, he founded and operates. However, I see the foundational change to much of the educational world for the 21st century arising from one area, even though mathematics counts as a universal language. The international language seems quite strongly English. Relevant, to me at any rate, I remember reading the opening piece of Einstein’s *Ideas and Opinions*¹⁶ (1960), which I found once more for this, and he says, “As late as the seventeenth century the savants and artists of all Europe were so closely united by the bond of a common ideal that cooperation between them was scarcely affected by political events. *This unity was further strengthened by the general use of the Latin language.*”¹⁷ [Italics added] The increasing universality of the English language, in my opinion, will likely improve the educational level of the world. In this sense, organizations such as *Khan Academy* appear to be ‘piggybacking’ on the phenomenon of increased universality of a common working-language, namely: English – partially eliminating our literal, global ‘Tower of Babel’. What do you think?

This is an interesting idea, and perhaps a uniform language is helpful for learning

¹⁵ Ibid.

¹⁶ See Einstein, A. (1960, February).

¹⁷ Ibid.

everywhere. I think what online learning has done is provided educational access to anyone anywhere in the world who has a computer, an internet connection, and the freedom to find the information they want. Without question this should allow talented students from around the world have the opportunity to interact with one another and innovate together.

13. In the articles *How Khan Academy Can Help Find The Next Einstein*¹⁸ (2012) and *Five Lessons From Salman Khan For Education*¹⁹ (2012), you discuss concerns about how *Khan Academy* may be “enabling rote learning.” This is a common criticism of Asian educational systems. Yet in academic international comparisons, those Asian nations are outperforming America, particularly in math and science. Bill Gates has said, as you quote in *If You Are Creative, Are You Also Intelligent?*²⁰ (2011), “You need to understand things in order to invent beyond them.” Do you have thoughts on this criticism? How about ways to increase understanding and inventiveness?

I think Gates said it well already. You have to have something in your brain before you can innovate. Oftentimes rote learning just means you repeat it enough times until you have a concept always ready at your mind’s fingertips. Today we have Google, which means every bit of information is available online. However, innovation often comes from the synthesis or reorganization of existing knowledge in a novel or creative pattern or extension, and so to have many things memorized can be quite important, depending upon the context.

14. You share a concern of mine. In particular, the sincere desire to assist the

¹⁸ See Wai, J. (2012, December 31). How Khan Academy Will Help Find The Next Einstein.

¹⁹ See Wai, J. (2012, December 9). Five Lessons From Salman Khan For Education.

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?

There are two main reasons to invest in talented people. The first is that by investing in them we help them fulfill their potential and live rewarding and meaningful lives. The second is that by investing in them we are actually investing in our own future—that is, talented people invent a disproportionate share of things that benefit all of us. The first reason should be enough, but today in the U.S. it is not.

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

Actually, one of the largest myths I encounter is that talented people tend to have a lot of problems (e.g. social). However, longitudinal studies on talented students, such as the *Study of Mathematically Precocious Youth*, have shown that talented kids end up as well adjusted and quite successful adults who have families and friends just like everyone else. Perhaps the stereotype of the nerd as being socially inept is

²⁰ See Wai, J. (2011, April 12). If You Are Creative, Are You Also Intelligent?. *Psychology Today: Finding the Next Einstein*.

comforting to many people, for whatever reason.

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

I believe that each person should have the freedom to choose what they want in life and be responsible for themselves and their actions. They should try to be at least a net zero and preferably a net positive on society. However, talented people in general have been given a head start in life, and therefore my hope is that they would fully recognize this, be responsible with their decisions that impact many others, and be wise stewards of their talents. For their personal well-being, I would hope they would not waste the head start they have been given in life.

17. 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?

Talented people have always been and will always be important in society. In the book *Human Accomplishment*²¹ (2003), we see the many amazing things that have been created largely by the gifted population. I hope that society would place value on talented people, not for being talented, but for using their talent and working hard to create something that is helpful or beneficial to all of us.

18. You note one large, and mostly unstated, problem directly with the article *The SAT Is Too Easy*²² (2012). For instance, you raise the issue of the current SAT's lack of ability to distinguish among the top candidates in the US. Why not coordinate with high-ceiling test constructors to

measure 4.5 and 5 SD above the norm with the SAT?

As I mentioned earlier, the better solution is either to use the SAT as it exists at an earlier age, or actually bring out the original SAT, which had a much higher ceiling. Basically the idea would be to use an existing test with established reliability and validity.

19. Of the articles and interviews published, I consider the interview with Karl Bates, entitled *The Art Of Communicating Science*²³ (2013), the *single most important article* from your blog posts. You cut to the heart of the issue of culture and the split described by C.P. Snow with the sciences on the one side and the humanities on the other – and never the twain shall meet. We can talk about science. We can talk about intelligence and creativity. Regardless, without attention to understanding the separate streams of English language used in each major side, as set out by C.P. Snow, the other stuff seems secondary, even tertiary, to me. Most cutting about the interview, I find, is the concision and pragmatic nature of the responses by both of you at the end of the publication. Do you have any expansions on the topics discussed therein?

Thank you. I think scientists and journalists don't communicate as often as they should, probably in part because these groups have very different incentive and reward structures. However, the problem to a large extent lies with academics who don't understand that the rest of the world operates similarly to the journalistic world. It is the academic world which is very much in an ivory tower. A lot of different fields or disciplines, if they actually took the time to meaningfully interact, would come away with

²¹ See Murray, C. (2003). *Human Accomplishment: The Pursuit of Excellence in the Arts and Sciences*.

²² See Wai, J. (2012, July 29). *The SAT Is Too Easy*. *Psychology Today: Finding the Next Einstein*.

²³ See Wai, J. (2013, June 3). *The Art Of Communicating Science*.

not only a greater appreciation for other disciplines, but also could improve upon their own craft.

20. In your article *Project Scientist: Inspiring The Next Generation Of Females*²⁴ (2013), I felt thrilled reading it. More have begun to discuss these issues. If we exclude one half of the talent pool, North America loses out. Provided the possibility of easier international travel, talented women with interest in STEM, business, and leadership fields in general will, in my opinion, likely travel to other areas with the opportunities. For instance, this appears in Japan, where many of the talented, wealthy, and highly-educated Japanese women have begun to work against cultural and institutional structures to provide more fair opportunities for themselves. Especially the increased possibilities of self-empowerment of these women, they choose to do it. At least from my vantage, from the cost-benefit analysis of a talented

and well-educated Japanese woman, travelling to a new place with better possibilities of equal opportunity compared to having to change a well-entrenched cultural and institutional foundation in Japanese society seems like a far better and more immediate solution. Looking at our own societies, how can we empower women here-and-now in the US and Canada?

I agree that we need to empower women all around the world. More importantly, I think we need to empower both women and men in various disciplines where they are typically underrepresented. I also think we need to focus on helping empower the individual regardless of their color or their gender. In the end, it is not about what people look like, but about who they are as an individual. We need to respect individual differences.

²⁴ See Wai, J. (2013, June 24). Project Scientist: Inspiring The Next Generation Of Females.

DR. JONATHAN WAI (PART THREE)²⁵²⁶



²⁵ Research Scientist, Talent Identification Program, Duke University & Case Western Reserve University.

²⁶ First published on September 8, 2014 at www.in-sightjournal.com.

ABSTRACT

Part three of a three-part in-depth, broad interview with Research Scientist, Dr. Jonathan Wai, of the *Talent Identification Program*, Duke University, and Case Western Reserve University. He discusses the following subject-matter: talent, productivity, *Who's Smarter? Republicans and Democrats in Congress* (2013); success and under-challenged high-talent workers at the highest levels of ability; *Is America "On The Wrong Side of History"?* (2012), America as an unsustainable superpower, and educational declines in America as measured by PISA; interview with Enrico Moretti, globally competitive world while continuing to attract talent at home; concept of 'intelligence', measure of IQ tests, Richard Feynman, *Discussions on Genius and Intelligence: Mega Foundation Interview with Arthur Jensen* (2002), and Steve Hsu's comments on Richard Feynman; societal worry decline in STEM and educational competitiveness in a globalized world, international setting of so-called 'soft power', i.e. cultural influence, and 'hard power' advocates; additional pieces for reading; future projects; influences and inspiration; and final thoughts with a quote from Wagner.

Keywords: Dirac, Dr. Arthur Jensen, Enrico Moretti, Einstein, Gifted, Hard Power, James Watson, Mark Zuckerberg, Mega Foundation Press, PISA, Richard Feynman, Society, Soft Power, STEM, Steve Case, Steve Hsu, Talented, Vivek Wahwa, Wagner.

American Psychological Association (APA, 6th Edition, 2010): Wai, J. & Jacobsen, S.D. (2014, September 15). Dr. Jonathan Wai: Research Scientist, Talent Identification Program, Duke University & Case Western Reserve University (Part Three). *In-Sight: Independent Interview-Based Journal*, 6.A. Retrieved from <http://in-sightjournal.com/2014/09/15/dr-jonathan-wai-research-scientist-talent-identification-program-duke-university-case-western-reserve-university-part-three/>.

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21. If we take the highest level of talent in a discipline, something like the top 5% of the ability spectrum tend to have the highest productivity and impact in their discipline. We could provide a concrete estimate for the amount of talent falling through the cracks of society. Did anyone provide a calculable estimate? For example, we could estimate the productivity and talent through measuring the current level of productivity and impact in a field through papers published and total citations - even per paper - for the top 5% of the ability spectrum through your estimates based on competitive undergraduate and graduate programs (*Who's Smarter? Republicans and Democrats in Congress*²⁷, 2013), using the statistical estimates of the occurrence for the top 5% out of the general population, subtract the two of them, and have a relative estimate of lost/under-utilized talent out of the general population. None of this seems out of the realm of possibility to me regarding the potential of creating a standardized measure for reference when measuring the improvement of utilization of the gifted and talented at the top 5% (or any other percent or that matter). What do you think? What other means could provide an accurate picture of the societal plight of underutilized talent?

This is an interesting idea. Probably some of the strongest international evidence that the U.S. is not developing its talented students is from international comparison tests such as the PISA.

22. What do you make of the great divide between the maximum level of ability required for the most cognitively complex fields such as pure

mathematics, medicine, and science, and the under-challenged gifted population with ability in excess of the mean level of ability requisite for those disciplines? In other words, for example, their field requires 1.5 or 2 SD, but they feel unchallenged because of having ability at 3 SD.

When someone has an ability level well beyond their peers they are likely to be quite successful. Yet they also may not be as challenged as they could have been had they chosen a discipline with people as smart as, or much smarter than them.

23. You note the immigration of more talent in *Is America "On The Wrong Side of History"?*²⁸ (2012), where China sees the US as an unsustainable superpower. However, this seems unreasonable. International settings and competition, and global integration of political, economic, technological, cultural, and informational systems in the 21st century will disallow the viability of long-term immigration of the most talented, gifted, and appropriately skilled and motivated. It seems to me nations will continue to compete for the talent worldwide at an increasing rate. Of course, the US will stay attractive to the talented. Even so, this will not last, especially in light of the educational declines occurring for some time now in the US as measured by such rankings as the PISA. What do you think? Why? How might the US and Canada remedy such decline?

The solution is logical, but is not so simple to implement due to political barriers: encourage talented people to live and work in the U.S. or Canada or whatever your home country is. There is always going to be a limited supply of talented people and because they

²⁷ See Wai, J. (2013, November 4). *Who's Smarter? Republicans and Democrats in Congress*.

²⁸ See Wai, J. (2012, April 2). *Is America "On The Wrong Side Of History"?*.

can come from anywhere the competition will be worldwide.

24. Furthermore, the interview with Enrico Moretti tells of the desire for allowing more foreign-born talent to enter into the US by such business luminaries as Vivek Wahwa, Mark Zuckerberg, Steve Case, and others, which does assist the competitive streak of the nation. However, this seems more temporary, a short-term fix, with tremendous implications for the long-term if the investment in fields having higher economic return-of-investment (ROI), e.g. STEM disciplines, for the individuals and societies involved do not having adequate funding. At some point, you cannot immigrate talent in a globally competitive world if the world integrates to a sufficient level of transport, exchange of information, trade, and so forth. In an integrated global economy, it seems implausible for an indefinite period of time, and therefore I ask, what would you do for the long-term at the individual level? How can the US appear more attractive to talented Americans to stay in their country of birth?

The solution, as I have outlined in my writings, is to both develop homegrown talent as well as encourage foreign talent to come and stay. Probably the driving principle that has attracted talent from the around the world is the freedom to innovate.

25. Do you ever question the measure of the operational definition of the concept 'intelligence' and subsequent measure through IQ tests? For instance, Richard Feynman claimed to have an IQ of 125. However, some replies do arise from an interview with Dr. Arthur Jensen from the ebook published by *Mega Foundation*

²⁹ See Langan, C. M., Losasso, G., Jensen, A., et al (2002).

Press entitled *Discussions on Genius and Intelligence: Mega Foundation Interview with Arthur Jensen*²⁹ (2002). In particular, the late Dr. Jensen stated in the book-length interview:

I don't take anecdotal reports of the IQs of famous persons at all seriously. They are often fictitious and are used to make a point - typically a put-down of IQ test and the whole idea that individual differences in intelligence can be ranked or measured. James Watson once claimed an IQ of 115; the daughter of another very famous Nobelista claimed that her father would absolutely "flunk" any IQ test. It's all ridiculous. Furthermore, the outstanding feature of any famous and accomplished person, especially a reputed genius, such as Feynman, is never their level of g (or their IQ), but some special talent and some other traits (e.g., zeal, persistence). Outstanding achievement(s) depend on these other qualities besides high intelligence. (Langan et al, 2002)³⁰

As you have noted repeatedly in your writing with wit, "...The plural of anecdote is not data." What do you think of this topic? How might others with differing ideas than you argue?

Leaving aside the label "intelligence," I think when it comes to psychometric measurement just about every mental standardized test will measure the G factor or general mental ability to a large degree. On Feynman's IQ, I will quote the physicist Steve Hsu, whose views I share on this topic (see my interview with him on *Psychology Today*):

Is it true Feynman's IQ score was only 125?

³⁰ Ibid.

“Feynman was universally regarded as one of the fastest thinking and most creative theorists in his generation. Yet it has been reported—including by Feynman himself—that he only obtained a score of 125 on a school IQ test. I suspect that this test emphasized verbal, as opposed to mathematical, ability. Feynman received the highest score in the country by a large margin on the notoriously difficult Putnam mathematics competition exam, although he joined the MIT team on short notice and did not prepare for the test. He also reportedly had the highest scores on record on the math/physics graduate admission exams at Princeton. It seems quite possible to me that Feynman's cognitive abilities might have been a bit lopsided—his vocabulary and verbal ability were well above average, but perhaps not as great as his mathematical abilities. I recall looking at excerpts from a notebook Feynman kept while an undergraduate. While the notes covered very advanced topics for an undergraduate—including general relativity and the Dirac equation—it also contained a number of misspellings and grammatical errors. I doubt Feynman cared very much about such things.”

26. Oftentimes, the societal worry about the great decline in STEM and educational competitiveness in a globalized world seems too high. However, the pragmatic implementation of practice appears limited to me. Regardless, much of this

misses some of the major areas of great influence from a nation, which tends to have the greatest level of dissemination within an international setting of so-called ‘soft power’, i.e. cultural influence. Of course, the worry about STEM arises out of global competitiveness. In other words, this seems to me to give primacy to GDP over citizenry having adequate education, but with additional benefits to citizen education. Soft power provides a foundation for similar influence in the world other than technology. Although, using the technological platforms invented or improved upon by the STEM graduates. In that, STEM graduates can assist the economic and political aims of ‘hard power’ advocates, but the platforms of technology emerging from the technological innovations of them allow the soft power influence to proliferate. Where do you see more importance – STEM or arts disciplines/hard or soft power? Or both?

It would be reasonable to think it would be both.

27. Of those pieces which I appreciate most for further reflection: *Lee Smolin Encourages Graduate Student to Stay in Science*³¹, *Will We Ever Find the Next Einstein?*³², *How Do You Make An Intellectual Dream Team?*³³, *If You Are Creative, Are You Also Intelligent?*³⁴, *Is Spatial Intelligence Essential for Innovation and Can We Increase It Through Training?*³⁵, *Could We Create*

³¹ See Wai, J. (2013, September 11). Lee Smolin Encourages Graduate Student To Stay in Science.

³² See Wai, J. (2011, March 1). Will We Ever Find The Next Einstein?. *Psychology Today: Finding the Next Einstein*.

³³ See Wai, J. (2013, March 29). How Do You Make An Intellectual Dream Team?.

³⁴ See Wai, J. (2011, April 12). If You Are Creative, Are You Also Intelligent?. *Psychology Today: Finding the Next Einstein*.

³⁵ See Wai, J. (2011, May 10). Is Spatial Intelligence Essential for Innovation and Can We Increase It Through Training?.

*Another Einstein?*³⁶, *Is America "on the Wrong Side of History"?*³⁷, *How Do We Get Kids to Want to Be Einstein?*³⁸, *Intelligence: New Finds And Theoretical Insights*³⁹ (a very good interview with Dr. Diane F. Halpern), *The Educational World Is Flat*⁴⁰, *Studying Too Much? This Government Will Stop You*⁴¹, *Steve Jobs Leveraged His Intelligence To More Effectively Create*⁴², *How Brainy Is Your Major?*⁴³, *Are Elite Athletes Marrying Elite Athletes?*⁴⁴ (a great read for discussion on individual differences), *How to Think Like a Scientist*⁴⁵ (good tips for general curiosity and critical thinking too), *The Art of Communicating Science*⁴⁶, *Do Journalists And Academics Live In The "Real World"?*⁴⁷, *Teaching Without Words*⁴⁸, *Finding The Next Carl Sagan*⁴⁹, *Do Smart People Rule The World?*⁵⁰, and *How Science Writing Can Save Lives*⁵¹. Do you have any recommended reading?

Thank you! I recommend that everyone should read what they are most interested in.

28. What projects do you have in the coming years?

I am currently involved in many different research and writing projects which surround the role of talent and its impact on society.

29. Who most influenced you? Who inspires you?

The list of people who have influenced me are written on the numerous books and articles I have read so far in my lifetime.

30. To close with a quote of Wagner from your article *Could We Create Another Einstein?*⁵², "Parents, teachers, mentors, and employers—we all have urgent work to do." Do you have any final thoughts?

I don't. Thank you for these very thoughtful questions.

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³⁶ See Wai, J. (2012, April 29). *Could We Create Another Einstein?*

³⁷ See Wai, J. (2012, April 2). *Is America "On The Wrong Side Of History"?*

³⁸ See Wai, J. (2012, February 12). *How Do We Get Kids To Want To Be Einstein?*

³⁹ See Wai, J. (2012, January 11). *Intelligence: New Finds And Theoretical Insights*.

⁴⁰ See Wai, J. (2012, January 8). *The Educational World Is Flat*.

⁴¹ See Wai, J. (2011, December 11). *Studying Too Much? This Government Will Stop You*.

⁴² See Wai, J. (2011, October 22). *Steve Jobs Leveraged His Intelligence To More Effectively Create*.

⁴³ See Wai, J. (2011, August 1). *How Brainy Is Your Major?*

⁴⁴ See Wai, J. (2013, September 3). *Are Elite Athletes Marrying Elite Athletes?*

⁴⁵ See Wai, J. (2013, July 22). *How To Think Like A Scientist*.

⁴⁶ See Wai, J. (2013, June 3). *The Art Of Communicating Science*.

⁴⁷ See Wai, J. (2013, February 25). *Do Journalists And Academics Live In The "Real World"?*

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ABSTRACT

An in-depth interview with Dr. Wendy A. Suzuki, New University, *Center for Neural Science* in the department of neural science and psychology. She discusses the following: educational background and major positions; seminal youth experience influencing career trajectory, freshman experience at University of California, Berkeley, Dr. Maryanne Diamond, *GoogleUniversity*; clicking with a teacher; original dream; major areas of past and present research; hypothetical research; various paces of exercise for memory enhancement; controversial research topics; relation to some other health research such as research on life-extension with *Rhodiola Rosea*, and caloric restriction; philosophical foundations; robust short-term changes in neural architecture for long-term benefits, Susanne M. Jaeggi et al from 2008, 2009, and 2012 based on a 'dual n' back' task, and the *Raven's Progressive Matrices* (RPM, Non-verbal intelligence test); advice for young psychologists; and the responsibility of scientists to society.

Keywords: Controversial, David Amaral, Dr. Elizabeth Loftus, Dr. Mahtab Jafari, Dr. Maryanne Diamond, Dr. Wendy Suzuki, Eric Kandel, exercise, GoogleUniversity, Hippocampus, Long-Term Memory, Larry Squire, Los Angeles, National Institutes Health, Neural Science, neurogenesis, neuroplasticity, Neuroscience, New York, New York University, psychology, Raven's Progressive Matrices, Rhodiola Rosea, Scientists, Society, Stuart Zola, Susanne M. Jaeggi, University of California.

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1. What is your current position? What major positions have you held in your academic career?

I am a professor of neuroscience and psychology at New York University (NYU). This is my first and only academic position that I got, which was after my Post-Doc.

2. Can you name a seminal experience in your youth that most influenced your career direction?

The most seminal experience was a class, which I took as a freshman at University of California, Berkeley. It was a freshman seminar. A small number of freshman with an expert in her field. She was a neuroanatomist. Dr. Maryanne Diamond, her speciality was on neuroplasticity and the experience of an enriched environment on brain plasticity. That made me want to become a neuroscientist, and I became a neuroscientist. At present, she is emeritus there. Her presentations on *GoogleUniversity* are number 1 or 2. She teaches biology. She has an amazing gift to make, even boring subjects such as gross human anatomy, which is a lot of memorization of different structures and she made it fascinating.

3. That's a common experience. Once a student 'clicks' with a professor, especially in terms of teaching style, they tend to keep going to them.

Yes, exactly!

4. Where did you acquire your education?

I got a BA at University California, Los Angeles, Ph.D. at University California, San Diego, a Post-Doc at National Institutes Health, and my current faculty position at NYU.

5. What was your original dream?

I wanted to do something in science. I did not know exactly what, but I wanted to get tenure as a neuroscientist to design my own

experiments and run my own research lab. That was my original dream.

6. What have been your major areas of research?

My major areas of research are parts of the brain that are important for long-term memory formation such as the hippocampus and related structures. I began this research at the start of career in graduate school. However, I have branched off recently to study humans because all of the work in long-term memory systems have been with animal model systems. More recently, I have begun a new area of my research lab dealing with the effects of aerobic exercise in and examining, in particular, humans.

7. Does this mean short, fast or long, slow exercise?

We look at both. We look at the effects of acute exercise by going to the gym for an hour. What can that do to your cognition? How long does that last? Mainly, I am interested in the long-term effects of the changes in fitness to your long-term cognitive abilities. How does long-term exercise change your cognitive abilities? I want to see the way this can be incorporated into a university of school program.

I have two newest areas of research: one of exercise (last four or five years) and how time is represented in your memory.

This happens before the consolidation process. I focus on the following: during encoding of an episode, how is time represented in these areas that are important for memory? Consolidation is after you encode it, including all of the temporal stuff, how do you retain it?

8. If you had unlimited funding and unrestricted freedom, what research would you conduct?

I am fascinated by exercise. I would find a way to combine my experimental in long-term memory systems with my human work in the

effects of exercise on long-term memory. I would want to leverage my understanding of long-term memory systems to make it better. Exercise enhances neurogenesis in the hippocampus, a structure critical to long-term memory formation. I want to understand: how does that happen? How much exercise you need to happen best? What kind of tasks are more effective at it? And what does that mean in your everyday life? If I had unlimited funding, I would throw all of my funding at that. Plus, I would get it implemented into schools or in patient populations where it could be helpful, which is what I am doing now. But I do not have the funding! That is the goal.

9. **Much research exists on caloric restriction providing benefits to many signs of aging related to preliminary non-human animal models of life-extension research. In particular, Dr. Mahtab Jafari, she works with *Rhodiola Rosea* in terms of extending the general lifespan of *Drosophila*. However, this comes from many fronts, which includes mental health by slowing cognitive aging in other ways such as exercise.**

Absolutely, that is one of the goals. What kind of exercise is the most effective? In that, is it running, kickboxing, weight training, and so on? What in that form of exercise? And how much of it? In turn, what is improved? Is it a frontal lobe attention-focusing task? There is probably a large proportion of studies on humans showing the improvement in the ability to focus your attention. There have been some good research on positive long-term improvement of memory. I want to improve memory. I want to improve my own memory. What are the optimal practical implications of exercise on memory? It is related to attention because you cannot attain better memory without attention. So if you can attain better attention along with memory, I want that too.

10. **What is your philosophical foundation? How did it change over time to the present?**

I think, if you can call it a philosophy, I am a firm believer in the idea that brain is very flexible and plastic. Lots of things can influence it. Both for the good and for the bad. My whole scientific career has been based on trying to understand that principle. I do not know if this is necessarily a principle or a philosophy. I think there is a lot of potential for change and to grow. The brain has an enormous amount of potential to change and to grow. I want to explore those possibilities and the way to harness it for the betterment of mankind.

11. **Lots of recent research, which you probably know better than me, about robust short-term changes in neural architecture for long-term benefits.**

Yes, it is pretty amazing.

12. **Three papers, which turned some findings on their head, came from Susanne M. Jaeggi et al from 2008, 2009, and subsequently in 2012 based on a 'dual n' back' task. People were given the *Raven's Progressive Matrices* (RPM, Non-verbal intelligence test), trained them for up to 19 days on the 'dual n' back' task at increasing difficulty, and then gave them the RPM. They found an increase in fluid intelligence in a short amount of time, which lasted for at least a couple months after the training.**

That's fascinating. I am interested in plasticity.

13. **What do you consider the controversial topics in your field? How do you examine the controversial topics?**

(Laughs) What are the *non-controversial* topics? There are many, many controversial topics in memory including the things talked about: consolidation. There are many difference theories about

consolidation. What is it? How does it work? There is a huge controversy in the boundary between memory and perception, and how you define it. What is the appropriate way to define a perceptual function versus a memory function? You would think this would be very straightforward, but when you get into difficult perceptual tasks. There are so many elements that you have to compare. You need a good working memory. We are arguing over: is it pure perception? Is it memory? Or is it both? There is big debate over that. Those are the ones that I deal with the most. How do you deal with them? You need to do a lot of reading and try to keep an open mind, and try not to get into one camp. I never had the urge to write an opinion piece before about five years ago, when I got tired of this perception versus memory debate. I went to a journal editor and said, “Why don’t I write a memory piece?” She said, “Why don’t we do a point-counterpoint?” I said, “No, I do not want to do that, just let me write the piece.” (Laughs) No, I didn’t *actually* say that. I said, “I’d **love** to do point-counterpoint.” (Laughs) I ended up doing it with someone I got along with, and it was a really informative and educational process to try and address a controversy fairly from one side knowing someone else is doing another side. Then, we did a wrap-it-up piece together. Obviously, we had to get along and have enough respect for each other’s views to be able to get through that project. Now, we are working together on some projects, not this, but other ones. The funny this is, the editor was interested in doing a point-counterpoint because she had tried to do a great point-counterpoint, but people found it too emotionally charged. I think that is probably the cause of the duration of these controversies: stubbornness on these scientists. If they were more interested in engaging through point-counterpoint in the general public, within the form of scientific

journals, rather than doing my first reaction such as ‘let me just write my piece’.

14. What do some in opposition to you argue? How do you respond?

It depends on the format. In written word or a talk-situation – kind of a debate, I think one of the things that differentiates the different views is how much credit, or weight, you give different pieces of evidence. All controversies have a whole bunch of studies that are more or less related to it. Lots of people have different opinions on how they buy into certain findings over other findings. I think my response is to try and explain both my theoretical and the strongest evidence – that I think – is there to back it up. Whether experimental design or the results were significant. For example, something well-designed enough to not make another possible interpretation for this experiment the best one. I guess, the underlying hypothesis in my mind and the rank-order of the data, and, of course, I need to explain why data they might bring up is not that relevant.

15. What advice do you have for young psychologists?

I would say, “Make sure you are truly fascinated with psychology and that can be a driving force for many years of hard work, which you will have to do.” To any young scientist, “be curious, be bold in jumping in conversations and debates.” They are good experiences. Do not be sitting there with the ‘big whigs’ figuring things out. Become good at expressing your own views in some form, e.g. through talks or the written word. I think the thing I see in my most successful colleagues is this innate fascination. You need to make sure this a driver for you because it is hard to work for the funding. The competition in science is strong. It could become overwhelming. It does become overwhelming for many students unless they are so fascinated with the topic. Only they can decide that.

16. Whom do you consider your biggest influences? Could you recommend any seminal or important books/articles by them?

My major influences are my three dissertation advisors. One of them was Larry Squire. He and Eric Kandel have a really good book for neuroscientists and non-neuroscientists called *Memory: From Minds to Molecules*. It was a Scientific American publication. It lays out the whole range of the field of memory very nicely. Stuart Zola, who was also one of my thesis advisors, a fantastic psychologist, scientist, and neuroscientist. As well as David Amaral, a neuro-anatomist, who taught me great anatomical techniques and let me feel like an artist in a way. I felt like an art critic while looking into a microscope and working with these various brain areas in monkeys during my thesis studying. I will always be grateful for that. People that influence you formative times of your career. Those influences are long-lasting. I would say those three teachers. They were my greatest influences.

17. In an interview with Dr. Elizabeth Loftus from *In-Sight Issue 2.A*, I quote an acceptance speech for an award from the AAAS for *Scientific Freedom and Responsibility*. In it, she said, “We live in perilous times for science...and in order for scientists to preserve their freedoms they have a responsibility...to bring our science to the public arena and to speak out as forcefully as we can against even the most cherished beliefs that reflect unsubstantiated myths.” How important do you see criticizing ‘unsubstantiated myths’ in ‘perilous times’ for science?

“Criticizing ‘unsubstantiated myths’”, I would say, I agree with the statement to the point about scientists needing to speak out into the public. Whether they battle myths or simply educate, in fact, I consider that more important to get to the general public out

there. So they know what a scientist does, even if it is the most esoteric things about something in fly brains because they get funding – if they are lucky enough to get funding. To hone that message in a very, very clear way to let the public understand the importance of our work. I think battling unsubstantiated myths is a subset of that, but I consider the most important part of that is the reason I am so fascinated with memory. What happens if you lose your memory? How might my research help you? How might devastating might that be to you? Some people, and scientists included, do not always understand the importance of the work that we do. More important is the public’s ability to know this and ultimately support the scientific effort with knowledge, full knowledge.

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REVEREND IVAN STANG⁵⁵⁵⁶



⁵⁵ Co-Founder & Author, Church of the SubGenius.

⁵⁶ First published on October 1, 2014 at www.in-sightjournal.com.

 ABSTRACT

Interview with co-founder of and author for the *Church of the SubGenius*, Reverend Ivan Stang, discussing the following subject-matter: geographic, cultural, and linguistic heritage for family background, and their concomitant influence on his development; youth and coming to this point including grades, young sexual frustration, and general anger toward the world at a young age; design, development, and foundation of the *Church of the SubGenius*, and key components to the foundation of a religion; pivotal transition to the design, development, and foundation of the *Church of the SubGenius*; three key things to know about J.R. 'Bob' Dobbs; definitions of 'Bob', 'The Conspiracy', and 'Slack'; the way in which The *Church of the SubGenius* differs from mainstream religions; the way in which the *Church of the SubGenius* differs from fringe religions; controversial nature related to the *Church of the SubGenius*; infinite funding for an organization; unpopular reactions to the church; *Church of the SubGenius* and other groups going in the near, and far, future, and work on a screenplay or radio play; recommendation of The *Onion*; and fear, worry, or concern for the *Church of the SubGenius* in the future.

Keywords: Association for Consciousness Exploration, Chas Smith, Christian, Church of the SubGenius, Dallas, Dr. Hal Robins, Dr. Philo Drummond, Federico Fellini, Fleischer, Fort Worth, Frank Zappa, G. Gordon Gordon, Harvard, H.P. Lovecraft, Hunter Thompson, Jay Kinney, Jimi Hendrix, John Birch Society, MAD Magazine, McGraw-Hill, Monty Python, Orson Welles, Paul Mavrides, R. Crumb, Ray Harryhausen, Reverend Ivan Stang, Rip Off Press, Robert Anton Wilson, Robert Shea, Robert Williams, Seculars, Simon & Schuster, South Carolina, Steve Wilcox, The Firesign Theatre, The Merry Pranksters, The Onion, The Three Stooges, Tim McGinnis, Tom Wolfe, Warner Brothers, WASP, Zap Comics.

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1. In terms of geography, culture, and language, where does your family background reside? How do you find this influence your development?

Long story short: we were seculars surrounded by the religious. I am technically a standard WASP, but "mixed race" -- half Yankee, half Southerner. My father is from a small town in South Carolina but is a Harvard-educated lawyer and retired Navy captain. My mom was raised in Connecticut by a Bronx Irish mother and an award winning writer/architect father (with the worst stutter I have ever heard, to this day). While my father is an expert on the Bible and even teaches somewhat subversive Bible studies at the local Methodist church, he is nonetheless what ignorant people would call an atheist. I was raised on science and science fiction. "Pappy" tried to get me interested in hunting and horseback riding, but that didn't take. I'm more a wildlife photographer and amateur zoologist than a hunter. I hike in the woods and hunt in video games.

I grew up in Fort Worth and Dallas -- most of my family now lives on a big ranch outside the Metroplex -- so culturally I was surrounded by Southern Baptist kids. I had to pretend to be a Christian; I suppose one might say I got just a wee bit tired of that.

I knew I was an outsider during my first weeks of Kindergarten. At age 5 I was interested in sex (although I didn't know what it was) and I was NOT interested in baseball. I knew every dinosaur's name -- which was easy in 1958 -- but I couldn't tell a hot rod from a Volkswagen.

I was a nerd before it was cool, in other words.

2. How was your youth? How did you come to this point?

I did fine in school until we moved to Dallas and my parents put me in a private school for males only, St. Mark's School of Texas. We were not rich and once again I didn't fit in. I

went from straight As and foiled interest in girls to struggling for Cs and NO GIRLS AROUND AT ALL. I had to hang with the theater club because that was the only part of school that involved girls, imported from other schools. My love life was adversely affected at this critical age, which helped make me angry at the entire world, and it also led to my foolishly getting married at age 20 to the first young lady who would give me much more than the time of day. Luckily she was a very nice person and the perfect mother.

Did I mention anger? I was a very angry and lonesome young man. At that time my parents were fighting continuously and drugs/alcohol were a problem across the board; of course, for this was the early 1970s, post-hippie, pre-punk, but *all drugs*.

I had lots of interesting friends at that private school, though, and was voted Weirdest in the Class of 1971. I campaigned hard for that post; I earned it. I had been doing weird art projects, mostly monster/sf oriented but later more consciously surreal, since the age of 10, when I bought my first 8mm movie camera with money earned by cleaning dog kennels.

By age 15 I had won grand prize in the *Kodak Teenage Movie Awards* for a stop-motion short I'd done in "claymation." This led to international film festival awards and a big head. By college I thought I was the next Orson Welles, and produced an ambitious 45-minute 16mm underground film called *LET'S VISIT THE WORLD OF THE FUTURE*. This was heavily influenced by a lucky early exposure to "underground comix" -- the work of R. Crumb, Robert Williams, etc. in things like *Zap Comics* -- and by *The Firesign Theater*, a pre-Monty Python American comedy group that remains way ahead of its time. The weird art that I was discovering helped keep me from suicide -- because I felt that maybe this was something I could do right. Weird movies, weird art. But mostly movies, then.

Instead of finishing college I got married and took a documentary film job on the *Rosebud*

Lakota Indian Reservation in South Dakota. For two years I had an often adventurous and educational time in this bizarre "prairie ghetto." It was there that I learned that when everybody else is seeing a UFO, I CAN'T!

When we returned to Dallas, my sister in law introduced me to an interesting fellow, Steve Wilcox, aka Dr. Philo Drummond. He was the first person I had ever met who was into comic books *and* Captain Beefheart *and* everything else weird and kooky. This describes half the people I know now, but then, it was a first! We compared our collections of fringe publications, UFO paperbacks, kook pamphlets, etc., and at one point thought, "Hey, we could make a *fake* brochure just like this little *John Birch Society* pamphlet, and leave it in Laundromats to freak people out!" That notion became SubGenius Pamphlet #1, which we printed on Jan. 2, 1980.

3. Before moving into the core discussion on the design, development, and foundation of the *Church of the SubGenius*, you have discussed the core elements of any religion, what three things does any religion need to have to flourish?

A religion really needs only one thing: to make believers feel like they're better than everyone else. A perceived oppressor and a perceived savior are helpful, but the main thing is telling people what they most want to hear.

I have observed seemingly educated people falling for the most blatantly ludicrous notions simply because it was what they most wanted to believe. As my Pappy said recently, "I believe what I need to believe." To me that sadly sums up the human condition. I have seen some extreme and depressing examples of this, resulting in my having to personally deprogram the gullible from my own fake cult! In some notable cases, I failed.

4. What do you consider a pivotal moment in the transition to the design, development,

and foundation of the *Church of the SubGenius*?

The primary thing was my friendship with Philo Drummond. All of the basics of the Church came from our verbal "jam sessions" in 1978 and 1979. There was a third main contributor very early on, "Dr. X," the late Monte Dhooge, but he died young. Another pivotal event was probably when the late Tim McGinnis, a young book editor in New York, found SubG Pamphlet #1 in the back seat of my sister in law's car on a picnic in 1982, flipped out, and offered us a book deal -- which in turn allowed us to score a literary agent, the late Jane Browne of Chicago.

Prior to Tim's offer, we had sent Pamphlet #1 as a possible book project outline to every publisher I could find in *Writer's Digest*. We got 150 rejection slips, including ones from *McGraw-Hill*, *Rip Off Press*, and *Simon & Schuster*, all of whom later made decent money off our books and comics.

In the trashcans of *Rip Off Press* and *Last Gasp Comics*, two artists, Paul Mavrides and Jay Kinney respectively, found that Pamphlet, and they were the ones who helped us put it in the hands of other artists and also reviewers -- that was our big leg up in the early 1980s.

Yet another pivotal moment was in 1990, when I was invited to speak at a pagan festival called Starwood, run by some folks in Cleveland, the *Association for Consciousness Exploration* or A.C.E. That in turn introduced me to a lot of people in Ohio who ended up being huge contributors, not least of all "Princess Wei R. Doe," my wife. Cleveland, perhaps ironically considering its rep as a rust-belt dump, turned out to be much friendlier ground for me than Dallas had been. I changed into a happy man after that move. I got Slack.

5. As you have stated many times in public forums, and maybe private ones too, for those unaware of J.R. 'Bob' Dobbs, i.e.

‘the unsaved’, what three things do they need to know?

If they don't instantly see what's funny about it, they should probably avoid it. 2. If they can't read between the lines, they should probably stop reading. 3. If they often confuse MAD Magazine, or Saturday Night Live, with the news, they should RUN FOR DEAR LIFE.

Beyond that, the key points are "Bob," Slack, and The Conspiracy.

6. Regarding ‘Bob’, ‘The Conspiracy’, and ‘Slack’, how do you define each term? Why did these become a foundation within the creation of the *Church of the SubGenius*?

Slack = the goal, what we all want (although it's different or each person). The Conspiracy (of the Normals) = what hinders Slack. "Bob" = the magic formula which facilitates Slack. But a major aspect of "Bob" Dobbs is the graphic portrait of "Bob." That single image, inexplicable as it is, somehow ties all of it together. The moment that Philo showed me his book of clip art and we both simultaneously saw that damn halftone face was when we both knew we had *something*. We still do not know *what*.

7. How does the *Church of the SubGenius* differ from most mainstream religions, e.g. Christianity (Roman Catholicism, Protestantism, Eastern Orthodoxy, Oriental Orthodoxy, and Anglicanism), Islam (Shia, Sunni, Sufi, and Kharijite), Hinduism, Chinese Traditional Religions, Buddhism, various Ethnic Religions, African Traditional religions, Sikhism, and so on?

I suppose the biggest difference is that we admit we are bullshitting you. In that respect it is a remarkably honest religion. Also, we don't define Slack; it's different for each person, so there are no absolute values -- except maybe for the tricky part about not robbing others of their Slack. Most religions

become ever more specific about "right" and "wrong" and are essentially formulas. We do not provide any stable formula; in fact we illustrate that trying to fit human behavior into codified formulas is folly.

Also, we pay taxes.

One of my favorite lines is, "We're like any other religion. It's not that we love "Bob" all that much, it's that we love the idea of everybody else going to Hell."

I hope it goes without saying that most SubGeniuses don't even believe in "Bob," much less Hell.

8. Furthermore, how does it differ from other fringe religions, e.g. Christianity (Restorianism, Chinese Originated Churches, Church of the East, and Unitarian Universalism), Juche, Spiritism, Judaism, Bahá'í, Jainism, Shinto, Cao Dai, Zoroastrianism, Tenrikyo, Neo-Paganism, Rastafarianism, Scientology, Pastafarianism, Mormonism, Arceusology, Discordianism, Paganism, Crowleyites, and so on?

We're much, much funnier than any of them, even Scientology.

9. What do you consider the most controversial part of your church compared to the mainline religions? In addition, what do you consider the most controversial compared to the other fringe religions? How do you examine the issue?

Some people become sincerely upset that we portray the God of the Bible as a monster from outer space. No punishments are threatened for sins like gluttony, adultery, addiction, etc. I guess the main point of contention is that we are making cruel fun of literally everybody's most cherished beliefs, often simply because they *are* cherished. We are the Balloon Poppers, the Antidote to All Placebos.

10. If you had infinite funding, what organization would you found? What

question would you research for an answer?

The world doesn't need another organization, but if I had infinite funding I have a very expensive movie screenplay I'd love to see produced (with my son, an actual Hollywood director, directing), and a video game idea that would cost more to produce than *Grand Theft Auto 5*. If it was TRULY INFINITE funding, I suppose establishing a Fun Police would be good. We'd *force* everyone to have *his or her* idea of fun. That would not be cheap, due to all the special cases. Also we would start the *Mind Your Own Business Police*.

11. Did you ever have unpopular reactions to your church? Can you provide an example?

We get more butthurt grief and criticism from stodgy New Agers of various stripes than from, say, Christians. It's not on the average person's radar, but attracts attention from people who are already fanatics about something. It's Kook Flypaper. We get hate mail from pseudo-intellectuals for not being serious enough, and for being grossly ambiguous (one of our specialties that I'm most proud of). I used to get death threats from white supremacist groups because of my unkind reviews of their literature, to the extent that I've had to call the FBI a couple of times. On the other hand, we got investigated as a hate group by the Secret Service and the FBI, but they must have found us relatively boring.

The worst thing that ever happened to us on a personal level was a child custody case in which a simpleton New York state family court judge denied custody to a very worthy mother because of her involvement with the Church of the SubGenius. (Google "Bevilacqua SubGenius Child Custody Case.") She regained custody when the father proved himself to be a complete and utter scoundrel, but for 3 years a sane, hard-working, educated mother was denied access to her child mainly because she had taken part in our "cult," and

Judge Punch didn't have what most people would call common sense.

12. Who most influenced you? Can you recommend any seminal books/articles by them?

I read a lot and seek out unusual movies, so my list would be practically endless. As far as really deep influences, I'd have to say, in this order: my parents (both had sick senses of humor), the Warner Brothers cartoons, The Three Stooges, Popeye cartoons (the Fleischer ones), monster movies in general but especially those by Ray Harryhausen, underground comics in general, The Firesign Theater, Jimi Hendrix, Frank Zappa, H.P. Lovecraft, the writer Colin Wilson, Robert Anton Wilson/ Robert She for their novel ILLUMINATUS, Federico Fellini, Hunter Thompson and Tom Wolfe, The Merry Pranksters, and many friends including Philo Drummond, G. Gordon Gordon, Puzzling Evidence, Paul Mavrides, a bunch of guys in Little Rock once called Doktorz 4 "Bob," the late Chas Smith, Lonesome Cowboy Dave, Dr. Hal Robins, "Nenslo," Rev. Susie the Floozie, Dr. K'taden Legume -- that list could go on and on too.

13. Where do you see the *Church of the SubGenius* and other groups going in the near, and far, future? Do you have a precise itinerary?

The world ends at 7 a.m. on July 5, 1998, and that's honestly all we know regarding the future. I'm slowly fiddling with a screenplay and/or radio play.

14. Besides your own organization, what others can you recommend?

The Onion.

15. What major fear, worry, or concern do you have about the Church of the SubGenius in the future?

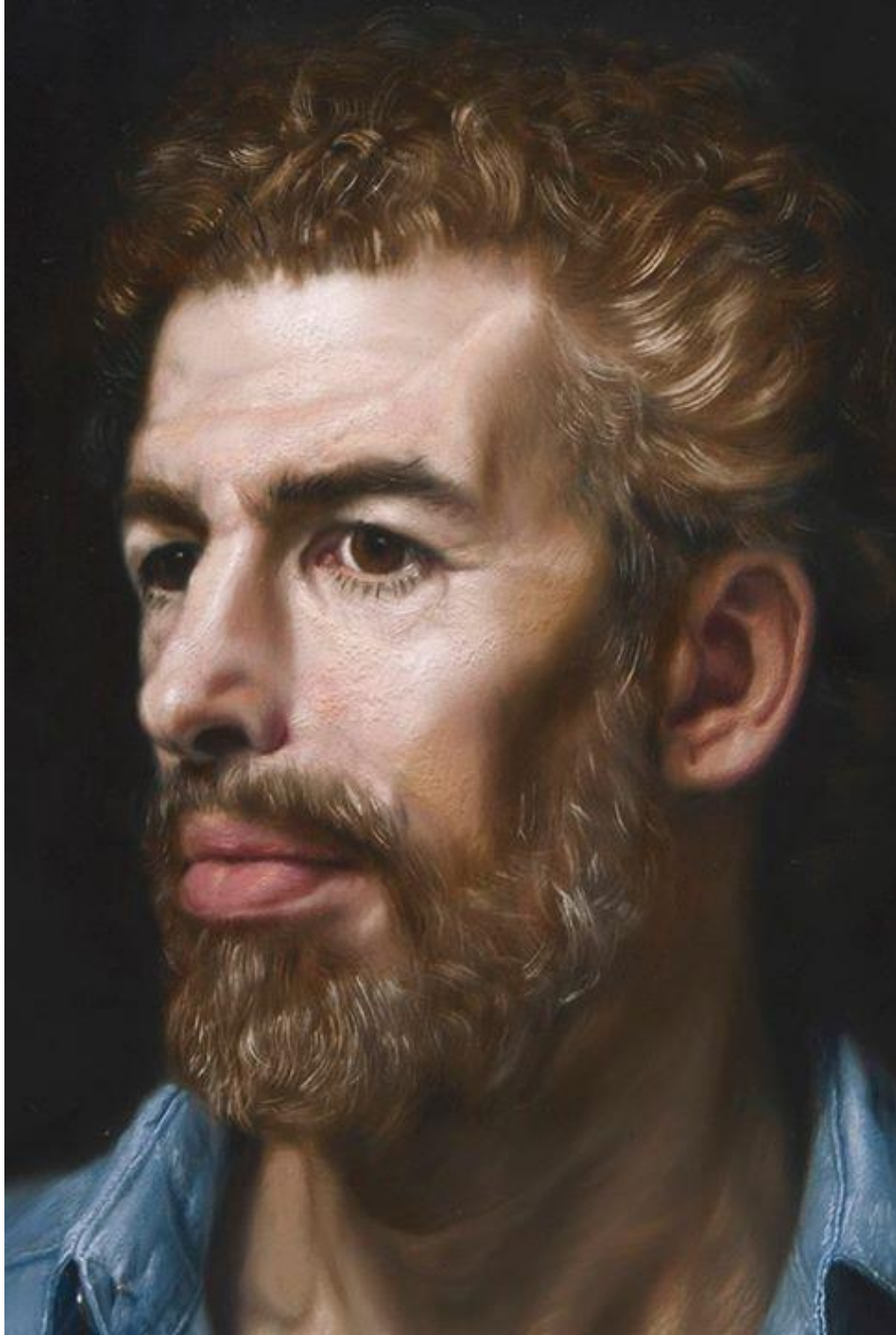
My biggest worry is that after Philo and I are dead, some asshole will be able to convince gullible chumps that it was all REAL -- that is,

supernatural. I have gone to great lengths to insure that hard physical proof exists in many places of exactly how this whole nutty mess developed. It was the work of many wiseacres, just having fun.

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RICK G. ROSNER (PART ONE)⁵⁷⁵⁸⁵⁹



⁵⁷ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part One).

⁵⁸ First publication on October 8, 2014 at www.in-sightjournal.com.

⁵⁹ Second publication on November, 2014 in Issue 197 of *Noesis: Journal of the Mega Society*.

 ABSTRACT

Part one 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: 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 1991-97), and his time as an editor from 1991-1997, 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 hitting the ceilings of 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.

Keywords: arts, child prodigy, college, cosmology, equivalence, Genius, giftedness, Giga Society, Intelligence, IQ, Jewish, mathematical, Mega Society, Mega Test, Noesis, physics, Rick G. Rosner, Richard Sterman, Raven’s Progressive Matrices, sciences, Titan Test, Wechsler Adult Intelligence Scale.

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1. In terms of geography, culture, and language, where does your family background reside? How do you find this influencing your development?

I grew up in Boulder, Colorado⁶⁰, with my mom, stepdad and brother, and spent a month each summer with my dad and stepmom and their kids in Albuquerque, New Mexico⁶¹. My ancestors came from Eastern Europe and the Baltics⁶² by way of Cincinnati⁶³ and Shreveport⁶⁴. I'm Jewish⁶⁵, but out west, Jewish cultural⁶⁶ influence is somewhat attenuated.

2. In *Noesis*⁶⁷⁶⁸ issue 57's article *When Good IQs*⁶⁹⁷⁰⁷¹⁷² *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?

I showed some signs of being a child prodigy⁷³⁷⁴ – by the age of about 18 months, I'd learned the alphabet, and by age 3 ¾, 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*⁷⁵ scared me – I'd have to go hide behind the couch. My first crush was on Patty Duke on *The Patty Duke Show*⁷⁶, 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 spaniel⁷⁷ named Tinkerbelle, who died when I was four. (This is before cockers⁷⁸⁷⁹ became overbred and high-strung.)

I was terrified of swimming, which was part of my generally being a wuss⁸⁰ – had to be peeled off the side of the pool by the swim teacher.

3. 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?

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 intelligence⁸¹⁸² and niceness would inspire a girl to look past my nerdiness. I spent the second semester of ninth grade

⁶⁰ See Boulder. (2014).

⁶¹ See Albuquerque. (2014).

⁶² See Baltic states. (2014).

⁶³ See Cincinnati. (2014).

⁶⁴ See Shreveport. (2014).

⁶⁵ See Jew. (2014).

⁶⁶ See Judaism. (2014).

⁶⁷ *Noesis*: Journal of the Mega Society.

⁶⁸ See The Mega Society (n.d.).

⁶⁹ "IQ" means Intelligence Quotient.

⁷⁰ See Benjamin Jr, L.T. (2009).

⁷¹ See human intelligence. (2014).

⁷² See American Psychological Association (n.d.). Psychology Topics: Intelligence.

⁷³ See prodigy. (2014).

⁷⁴ See Meyers, L. (2005, December).

⁷⁵ See IMDB (n.d.). Perry Mason.

⁷⁶ See IMDB (n.d.). The Patty Duke Show.

⁷⁷ See ECSCC (2014). Breed History.

⁷⁸ "Cockers" means "cocker spaniels."

⁷⁹ Ibid.

⁸⁰ See Cambridge Dictionaries Online (2014). Wuss.

⁸¹ See Neisser, U., et al (1996).

⁸² See human intelligence. (2014).

building a Three-Dimensional Gaussian⁸³ Distribution⁸⁴ Generator to demonstrate to my honors math class. The machine dropped a thousand BBs through a pyramidal⁸⁵ 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 BBs⁸⁷, thanks to the laws of probability⁸⁸. 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 dweeb⁸⁹ was pouring BBs into a plastic pyramid⁹⁰.

Realizing that my nerdiness⁹¹ 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 150⁹² (SD 16). I decided that a 150 IQ wasn’t high enough for me to become the world-changing physicist⁹⁴ 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 tests⁹⁶, scoring in the 170s, 180s, and eventually 190s.⁹⁹ 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 150.¹⁰² (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.

4. 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?

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

⁸³ See Figure 1.

⁸⁴ See Weisstein, Eric W. (n.d.) Gaussian Function.

⁸⁵ See Georgia State University (n.d.) Gaussian Distribution Function.

⁸⁶ See Weisstein, Eric W. (n.d.) Pyramidal Number.

⁸⁷ “BBs” means “ball bearings.”

⁸⁸ See MIT: Sloan School of Management (2013). Using Laws of Probability.

⁸⁹ See Cambridge Dictionaries Online (2014). Dweeb.

⁹⁰ See pyramid. (2014).

⁹¹ See Cambridge Dictionaries Online (2014). Nerd.

⁹² All subsequent calculations on a SD 16 scale. “SD” means “standard deviation.”

⁹³ See standard deviation. (2014).

⁹⁴ See Cambridge Dictionaries Online (2014). Physics.

⁹⁵ See Bradley, P. (n.d.). Particle Physics.

⁹⁶ See Table 1.

⁹⁷ See Table 2.

⁹⁸ See Figure 2.

⁹⁹ Ibid.

¹⁰⁰ See Table 1.

¹⁰¹ See Table 2.

¹⁰² These tests had low ceilings.

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-date¹⁰³ 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.¹⁰⁴ to try to sell my back-to-high-school story to a Hollywood¹⁰⁵ 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 jacket¹⁰⁶.

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*¹⁰⁷, which will detail my more than ten years as a sometime high school student.

5. In terms of your ideas related to cosmology¹⁰⁸ 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.”¹⁰⁹ Namely, your realization of an equivalence between the operation of information¹¹⁰¹¹¹¹² in an individual

consciousness¹¹³¹¹⁴¹¹⁵¹¹⁶¹¹⁷¹¹⁸ and the operation of space & matter¹¹⁹¹²⁰ in the universe. Both have self-consistency¹²¹¹²². 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...”¹²³ 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?

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 information¹²⁴. Quantum

¹⁰³ Two couples go on a date rather than one couple go on a date.

¹⁰⁴ “L.A.” means ‘Los Angeles, California.’

¹⁰⁵ See Hollywood. (2014).

¹⁰⁶ A jacket worn by high school and college students to represent their school and performance or membership at various levels within said school.

¹⁰⁷ Book in search for publisher at the moment.

¹⁰⁸ See Chuss, D. (2012, December 21). Cosmology: The Study of the Universe.

¹⁰⁹ See Rosner, R. (n.d.). LinkedIn: Rick Rosner: Writer for a Big Three Television Network.

¹¹⁰ See Cambridge Dictionaries Online (2014). Information.

¹¹¹ See information theory. (2014).

¹¹² See Glossary of Terms.

¹¹³ See consciousness. (2014).

¹¹⁴ See Van Gulick, R. (2014). Consciousness.

¹¹⁵ See Chalmers, D.J. (2003). Consciousness and its Place in Nature.

¹¹⁶ See Chalmers, D. J. (1996). On the Search for the Neural Correlate of Consciousness.

¹¹⁷ See PURE CONSCIOUSNESS: DISTINCT PHENOMENOLOGICAL AND PHYSIOLOGICAL CORRELATES OF 'CONSCIOUSNESS ITSELF'. (2000).

¹¹⁸ See Glossary of Terms.

¹¹⁹ See Cambridge Dictionaries Online (2014). Matter (Substance).

¹²⁰ See Foothill College (n.d.). What is Matter?.

¹²¹ See Cambridge Online Dictionaries (2014). Self-consistent.

¹²² See Glossary of Terms.

¹²³ See Rosner, R. (1991, February). Editor's Comments. *Noesis*, 58.

¹²⁴ See Glossary of Definitions.

mechanics¹²⁵¹²⁶¹²⁷ mathematicizes the limitations of the universe's information-processing ability. Being finite, the universe cannot observe itself with infinite precision.

6. 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?

I think the most efficient model of the information contained in a complex, self-contained¹²⁸ and self-consistent system of information looks like the universe – locally three-dimensional¹²⁹¹³⁰ (spatially) with linear time¹³¹ and particles¹³² and forces¹³³ that transact business more or less the way they do in the universe itself.

I don't believe in the big bang¹³⁴ – 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-shifted¹³⁵. The apparent age¹³⁶¹³⁷ 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.

7. 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?¹³⁸

Lazy voodoo physics is my term for crappy metaphysical¹³⁹ 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 Gamow¹⁴⁰¹⁴¹, who came up with the big bang, was notoriously unschooled in math. Immanuel Kant¹⁴²¹⁴³ was among the first people to endorse the idea of galaxies¹⁴⁴¹⁴⁵, and Edgar Allen Poe¹⁴⁶ offered a reasonable solution to *Olbers' Paradox*¹⁴⁷¹⁴⁸. Einstein¹⁴⁹ himself had to be pointed towards the mathematical framework for general

¹²⁵ See Ismael, J. (2014). Quantum Mechanics.

¹²⁶ See quantum mechanics. (2014).

¹²⁷ See Glossary of Terms.

¹²⁸ Ibid.

¹²⁹ An n-dimensional space where “n” equals “3”. In other words, 3 spatial dimensions: left-right, up-down, and forward-backward. If displayed with axes perpendicular to one another, then called a *Cartesian Coordinate System*.

¹³⁰ See Weisstein, Eric W. (n.d.) Coordinate System.

¹³¹ Time equates to a 4th dimension in addition to the 3 spatial dimensions.

¹³² See CERN (n.d.). The Standard Model.

¹³³ Ibid.

¹³⁴ See Chuss, D.T. (2014, January 24). NASA: Universe 101 Big Bang Theory: Foundations of Big Bang Cosmology.

¹³⁵ See Georgia State University (n.d.). Red Shift.

¹³⁶ ~13.77 Billion years in the Standard Big Bang Model.

¹³⁷ See Chuss, D.T. (2012, December 21). NASA: Universe 101 Our Universe: How Old is the Universe?.

¹³⁸ See history of science. (2014).

¹³⁹ See van Inwagen, P. (2013).

¹⁴⁰ See National Academy of Sciences (2009). George Gamow: 1904-1968.

¹⁴¹ See George Gamow. (2014).

¹⁴² See Rohlf, M. (2014). Immanuel Kant.

¹⁴³ See Shabel, L. (2014). Kant's Philosophy of Mathematics.

¹⁴⁴ See NASA (n.d.). Galaxies.

¹⁴⁵ Immanuel Kant termed galaxies “island universes.”

¹⁴⁶ See Edgar Allan Poe. (2014).

¹⁴⁷ See NASA (2002, December). Question 52: Starchild Question of the Month for December 2002.

¹⁴⁸ See Olbers' paradox. (2014).

¹⁴⁹ See Albert Einstein. (2014).

relativity¹⁵⁰ by his friends. Trying to imagine the processes of the universe with the math to come later is not voodoo physics. Metaphysics¹⁵¹ doesn't have to be voodoo physics, either.

8. **When did you enter into the world of the ultra-high IQ community¹⁵²? In particular, the Mega Society¹⁵³¹⁵⁴. In it, once more, you forged an identity. What motivated this resurgence of forging an identity? For instance, the use of the pseudonym Richard Sterman¹⁵⁵¹⁵⁶¹⁵⁷¹⁵⁸¹⁵⁹¹⁶⁰ within the publications of the Mega Society journal, *Noesis*¹⁶¹. To make amends, and needing stating, you did apologize to members and readers of the journal for the false identity portrayal.**

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*¹⁶² that qualified me for the Mega Society, I wrote to Marilyn Savant¹⁶³¹⁶⁴ (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." Marilyn¹⁶⁵ 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.)¹⁶⁶

On the *Mega Test*¹⁶⁷, I had tied for the second-highest score in the country¹⁶⁸.

The *CBS*¹⁶⁹ *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 canceled 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 Golomb¹⁷⁰ and Herbert Taylor¹⁷¹, and the Governor of New Hampshire¹⁷². 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*¹⁷³ 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*¹⁷⁴, 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

¹⁵⁰ See Cornell University (2011, December 18).

Curious about Astronomy?: Ask an Astronomer: The Theory of Relativity.

¹⁵¹ See van Inwagen, P. (2013)

¹⁵² See The Mega Society (n.d.).

¹⁵³ See Ibid.

¹⁵⁴ See The Mega Society (n.d.). About The Mega Society.

¹⁵⁵ See Rosner, R. (1991, January). Editorial.

¹⁵⁶ Rosner, R. (1991, January). When Good IQs happen to Bad People.

¹⁵⁷ See Rosner, R. (1991, January). Random Walks at Work.

¹⁵⁸ See Rosner, R. (1991, February). From the Editor.

¹⁵⁹ Rosner, R. (1991, February). Fake ID – An Appreciation.

¹⁶⁰ Rosner, R. (1991, February). Editor's Comments.

¹⁶¹ See The Mega Society (n.d.).

¹⁶² See Table 1.

¹⁶³ See vos Savant, Marilyn (n.d.). About Marilyn.

¹⁶⁴ See Parade Magazine (n.d.). Ask Marilyn.

¹⁶⁵ Ibid.

¹⁶⁶ See Table 1.

¹⁶⁷ Ibid.

¹⁶⁸ See Table 1.

¹⁶⁹ See CBS Corporation. (2014).

¹⁷⁰ See University of Southern California: Viterbi School of Engineering (n.d.). Solomon Golomb.

¹⁷¹ See Internet Archive (1986, January). Omni Magazine.

¹⁷² See Sununu, John Henry. (2014). In *Compton's by Britannica*.

¹⁷³ See Table 1.

¹⁷⁴ Ibid.

Twitter¹⁷⁵ handle is [@dumbassgenius](#)¹⁷⁶ 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 journal¹⁷⁷. 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.)

9. **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 sciences, e.g. the lucid description of relativity by Chris Cole¹⁷⁸ at the end of issue 69 entitled *Relativity – A Primer*¹⁷⁹. Two, the mix of the occasional scatological material in the writing, mostly c. 1991-1997. 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”¹⁸⁰?**

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 online¹⁸¹¹⁸²¹⁸³¹⁸⁴¹⁸⁵, which speeds up discourse.

¹⁷⁵ See Twitter (2014).

¹⁷⁶ See Rosner, R.G. (n.d.). Rick G. Rosner: [@DumbassGenius](#).

¹⁷⁷ See The Mega Society (n.d.).

¹⁷⁸ Member of the Mega Society published in *Noesis*.

¹⁷⁹ See Cole, C. (1992, May). *Relativity – A Primer. Noesis, 69*.

¹⁸⁰ See Cole, C. and Langdon, K. (2005, August). Constitution of the Mega Society.

¹⁸¹ See Mensa International (2014). Mensa International.

¹⁸² See Langdon, K. (n.d.). High-IQ Societies and the Tests They Accept for Admission Purposes: Part 1.

¹⁸³ See Langdon, K. (n.d.). High-IQ Societies and the Tests They Accept for Admission Purposes: Part 2.

¹⁸⁴ See Langdon, K. (n.d.). High-IQ Societies and the Tests They Accept for Admission Purposes: Part 3.

¹⁸⁵ See Langdon, K. (n.d.). High-IQ Societies and the Tests They Accept for Admission Purposes: Part 4.

The Mega Society online journal has some good material and discussions.

- 10. 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*¹⁸⁶. At the time, August 1992, other members of the Mega Society argued for the possibility of intellectual inferiority of blacks¹⁸⁷. You argued otherwise. In that, by your estimate, all races have about equal intelligence.¹⁸⁸ Although in defense of all parties involved in the discussion of issue 72, the articles were written in 1992.¹⁸⁹ Much work written in public discourse has progressed on the issue of intelligence and race: ‘does race count as an appropriate scientific category?’¹⁹⁰, ‘do IQ tests measure intelligence?’¹⁹¹, and so forth. Where do you stand on this issue now?**

I don’t have a problem with black people – in my juvenile manner, just wanted an attention-grabbing title.¹⁹⁴ 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.¹⁹⁵ Intelligence has a fluid relationship with the environment¹⁹⁸, and all sorts of things can

happen during an individual's lifetime which may or may not bring his or her intelligence to fruition²⁰⁰. 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 Two²⁰¹, the average IQ of all of humanity has gone up significantly and steadily – the Flynn Effect²⁰². One of the main suspects in this upslope is the pervasiveness of complicated modern culture. Culture and tech

¹⁸⁶ See Rosner, R. (1992, August). *My Problem With Black People*. *Noesis*, 72.

¹⁸⁷ See Herrnstein, R. J., & Murray, C. (1994).

¹⁸⁸ See Rosner, R. (1992, August).

¹⁸⁹ Ibid.

¹⁹⁰ See Templeton, A. (2013). *Biological Races in Humans*.

¹⁹¹ See Benson, E. (2003, February). *Intelligence across cultures*.

¹⁹² See Benson, E. (2003, February). *Intelligent intelligence testing*.

¹⁹³ See APA (2004, June 17). *Intelligence and Achievement Testing: Is the Half-Full Glass Getting Fuller?*.

¹⁹⁴ See Rosner, R. (1992, August). *My Problem With Black People*. *Noesis*, 72.

¹⁹⁵ See eugenics. (2014).

¹⁹⁶ See Roger, K. (2009, February 9).

¹⁹⁷ See Goering, S. (2014).

¹⁹⁸ See Hanscombe, K. B., et al (2012).

¹⁹⁹ See van der Sluis, S., et al (2008).

²⁰⁰ Ibid.

²⁰¹ See World War II. (2014).

²⁰² See Graham, C. & Plucker, J. (2013, November 14).

²⁰³ See Winerman, L. (2013, March)

²⁰⁴ See Nisbett, R. E., et al (2012).

²⁰⁵ See Flynn, J. & Jacobsen, S.D. (2014, August). Dr. James Flynn: Emeritus Professor, Political Studies and Psychology, University of Otago, New Zealand (Part One).

²⁰⁶ See Flynn, J. & Jacobsen, S.D. (2014, August). Dr. James Flynn: Emeritus Professor, Political Studies and Psychology, University of Otago, New Zealand (Part Two).

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 - pacemakers²⁰⁷, cochlear implants²⁰⁸, etc.²⁰⁹ So who cares about some hard-to-measure few-IQ-point alleged difference among groups²¹⁰²¹¹²¹²²¹³²¹⁴²¹⁵²¹⁶²¹⁷²¹⁸ when we're all going to end up being increasingly augmented geniuses?

People who insist on racial inferiority are creeps.²¹⁹ We can discuss cultural differences – for instance, there seem to be cultural differences in causes of passenger jet pilot error²²⁰ – 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.

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

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.

12. Intelligence Quotient²²¹²²² (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.²²³ 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 Matrices²²⁴ (RPM) and the Wechsler Adult Intelligence Scale²²⁵ (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)²²⁶. 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*²²⁷²²⁸²²⁹ – one of the most difficult, you set a record score. In fact, you earned a perfect score. You have

²⁰⁷ See NIH: National Blood, Heart, and Lung Institute (2012, February 28).

²⁰⁸ See NIH: National Institute on Deafness and Other Communication Disorders (2014, August 18). Cochlear Implants.

²⁰⁹ See American Diabetes Association (2014). How Do Insulin Pumps Work?.

²¹⁰ See Rushton, J., & Jensen, A. R. (2005).

²¹¹ See Jensen, A. R. (1969).

²¹² See Nisbett, R. E. (2005).

²¹³ See te Nijenhuis, J. (2013).

²¹⁴ See Herrnstein, R. J., & Murray, C. (1994).

²¹⁵ See Lynn, R. (2008).

²¹⁶ See Dickens, W. T., & Flynn, J. R. (2006).

²¹⁷ See Campbell, J. R., Hombo, C. M., & Mazzeo, J. (2000).

²¹⁸ See Langan, C. M., Losasso, G., Jensen, A., et al (2002).

²¹⁹ See eugenics. (2014).

²²⁰ See Phillips, M. (2008, December 4). Malcolm Gladwell on Culture, Cockpit Communications, and Plane Crashes.

²²¹ See IQ (2014).

²²² See human intelligence (2014).

²²³ See American Psychological Association (2014). Quantitative Psychology.

²²⁴ See Pearson (2014). Raven's Progressive Matrices™ (APM and SPM).

²²⁵ See Pearson (2014). Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV).

²²⁶ These represent cognitive ability rarity of 1 out of 30,000.

²²⁷ See Table 1.

²²⁸ See Table 2.

²²⁹ See Figure 2.

taken many more.²³⁰²³¹²³² **What are some of the other tests?²³³ In particular, where does your range²³⁴, mean²³⁵, and median²³⁶ lie for the set of high-range IQ tests taken?²³⁷²³⁸²³⁹**

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 scores²⁴⁰²⁴¹²⁴² probably reflect less than my maximum effort, and my highest scores²⁴³ probably grant me some extra points due to crazily high levels of diligence plus vast experience with these tests.²⁴⁴²⁴⁵²⁴⁶ 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?

- 13. 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'²⁴⁷ tests exist. However, many of these culture fair tests have lower ceilings.²⁴⁸ What do you see in the future for high-range non-verbal tests? How will this change general intelligence testing**

²³⁰ See Table 1.

²³¹ See Table 2.

²³² See Figure 2.

²³³ Ibid.

²³⁴ Difference between between lowest and highest score values.

²³⁵ Arithmetic average: sum of score values divided by number of scores.

²³⁶ Mean of middlemost scores for total set of scores.

²³⁷ See Table 1.

²³⁸ See Table 2.

²³⁹ See Figure 2.

²⁴⁰ See Table 1.

²⁴¹ See Table 2.

²⁴² See Figure 2.

and the identification of gifted individuals?

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.²⁴⁹²⁵⁰ 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 AP²⁵¹ courses and brutal study loads, for a seven percent chance of getting

²⁴³ Ibid.

²⁴⁴ See Table 1.

²⁴⁵ See Table 2.

²⁴⁶ See Figure 2.

²⁴⁷ See See Pearson (2014). Raven's Progressive Matrices™ (APM and SPM).

²⁴⁸ Ibid.

²⁴⁹ See Pearson (2014). Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV).

²⁵⁰ See Pearson (2014). Raven's Progressive Matrices™ (APM and SPM).

²⁵¹ "AP" means "Advanced Placement" indicating course material beyond grade-level in proportion to current age.

into an Ivy²⁵². 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.

14. 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?

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 Schwarzenegger²⁵³

documentary, *Pumping Iron*²⁵⁴, 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's²⁵⁵²⁵⁶²⁵⁷ book, *Fantastic Voyage: Live Long Enough to Live Forever*²⁵⁸²⁵⁹, and go from a few vitamins a day to a zillion. I don't buy Kurzweil's entire argument - that the Singularity²⁶⁰ will happen around 2040, and anyone who can live until then can live forever - but I do think there will be many biotech²⁶¹²⁶² 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.

²⁵² "Ivy" means "The Ivy League" or a set of the best, or most selective, universities in the United States of America.

²⁵³ See Arnold Schwarzenegger. (2014).

²⁵⁴ See IMDB (2014). Pumping Iron.

²⁵⁵ See Kurzweil, R. (2014). Ray Kurzweil biography.

²⁵⁶ See TED (2014, March). Ray Kurzweil: Get Ready for Hybrid Thinking.

²⁵⁷ See TED (2005, February). Ray Kurzweil: The accelerating power of technology.

²⁵⁸ See Kurzweil, R. (2004, October 7). Fantastic Voyage; Live Long Enough to Live Forever.

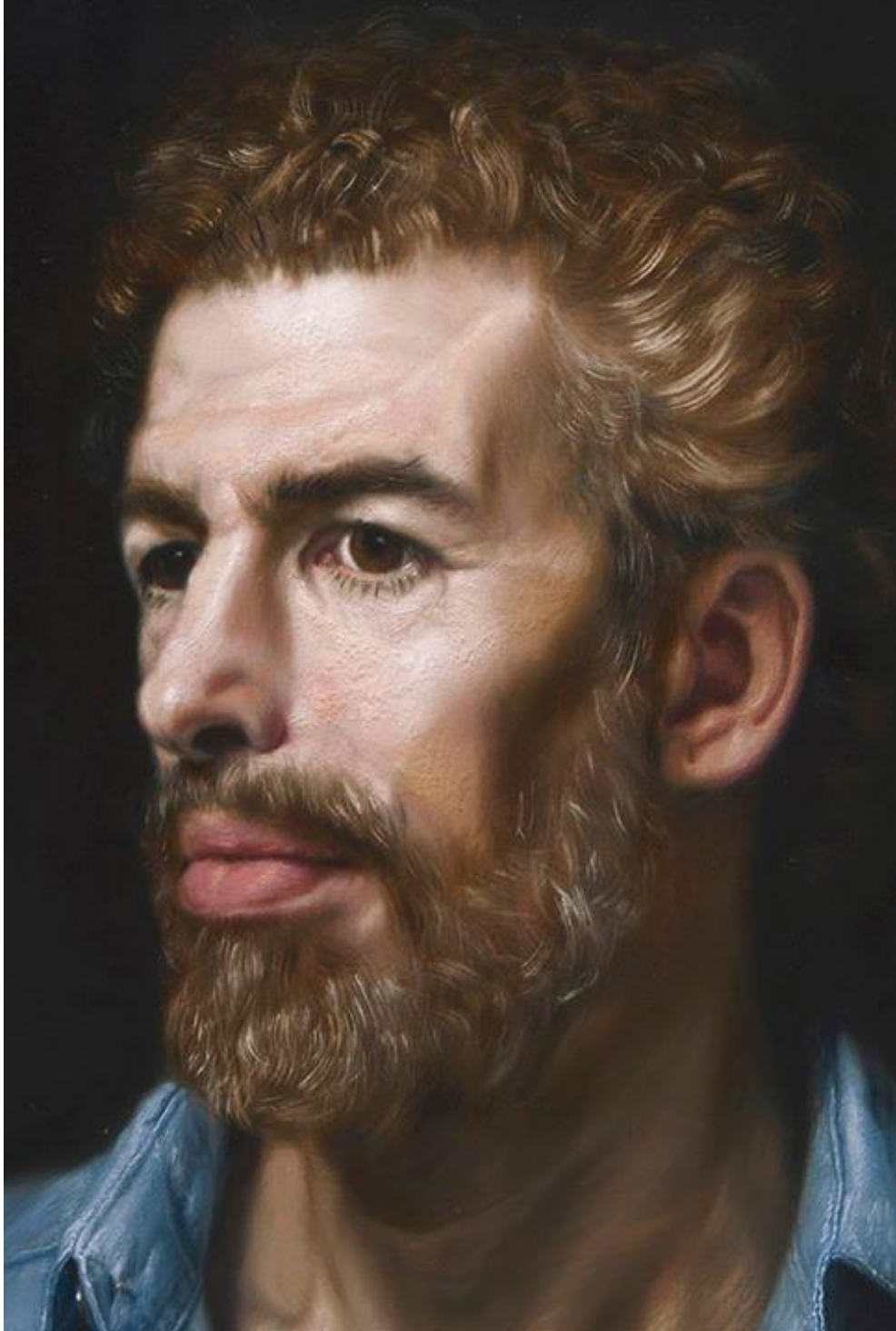
²⁵⁹ For further and updated information, see Kurzweil, R. (2009, April 28). TRANSCEND: Nine Steps to Living Well Forever.

²⁶⁰ See Vinge, V. (1993). What is the Singularity?.

²⁶¹ "Biotech" means "biotechnology."

²⁶² See Nature (2014). Biotechnology.

RICK G. ROSNER (PART TWO)²⁶³²⁶⁴²⁶⁵



²⁶³ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Two).

²⁶⁴ First publication on October 15, 2014 at www.in-sightjournal.com.

²⁶⁵ Second publication on November, 2014 in Issue 197 of *Noesis: Journal of the Mega Society*.

 ABSTRACT

Part two 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: 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, curcumin, 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.

Keywords: animal, aspirin, consciousness, curcumin, consciousness, Dr. Aubrey de Grey, Dr. Peter Diamandis, Dr. Ray Kurzweil, Dr. Terry Grossman, Excelsior College, evolution, Fen-Phen, future, Giga Society, God, gods, immortality, inflammation, J.D. Mata, Law of Accelerating Returns, Life Extension Foundation, longevity, Mega Society, Metformin, methylene blue, Michael Bay, mind, mortality, nutraceutical, Obsessive Compulsive Disorder, Pythagoreans, Resveratrol, Rick G. Rosner, Saul Kent, statins, supplements, Transhumanists, Type 2 Diabetes, United Nations, vitamin d.

American Psychological Association (APA, 6th Edition, 2010): Rosner, R.G. & Jacobsen, S.D. (2014, October 8). Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part One). *In-Sight: Independent Interview-Based Journal*. Retrieved from <http://in-sightjournal.com/2014/10/15/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-two/>.

Modern Language Association (MLA, 7th Edition, 2009): Rosner, Rick, and Scott D. Jacobsen. "Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part One)." *In-Sight: Independent Interview-Based Journal* 6.A (2014): Oct. 2014. Web. <<http://in-sightjournal.com/2014/10/15/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-two/>>.

15. 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.²⁶⁶²⁶⁷²⁶⁸ These tendencies of thought wax and wane. For instance, Pythagoreans²⁶⁹²⁷⁰ searched for immortality. Even today, an emergent sub-group of a modern school of thought²⁷¹, *Transhumanism*²⁷², aims for immortality through hypothetical future scenarios of downloading their minds onto computers²⁷³, re-writing of genetic code for extended life²⁷⁴, and partial/full mergers of biology with machines²⁷⁵ 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 Kurzweil²⁷⁶, Dr. Terry Grossman, M.D.²⁷⁷, Dr. Aubrey de Grey²⁷⁸²⁷⁹, Dr. Peter Diamandis, M.D.²⁸⁰, Saul Kent²⁸¹ of the

Life Extension Foundation²⁸², 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?

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.²⁸³²⁸⁴, which isn't a hotbed of science fiction-ish speculation, says that living to 100 will become common.²⁸⁵

Transhumanists²⁸⁶ 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.²⁸⁷

Researchers such as Aubrey de Grey say that aging will be conquered by breaking it down into a set of sub-problems and solving each of them.²⁸⁸ While not part of de Grey's sub-problems²⁸⁹, 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

²⁶⁶ See Arakelova, V., & Amrian, T. (2012).

²⁶⁷ See Queenan, E. (2010).

²⁶⁸ See Hodge, K. (2011).

²⁶⁹ See Huffman, C. (2010).

²⁷⁰ See Huffman, C. (2014). Pythagoras.

²⁷¹ This modern school of thought bases many efforts on the concept of The Singularity, discussed below.

²⁷² See Bostrom, N. (n.d.). What is Transhumanism?.

²⁷³ See Inafaku, J., Lampert, K., Lawson, B., Stehly, S, and Vaccaro, A. (n.d.). Downloadable Consciousness: Technology and Research.

²⁷⁴ See Hanna, K.E. (2006, April). Genetic Enhancement.

²⁷⁵ See Northern Arizona University. (2014, February 13). Energy harvesting takes wing in merger of engineering and biology. *ScienceDaily*.

²⁷⁶ See Kurzweil, R. (2014). Kurzweil: Accelerating Intelligence.

²⁷⁷ See Grossman, T (n.d.). Dr. Terry Grossman's Story.

²⁷⁸ See SENS (n.d.). Executive Team.

²⁷⁹ See de Grey, A. & Jacobsen, S.D. (2014, June).

²⁸⁰ See Diamandis, P.H. (2014). Peter H. Diamandis.

²⁸¹ See Biomarker Pharmaceuticals (n.d.). Board of Directors: Saul Kent Director, Founder.

²⁸² See LEF (n.d.). Life Extension Foundation.

²⁸³ "U.N." means "The United Nations."

²⁸⁴ See United Nations (n.d.). United Nations.

²⁸⁵ See UN: UNFPA (2012). UNFPA Report: Chapter 1: Setting the Scene.

²⁸⁶ See Bostrom, N. (n.d.).

²⁸⁷ See Grey, A. (2004). *Escape Velocity: Why the Prospect of Extreme Human Life Extension Matters Now* (Book).

²⁸⁸ See de Grey, A. & Jacobsen, S.D. (2014, June).

²⁸⁹ Ibid.

constantly acts as an advertisement for itself, telling you that your life and thoughts and experiences are interesting.²⁹⁰²⁹¹ Evolutionarily, it has to do that. If you quit paying attention to your life, you make more errors, which might kill you.²⁹²²⁹³²⁹⁴ 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. Consciousness²⁹⁵ may be seen to incorporate a bunch of sensationalistic tricks to keep your attention, like a Michael Bay²⁹⁶ 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 chickens²⁹⁷ Americans eat each year, for instance, cows²⁹⁸, pigs²⁹⁹, octopi³⁰⁰.³⁰¹ 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.

16. Granted, death stands atop the mount of costly adventures. You take high-level double digit³⁰² numbers of vitamins³⁰³ and nutraceuticals³⁰⁴ every day.³⁰⁵ Even so, these measures for slowing, potentially halting or reversing, aging seem excessive and even dangerous. For instance, do they all have FDA³⁰⁶³⁰⁷ approval? Where do you base your efforts for longevity? What research and evidence?

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 - aspirin³⁰⁸ and a half-dose of statins³⁰⁹, for instance.

I research supplements and nutritional strategies on the internet, trying to separate the BS³¹⁰ from the crumbs of actual

²⁹⁰ See Smith, C. M. (2010). Darwin's Unsolved Problem: The Place of Consciousness in an Evolutionary World.

²⁹¹ See Ladd, G. (1896). Consciousness and Evolution.

²⁹² See Buss, D. M. (2009).

²⁹³ See Marcus, G. (2008).

²⁹⁴ See Johnson, D. P., Blumstein, D. T., Fowler, J. H., & Haselton, M. G. (2013).

²⁹⁵ See Glossary of Terms.

²⁹⁶ See Bay, M. (n.d.) Biography.

²⁹⁷ See poultry. (2014).

²⁹⁸ See cattle. (2014).

²⁹⁹ See pig. (2014).

³⁰⁰ See octopus. (2014).

³⁰¹ See Purdue University (n.d.). Poultry Facts.

³⁰² 10 to 99 vitamins and nutraceuticals per day.

³⁰³ See Mayo Clinic Staff (2009, July). Special Report.

³⁰⁴ See News Medical (2014, September 15). What are Nutraceuticals?.

³⁰⁵ Rick ingests approximately 75.

³⁰⁶ "FDA" means U.S. Food and Drug Administration.

³⁰⁷ See FDA (n.d.). U.S. Food and Drug Administration.

³⁰⁸ See NIH: Medline Plus (2014, September 24). Aspirin.

³⁰⁹ See Mayo Clinic Staff (n.d.) Statins: Are these cholesterol-lowering drugs right for you?.

³¹⁰ "BS" means "bullshit." "Bullshit" means "falsehood."

information. *Life Extension*³¹¹³¹² 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.

17. For instance, which ones of these nutritional supplements³¹³ have sufficient clinical testing in favor 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?³¹⁴

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 D³¹⁵ and a lot of curcumin³¹⁶, both of which are currently very well-regarded. They're being studied extensively, and the studies are returning encouraging results.³¹⁷ As with anything, future research may debunk them,

but I don't think they're hurting me. People in India³¹⁸ have been using curcumin for centuries, and this seems to be correlated with lower rates for some inflammation-based disease.³¹⁹³²⁰

Some of what I take may be considered a little wacky. For instance, I take Metformin³²¹, a drug for Type 2 diabetes³²²³²³, even though I don't have diabetes. Among other effects, Metformin helps your body use insulin more efficiently. Along with resveratrol³²⁴, it's one of only two drugs I know of which trigger some of the positive effects of calorie restriction³²⁵ (without the misery of calorie restriction). And Metformin is a more effective calorie restriction mimetic³²⁶³²⁷ than resveratrol, because orally administered resveratrol gets knocked out by your liver.³²⁸ Metformin is the most widely prescribed anti-diabetes drug in the world, with 48 million annual prescriptions in the U.S.³²⁹ 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 Metformin³³⁰ may reduce the incidence of cancer. I like the stuff. I sometimes take methylene blue³³¹, which may act as a detergent to loosen amyloid plaque³³² in the brain. (Amyloid³³³ is sticky gunk thrown up by damaged brain cells³³⁴.)

³¹¹ See LEF (n.d.) LEF Magazine.

³¹² A magazine written out of the *Life Extension Foundation* and devoted to research on health and longevity.

³¹³ See FDA (2014, April 11). What is a dietary supplement?.

³¹⁴ See NIH: MedlinePlus (n.d.). Drugs, Supplements, and Herbal Information.

³¹⁵ See Mayo Clinic (2013, November 1). Vitamin D.

³¹⁶ See Mayo Clinic (2014). Slide show: A guide to spices and herbs.

³¹⁷ Ibid.

³¹⁸ See India. (2014).

³¹⁹ See Bauer, B. (2014). Buzzed on Inflammation.

³²⁰ See inflammation. (2014).

³²¹ See NIH: Medline Plus (2014, September 24). Metformin.

³²² See Mayo Clinic Staff (2014, July 24). Type 2 Diabetes: Definition.

³²³ See American Diabetes Association (n.d.). Type 2.

³²⁴ See Higdon, J., Steward, W.P., & Drake, V.J. (2008, May). Resveratrol.

³²⁵ See LEF (n.d.). Health Concerns: Caloric Restriction.

³²⁶ Ibid.

³²⁷ See Linder, D. E., et al (2013). Status of selected nutrients in obese dogs undergoing caloric restriction.

³²⁸ See Bukarica, L., et al (2013). Cardiovascular effects of resveratrol.

³²⁹ "U.S." means "United States of America."

³³⁰ See NIH: Medline Plus (2014, September 24). Metformin.

³³¹ See NCBI (2005, March 26). Methylene Blue.

³³² See Alzheimer's Association (2011). More About Plaques.

³³³ Ibid.

³³⁴ See National Institute of Neurological Disorders and Stroke (2014, April 28). The Life and Death of a Neuron.

MB³³⁵ is currently in Phase III trials³³⁶³³⁷ for Alzheimer's³³⁸³³⁹ and Parkinson's.³⁴⁰ (It turns urine a bright emerald green!) If I were in the NFL³⁴¹³⁴² and taking a bunch of shots to the head, I'd use methylene blue like Splenda.³⁴³

Most of what I take doesn't negatively interact. A couple of minor vitamin depletions³⁴⁴ are covered by a good multi-vitamin³⁴⁵. (For instance, Metformin³⁴⁶ may reduce absorption of B12³⁴⁷.)

You don't often hear about people dying early from vitamins.³⁴⁸³⁴⁹³⁵⁰ Occasionally, there's a study which might say something like, "People who take vitamin E might have slightly elevated mortality."³⁵¹ Then you look at the study, and it's hard to apply to your specific situation, but you cut back on vitamin E³⁵². In the 70s, people went on the liquid protein diet³⁵³³⁵⁴. But it depleted potassium³⁵⁵ and caused heart attacks.³⁵⁶ A couple of people died – it was big news. In the 90s, Fen-Phen, a combination of diet drugs, killed people.³⁵⁷ 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 aspirin³⁵⁸ or a baby aspirin each day³⁵⁹, and floss your teeth. Unflossed teeth spread inflammation throughout your body.

18. 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 Law³⁶⁰, e.g. the Law of Accelerating Returns³⁶¹ a la Dr. 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?

Many of the developments predicted by science fiction eventually happen, though often not as soon as science fiction predicts

³³⁵ "MB" means "methylene blue."

³³⁶ See NIH: U.S. National Library of Medicine (2008, April 18). FAQ: Clinicaltrials.gov – Clinical Trial Phases.

³³⁷ See Parulekar, W.R. (n.d.). Key Elements of a Phase III Study.

³³⁸ See NIH: National Institute for Aging (2014). Alzheimer's Disease Fact Sheet.

³³⁹ See Mayo Clinic Staff (2014, June 17). Alzheimer's Disease.

³⁴⁰ See NIH: National Institute for Neurological Disorders and Stroke (2014, October 21). NIND's Parkinson's Disease Information Page.

³⁴¹ "NFL" means "National Football League."

³⁴² See NFL (2014). NFL.

³⁴³ See Mayo Clinic Staff (2014, June 6). Artificial sweeteners and other sugar substitutes.

³⁴⁴ See Mayo Clinic Staff (2014, January 2). Vitamin Depletion Anemia.

³⁴⁵ See Nelson, J.K. & Zeratsky, K. (2008, March 6). Multivitamins – Are they the best thing for you?.

³⁴⁶ See NIH: Medline Plus (2014, September 24). Metformin.

³⁴⁷ See Mayo Clinic (2013, November 1). Vitamin B12.

³⁴⁸ See Pocobelli, et al (2009).

³⁴⁹ See Multivitamin use not associated with women's risk of cancer, heart disease or death. (2009).

³⁵⁰ See Han-Yao, H., et al (2006).

³⁵¹ See Mayo Clinic Staff (2013, November 1). Vitamin E: Safety.

³⁵² Ibid.

³⁵³ See Zeratsky, K. (2012, June 19). Are high-protein diets safe for weight loss?.

³⁵⁴ See Nelson, J.K. (2011, November 10).

³⁵⁵ See Mayo Clinic (2014, September 1). Potassium Supplement (Oral Route, Parenteral Route).

³⁵⁶ See NIH: National Heart, Lung, and Blood Institute (2013, December 17). What Causes a Heart Attack?.

³⁵⁷ See Studies Confirm Link Between Fen-Phen and Heart-Valve Disease. (1998).

³⁵⁸ See Mayo Clinic Staff (2014, May 20). Daily Aspirin Therapy: Understand the benefits and risks.

³⁵⁹ Ibid.

³⁶⁰ See Moore's law. (2014).

³⁶¹ See Kurzweil, R. (2001, March 7). The Law of Accelerating Returns.

(the iPad, the atomic bomb, the internet and computer viruses, to name a few).³⁶²³⁶³

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 2040.³⁶⁴

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-processing³⁶⁵ capacity and that we won't be able to emulate

the brain.³⁶⁶³⁶⁷³⁶⁸³⁶⁹³⁷⁰ 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 attraction³⁷¹³⁷², 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 Gore³⁷³ gets mad at Clinton for sullyng the Presidency with Oval Office BJs³⁷⁴. 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.³⁷⁵

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.

³⁶² See Brandon, J. (n.d.). 7 Gadget Predictions Sci-fi Authors Got Right.

³⁶³ See Wells, H.G. (1914). *The World Set Free*.

³⁶⁴ Ibid.

³⁶⁵ See Glossary of Definitions.

³⁶⁶ See Hameroff, S. (2014). Quantum walks in brain microtubules—A biomolecular basis for quantum cognition?.

³⁶⁷ See Hameroff, S. (2012). How quantum brain biology can rescue conscious free will.

³⁶⁸ See Hameroff, S. R. (2007). Brief Report: The Brain Is Both Neurocomputer and Quantum Computer.

³⁶⁹ See Penrose, R. (1994). Mechanisms, microtubules and the mind.

³⁷⁰ See Atmanspacher, H. (2011). Quantum Approaches to Consciousness.

³⁷¹ See Blanchard, R., Kuban, M., Blak, T., Klassen, P., Dickey, R., & Cantor, J. (2012).

³⁷² See Larson, C. M., Pillsworth, E. G., Haselton, M. G., & Engelhardt, A. (2012).

³⁷³ See Al Gore. (2014).

³⁷⁴ "BJ" means "blowjob."

³⁷⁵ See Fenton, B. (2001, February 8). Gore blamed Clinton for defeat in election.

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 transferrable and average life spans will increase by at least 40 years.^{376,377} 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. Nanotech³⁷⁸ 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.³⁷⁹ 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 Square³⁸⁰, but on a global scale.

19. 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?'³⁸¹. 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?"*³⁸² and *Request for Assistance from Mega Society Members*³⁸³. What happened, Rick?

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.³⁸⁴

On most quiz shows, most glitches don't affect the outcome of the game.

On *Jeopardy!*³⁸⁵ 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*³⁸⁶, 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

³⁷⁶ See The World Bank (n.d.). Life expectancy at birth, total (years).

³⁷⁷ See World Health Organization (2014, May 15). World Health Statistics 2014: Large gains in life expectancy.

³⁷⁸ See NIH (2011, April 8). Nanotechnology at NIH.

³⁷⁹ See Alliance Development Works (2012). World Risk Report 2012.

³⁸⁰ See Times Square. (2014).

³⁸¹ See Television in the United States. (2014).

³⁸² See Rosner, R. (2000, October). Three Letters of Protest Regarding "Who Wants to Be a Millionaire?".

³⁸³ See Rosner, R. (2000, October). Request for Assistance from Mega Society Members.

³⁸⁴ See Trivia Hall of Fame (2004, March).

³⁸⁵ See Television in the United States. (2014).

³⁸⁶ Ibid.

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 EP³⁸⁷ 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 City³⁸⁸, Quito³⁸⁹, Bogota³⁹⁰, and Kathmandu³⁹¹. Because of faulty writing and fact-checking, *Millionaire* failed to include the actual correct answer of La Paz³⁹², Bolivia³⁹³. (For people who’d like to quibble, Bolivia has two national capitals, and La Paz is one of them. It’s about four kilometers³⁹⁴ – two-and-a-half miles³⁹⁵ – 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*³⁹⁶ 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.)

³⁸⁷ “EP means “Executive Producer.”

³⁸⁸ See Mexico City. (2014).

³⁸⁹ See Quito. (2014).

³⁹⁰ See Bogotá. (2014).

³⁹¹ See Kathmandu. (2014).

³⁹² See La Paz. (2014).

³⁹³ See Bolivia. (2014).

³⁹⁴ 1 Kilometre = 1000 metres.

³⁹⁵ 1 Mile = 1.60934 kilometres.

³⁹⁶ “De facto” means “concerning fact.”

(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 hectares³⁹⁷ (almost 1,050,000 acres³⁹⁸), with altitudinal ranges from 500 to 4,800 meters³⁹⁹ above sea level.^{400,401}”

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.

20. What would rectify the situation to you?

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.

21. You have mastered multiple intellectual fields, especially with respect to having earned 12 years of university credit in one year at Excelsior College⁴⁰². 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?

In high school, I wanted to go to Harvard⁴⁰³. (I almost certainly would’ve gotten in. My SATs were in the top 1%⁴⁰⁴ of Harvard applicants, grades were excellent (until my senior year meltdown), was student body co-

arbitrary baseline, any negative integer represents below sea level.

⁴⁰¹ See *Today in Ecuador* (2011, December 9).

⁴⁰² See Excelsior College (n.d.) Excelsior College.

⁴⁰³ See Harvard University (n.d.). Harvard University.

⁴⁰⁴ See Wolfram Alpha LLC (2014). “99th Percentile”.

³⁹⁷ 1 Hectare = 2.47105 acres.

³⁹⁸ 1 Acre = 0.404686 hectares.

³⁹⁹ 1 Metre = 0.001 kilometres = 0.000621371 miles.

⁴⁰⁰ “Above sea level” takes sea level as a non-arbitrary baseline (or zero point) and any altitude above this equates to a positive integer. Common initialism for “above sea level”: ASL. As well, if using the same non-

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 Colorado⁴⁰⁵, 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 CSUN⁴⁰⁶, 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 – astronomy⁴⁰⁷, advanced stats⁴⁰⁸, econ⁴⁰⁹, group theory⁴¹⁰ – 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 GRE⁴¹¹⁴¹² is the SAT⁴¹³⁴¹⁴ for grad school.) The GRE comes from ETS⁴¹⁵⁴¹⁶, 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.

22. 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. Mata⁴¹⁷ online. What compelled entering into yet another domain of work?

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

⁴⁰⁵ See University of Colorado (n.d.) University of Colorado.

⁴⁰⁶ "CSUN" means "California State University, Northridge."

⁴⁰⁷ See Wayne State University (n.d.). What is Astronomy?.

⁴⁰⁸ See American Statistical Association (n.d.). What is Statistics?.

⁴⁰⁹ See American Economic Association (n.d.). What is Economics?.

⁴¹⁰ See University of Connecticut (n.d.). Why is Group Theory Important?.

⁴¹¹ "GRE" means Graduate Record Examination.

⁴¹² Educational Testing Service (n.d.). ETS: GRE.

⁴¹³ "SAT" means Scholastic Aptitude Test.

⁴¹⁴ College Board (n.d.). SAT.

⁴¹⁵ "ETS" means Educational Testing Service.

⁴¹⁶ See Educational Testing Service (n.d.). About ETS.

⁴¹⁷ See IMDB. (n.d.). J.D. Mata.

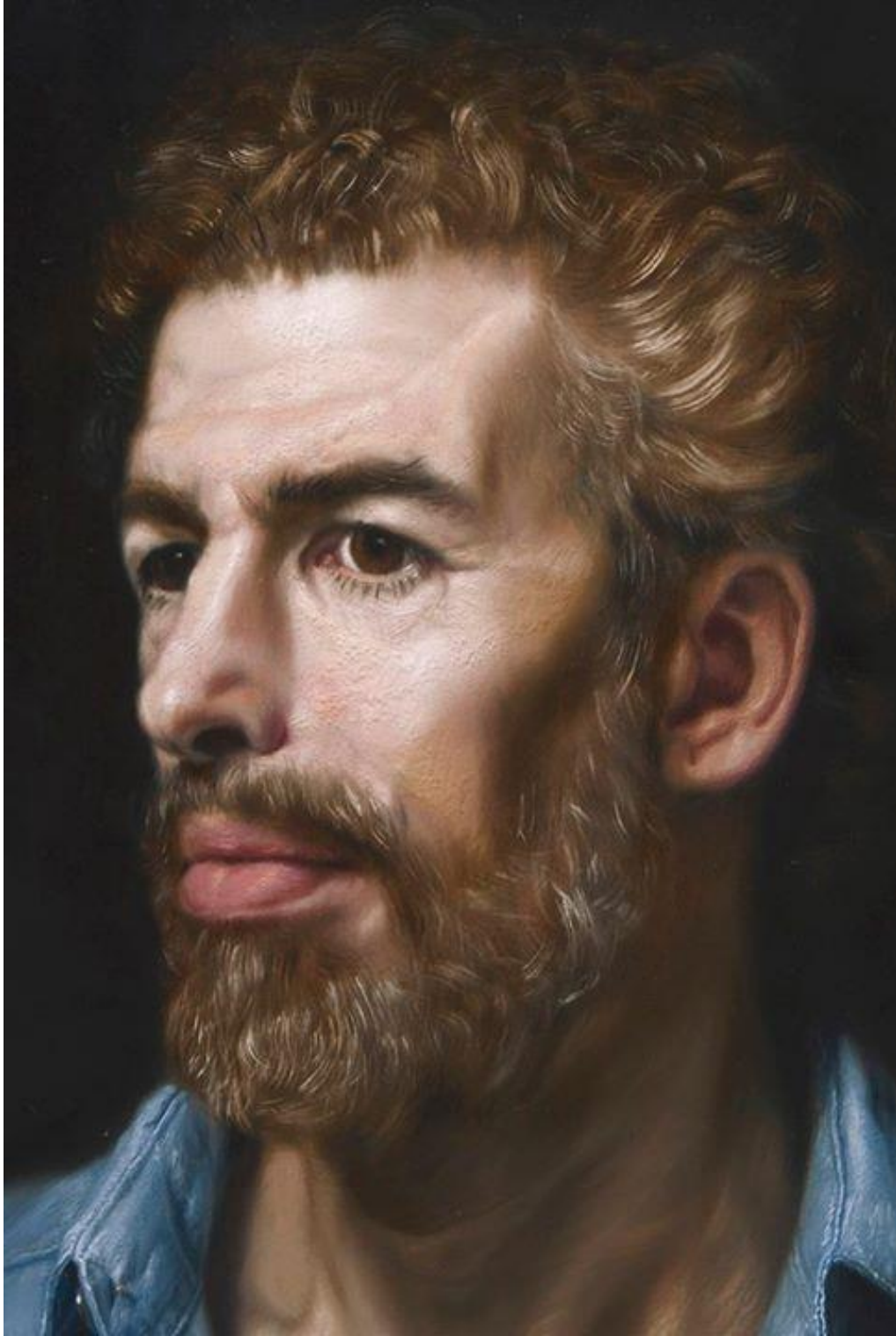
famous enough to be cast in cameos as a curiosity or inside joke.)

23. 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 Disorder⁴¹⁸ (OCD). How many times do you go to the gym every week and month? How much circa 10 years ago?

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.

⁴¹⁸ See American Psychiatric Association (n.d.). Obsessive Compulsive Disorder.

RICK G. ROSNER (PART THREE)⁴¹⁹⁴²⁰⁴²¹



⁴¹⁹ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Three).

⁴²⁰ First publication on October 22, 2014 at www.in-sightjournal.com.

⁴²¹ Second publication on TBD in *Noesis: Journal of the Mega Society*.

ABSTRACT

Part three 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: 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, 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 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.

Keywords: Apple, armature, Big Bang universe, Dave Damashek, determinism, Donald Rumsfeld, Donald Trump, Dyson spheres, Errol Morris, economy of dimensions, ethics, evolution, experimental science, fields, fixed orbits, free will, galaxies, George Saunders, Giga Society,

gravitational wells, Greece, Hubble redshift, hypersphere, indeterminate, infinity, informed will, inverse-square law, John Keats, John Wesley Powell, laughter, life, logic, long-distance particles, Lorentz factor, mathematics, Mega Society, metaphysics, Michael Scott, Microwave background radiation, moral axiologists, morality, neutrinos, particle physics, photons, physics, Plato's Cave, principles of existence, quantum mechanics, Rick G. Rosner, Robert Browning, science, 'The Unknown Known', thought, toxoplasmosis, unconscious biases, universe, unpredictable, writer.

American Psychological Association (APA, 6th Edition, 2010): Rosner, R.G. & Jacobsen, S.D. (2014, October 22). Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Three). *In-Sight: Independent Interview-Based Journal*. Retrieved from <http://in-sightjournal.com/2014/10/22/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-three/>.

Modern Language Association (MLA, 7th Edition, 2009): Rosner, Rick, and Scott D. Jacobsen. "Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Three)." *In-Sight: Independent Interview-Based Journal* 6.A (2014): Oct. 2014. Web. <<http://in-sightjournal.com/2014/10/22/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-three/>>.

24. 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.

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 Greece⁴²²⁴²³⁴²⁴⁴²⁵, 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 fields⁴²⁶⁴²⁷ and

long-distance particles such as photons⁴²⁸ and neutrinos⁴²⁹⁴³⁰. 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 arises⁴³¹⁴³². The universe becomes more stable in some ways - matter accretes into galaxies and stars which are cradled in fixed orbits and gravitational wells⁴³³ and the universe clusters on a range of scales, adding to stability and informational compactness. As my friend Dave Dameshek⁴³⁴ 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

⁴²² See Berryman, S. (2011). Ancient Atomism.

⁴²³ See Vogt, K. (2014). Ancient Skepticism.

⁴²⁴ See Nails, D. (2014). Socrates.

⁴²⁵ See Shields, C. (2014). Aristotle.

⁴²⁶ See field. (2014).

⁴²⁷ See CERN (n.d.). Unified Forces.

⁴²⁸ See photon. (2014).

⁴²⁹ See University of California, Irvine (n.d.). What are Neutrinos?.

⁴³⁰ See neutrino. (2014).

⁴³¹ Find references for abiogenesis.

⁴³² See University of California, Berkeley, (n.d.). From Soup to Cells-the Origin of Life.

⁴³³ See Northwestern University (n.d.). What is a gravity well?.

⁴³⁴ See IMDB. (n.d.). Dave Dameshek.

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 Saunders⁴³⁵ 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*⁴³⁶

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 processing⁴³⁷ – 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-processing⁴³⁸ possible. We can assume that the universe⁴³⁹ 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.

25. 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 methodology⁴⁴⁰, and constructed systems of knowledge⁴⁴¹: quantum mechanics⁴⁴², particle physics⁴⁴³, chemical sciences⁴⁴⁴, biological sciences⁴⁴⁵, psychological sciences⁴⁴⁶, and economic sciences⁴⁴⁷ 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^{448,449,450}, freedom of the will, 'free will'^{451,452,453}, does not exist because everything is determined⁴⁵⁴. Either branch of determinism^{455,456},

⁴³⁵ See Saunders, G. (n.d.). George Saunders.

⁴³⁶ See Saunders, G. (2007, September 4). *Braindead Microphone*. United States: Riverhead Books.

⁴³⁷ See Glossary of Terms.

⁴³⁸ Ibid.

⁴³⁹ Ibid.

⁴⁴⁰ By which I mean, the networking through logic-based connection of derived facts from the methodology of science in practice. If reality equals input and scientific methodology equals process, then derived facts of reality equals output.

⁴⁴¹ Moreover, if facts of reality equal output, then logical and coherent connections equal "constructed systems of knowledge." These have the typified names of "physics," "chemistry," "biology," "psychology," and all other relevant disciplines/subdisciplines of inquiry.

⁴⁴² See quantum mechanics (2014).

⁴⁴³ See Bradley, P. (n.d.). Particle Physics.

⁴⁴⁴ See American Chemical Society (2014). *Chemistry Is Everywhere*.

⁴⁴⁵ See Norwegian University of Science and Technology: Trondheim (n.d.). *What is biology?*

⁴⁴⁶ See APA (2014). *How does the APA define "psychology"?*

⁴⁴⁷ Some may critique the inclusion of psychology and economics with the descriptor "science." Psychology and economics follow the forms of science. They have rigor of scientific methodology (e.g., data collection, analysis, predictions, and constructing respective frames of knowledge). However, due to the higher number of variables involved in these fields, the knowledge of the disciplines becomes more probabilistic than, e.g., physics. Physics works with fewer variables. This produces more precise operational definitions, and therefore intervariable distinctions.

⁴⁴⁸ See de Laplace, M. (1814). *A Philosophical Essay on Probabilities*. New York: Dover.

⁴⁴⁹ See Hoefer, C. (2010) *Causal Determinism*.

⁴⁵⁰ See determinism. (2014).

⁴⁵¹ See free will. (2014).

⁴⁵² See Internet Encyclopedia of Philosophy (2014). *Free Will*.

⁴⁵³ See Glossary of Terms.

⁴⁵⁴ However, at least in a non-compatibilist⁴⁵⁴ form, this referent makes sense.

⁴⁵⁵ See Hoefer, C. (2010) *Causal Determinism*.

⁴⁵⁶ See determinism. (2014).

compatibilist⁴⁵⁷⁴⁵⁸⁴⁵⁹ or non-compatibilist⁴⁶⁰, 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 universe⁴⁶¹. 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 wrong⁴⁶². Moral axiologists⁴⁶³⁴⁶⁴ connect "right over wrong" to value systems. Value systems found in theological⁴⁶⁵⁴⁶⁶⁴⁶⁷ 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.⁴⁶⁸ 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?

We can use physics to start to address whether we're even being 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

⁴⁵⁷ Free will does not exist in a universe of determinacy.

⁴⁵⁸ See McKenna, M. (2009) Compatibilism.

⁴⁵⁹ See STRAWSON, GALEN (1998, 2011). Free will. In E. Craig (Ed.), *Routledge Encyclopedia of Philosophy*. London: Routledge.

⁴⁶⁰ Free will exists in a universe of determinacy.

⁴⁶¹ See Glossary of Terms.

⁴⁶² "Right or wrong" applies in general within reasonable consideration of this context, i.e. across most mainstream ethical systems.

⁴⁶³ See Schroeder, M. (2012). Value Theory.

⁴⁶⁴ See axiology. (2014).

⁴⁶⁵ "Theological" defined in the maximum logical set of possibilities for ethics within theological bounds, not

limited to Christian, Abrahamic, or other broad-adherence ethics.

⁴⁶⁶ See moral theology. (2014).

⁴⁶⁷ See Pohle, J. (1912). Dogmatic Theology.

⁴⁶⁸ Free will means *any* selection in the space of possible choices. Ethics dictates correct choices through negation of suboptimal choices in the expanse of possible choices. In other words, free will and ethics implies moral choice. They imply correct/right/moral and incorrect/wrong/immoral choices in this hypothetical space. Therefore, this means individual free will and ethics over time (over one or more selections) creates moral accountability. (Q.E.D.)

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 is 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 will⁴⁶⁹ 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 (toxoplasmosis⁴⁷⁰) 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

⁴⁶⁹ See Maher, M. (1909). Free Will.

⁴⁷⁰ See Mayo Clinic Staff (2014, July 24). Toxoplasmosis.

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 Cave⁴⁷¹. 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 mechanics⁴⁷². 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.

⁴⁷¹ See Partenie, C. (2014). Plato's Myths.

⁴⁷² See UBC (n.d.). Newtonian Mechanics.

⁴⁷³ See Laudisa, F. & Rovelli, C. (2013). Relational Quantum Mechanics.

⁴⁷⁴ See Weisstein, Eric W. (2014). Probability Function.

⁴⁷⁵ See Glossary of Terms.

The universe turns out not to be deterministic - quantum events⁴⁷³ are, within their probability functions⁴⁷⁴, 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.

Consciousness⁴⁷⁵ 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.

Consciousness⁴⁷⁶ creates an information space⁴⁷⁷ (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 Wonka⁴⁷⁸ 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 neurons⁴⁷⁹ firing – we see what is represented by patterns of neurons firing.)

⁴⁷⁶ Ibid.

⁴⁷⁷ See Glossary of Terms.

⁴⁷⁸ See IMDB (2005). Willy Wonka.

⁴⁷⁹ Neurons equate to the fundamental unit of the nervous system composed of a dendrite, soma, and

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 Trump⁴⁸⁰ or Michael Scott⁴⁸¹ 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 Fermi⁴⁸², "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

axon. Dendrite acts as input; soma as processor; and axon as output.

⁴⁸⁰ See Trump, D. (n.d.). Biography.

⁴⁸¹ See IMDB (2005). Michael Scott.

⁴⁸² See Enrico Fermi. (2014).

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.

- 26. Free will⁴⁸³ might operate beyond present explanatory powers. It may exist intrinsic to an individual consciousness⁴⁸⁴, 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 armature⁴⁸⁵ for the**

⁴⁸³ See Glossary of Terms.

⁴⁸⁴ Ibid.

⁴⁸⁵ Ibid.

universe⁴⁸⁶? 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?

[Asked in a Seinfeld⁴⁸⁷ voice] What's the big deal about free will? I'm not overly concerned about free will; I care about *informed will*⁴⁸⁸. 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 thinking⁴⁸⁹, 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.

27. Out of another set of mainstream physicists, even while some claim lacking direct observational evidence, arises the possibility of additional dimensions⁴⁹⁰⁴⁹¹ as postulated in, for example, string theory⁴⁹² with everything in existence operating inside of 11 dimensional hyperspace⁴⁹³⁴⁹⁴. How do these conceptual and mathematical frameworks hold in your view?

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 theory⁴⁹⁵. 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.

⁴⁸⁶ Ibid.

⁴⁸⁷ See Jerry Seinfeld. (2014).

⁴⁸⁸ See Glossary of Terms.

⁴⁸⁹ See Ibid.

⁴⁹⁰ See SuperStringTheory (n.d.). Look for extra dimensions: What is a Dimension?.

⁴⁹¹ See CERN (2014). Extra Dimensions, gravitons, and tiny black holes.

⁴⁹² See Guijosa, A. (2004, September 9). What is String Theory?..

⁴⁹³ See Kaku, M. (2014). Hyperspace and a Theory of Everything.

⁴⁹⁴ See Brown University (2014). Hyperspace.

⁴⁹⁵ See Glossary of Terms.

Why does the universe have three dimensions? I think we live in a Rumsfeld⁴⁹⁶ 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 Morris⁴⁹⁷, who made a great-as-usual documentary interview with Rumsfeld called *The Unknown Known*⁴⁹⁸, traced the idea of unknown knowns and known unknowns back to the explorer John Wesley Powell⁴⁹⁹. He also notes that John Keats⁵⁰⁰ and Robert Browning⁵⁰¹ 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*⁵⁰²-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 light⁵⁰³; 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 light⁵⁰⁴, 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.)

⁴⁹⁶ See Donald Rumsfeld. (2014).

⁴⁹⁷ See Morris, E. (n.d.). Biography: Errol Morris (Film Director and Author).

⁴⁹⁸ See Amazon (n.d.). *The Unknown Known*.

⁴⁹⁹ See Powell Museum (n.d.). *The Life of John Wesley Powell*.

⁵⁰⁰ See Pape, T.V. (2000). Biography: John Keats.

⁵⁰¹ See Robert Browning. (2014).

⁵⁰² See IMBD (2014). *CSI: Crime Scene Investigation*.

⁵⁰³ See speed of light. (2014).

⁵⁰⁴ See NASA (n.d.). How "Fast" is the Speed of Light?.

⁵⁰⁵ "Speed of light" = "c"

⁵⁰⁶ See Glossary of Terms.

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)⁵⁰⁷, until it's a point at $T = 0$ ⁵⁰⁸⁵⁰⁹. 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 hypersphere⁵¹⁰⁵¹¹.

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 $T = 0$ ⁵¹². 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.

⁵⁰⁷ “We’d see the universe getting smaller and smaller (because younger and younger)” means size proportional to age. If bigger, then older; if smaller, then younger.

⁵⁰⁸ “T” means time.

⁵⁰⁹ “ $T = 0$ ” means the dimension of time’s value equates to zero, which delineates the absolute beginning of the universe.

⁵¹⁰ See Weisstein, Eric W. Hypersphere.

⁵¹¹ See [WildStar2002] (2008, October 14). Hypersphere.

⁵¹² “ $T = 0$ ” means the dimension of time’s value equates to zero, which delineates the absolute beginning of the universe.

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.

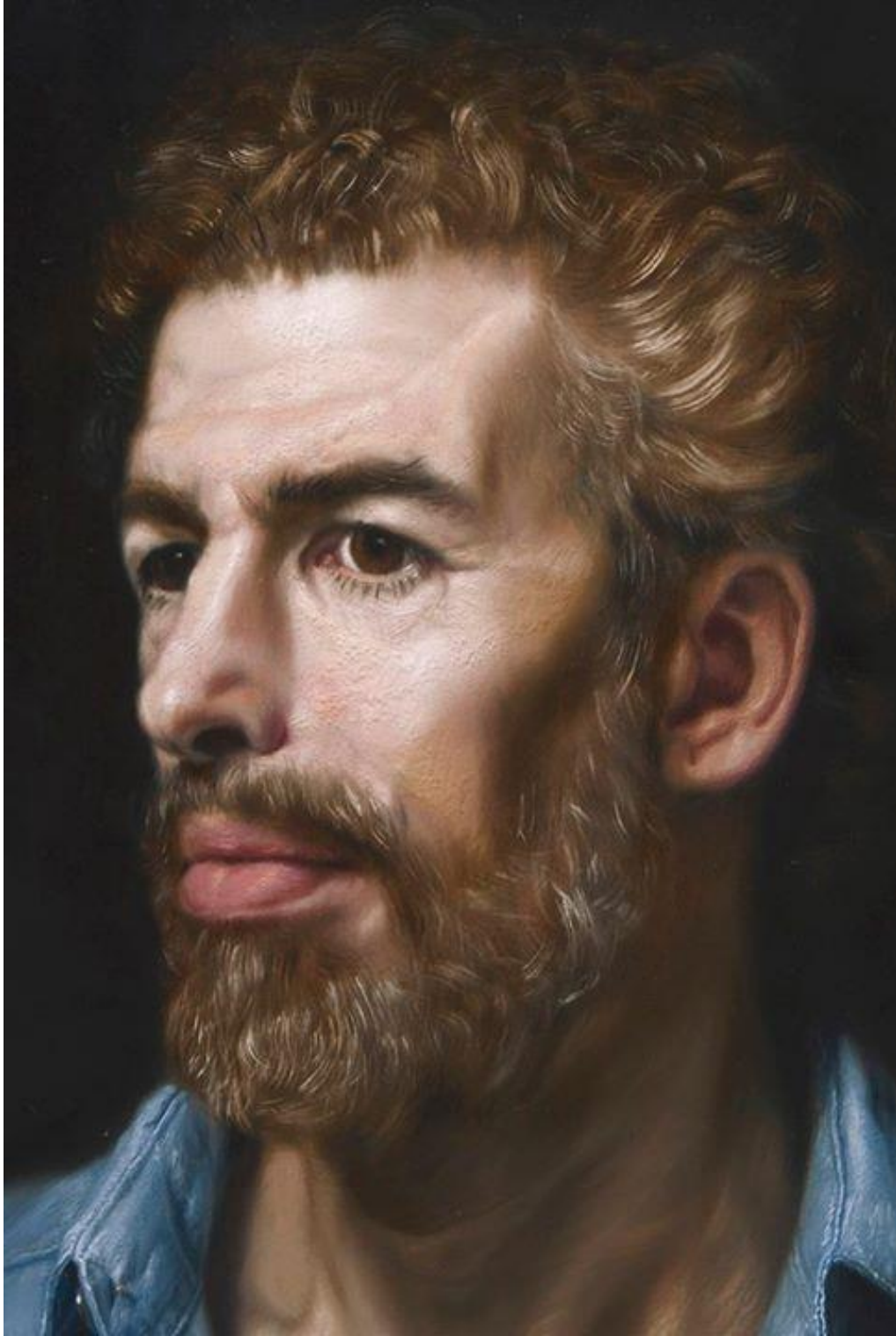
(If there's an actual collapsed outskirts not just a visual ghost of the early universe, can

you build a rocket and travel close to $T = 0$ ⁵¹³? 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 distance.

⁵¹³ Ibid.

RICK G. ROSNER (PART FOUR)⁵¹⁴⁵¹⁵⁵¹⁶



⁵¹⁴ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Four).

⁵¹⁵ First publication on November 1, 2014 at www.in-sightjournal.com.

⁵¹⁶ Second publication on TBD in *Noesis: Journal of the Mega Society*.

 ABSTRACT

Part four 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: 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’, 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 the 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; size and age of universe proportional to the amount of information contained in it, inclinations towards dark matter made out of burned-out and collapsed stars rather than dark energy, 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 the universe over billions and billions of years, “self-observing, self-defining universe” having flatness and in-built constant size, self-definition of the 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, further thoughts of dark energy, and dark energy as an explanation to force empty space to conform to observation; other implications of informational cosmology; discussion on informational cosmology and entropy; discussion on informational cosmology and subatomic particles; putting the pieces together; informational cosmology tied to space and time; discussion on these laws/principles of existence, tautological aspect of persistent structures tending to persist, the inherent bias towards persisting, Leibnizian monads as correlation engines tasked with keeping correlated with other correlation engines, subsequent correlation tightness producing space and time, protons as knots in local three-dimensional space, electrons as necessary complements for space functioning topologically, neutrons as locked-down dimensions, proximity behaving like correlation; 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 the universe, and the derivations up to concluding the universe not being only ~14 billion years old; informational cosmology implying complementary fields of ‘informational cosmogony’ and ‘informational eschatology’,

information internal to the universe arising external to it, and thoughts on such an armature external to the universe.

Keywords: billion, consciousness, correlation, cosmic time, cosmogony, cosmology, dark energy, dark matter, élan vital, electrons, eschatology, galaxy, Giga Society, gravitational lensing, information, information processing, informational cosmogony, informational cosmology, informational eschatology, isomorphism, isomorphic, Leibnizian monads, Mega Society, protons, Rick G. Rosner, self-consistency, self-self-observing, tautological, transactional information processing, unfolding, universe, writer.

American Psychological Association (APA, 6th Edition, 2010): Rosner, R.G. & Jacobsen, S.D. (2014, November 1). Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Four). *In-Sight: Independent Interview-Based Journal*. Retrieved from <http://in-sightjournal.com/2014/11/01/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-four/>.

Modern Language Association (MLA, 7th Edition, 2009): Rosner, Rick, and Scott D. Jacobsen. "Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Four)." *In-Sight: Independent Interview-Based Journal* 6.A (2014): Nov. 2014. Web. <<http://in-sightjournal.com/2014/11/01/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-four/>>.

28. You describe information processing⁵¹⁷ for universe's⁵¹⁸ 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. Consciousness⁵¹⁹ emerges from self-consistency⁵²⁰ 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.⁵²¹ 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.⁵²² 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 the universe's degree of consciousness. You call this "informational cosmology."⁵²³ 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?

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 Solo⁵²⁴ & Chewbacca⁵²⁵, the mac & cheese, the Lennon⁵²⁶ & McCartney⁵²⁷, the Key & Peele⁵²⁸, the Beavis & Butt-head⁵²⁹, the Spock⁵³⁰ & Kirk⁵³¹, the Mulder⁵³² & Scully⁵³³, the Felix & Oscar⁵³⁴, the Holmes & Watson⁵³⁵, the Thelma & Louise⁵³⁶, the Jonah Hill⁵³⁷ & Channing Tatum⁵³⁸ of tough things to think about. Three hundred years ago, Bishop George Berkeley⁵³⁹ 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.

⁵¹⁷ See Glossary of Terms.

⁵¹⁸ Ibid.

⁵¹⁹ Ibid.

⁵²⁰ Ibid.

⁵²¹ Ibid.

⁵²² Ibid.

⁵²³ Ibid.

⁵²⁴ See IMDB (1977). Han Solo (Character).

⁵²⁵ See IMDB (1977). Chewbacca (Character).

⁵²⁶ See John Lennon. (2014).

⁵²⁷ See MPL Communications (2014).

⁵²⁸ See IMDB (2012). Key and Peele.

⁵²⁹ See IMDB (2002). Beavis and Butt-Head.

⁵³⁰ See IMDB (1966). Mr. Spock.

⁵³¹ See IMDB (1966). Captain James T. Kirk.

⁵³² See IMDB (1993). Fox Mulder.

⁵³³ See IMDB (1993). Dana Scully.

⁵³⁴ See IMDB (1975). The Odd Couple.

⁵³⁵ See Joyce, D.E. (2013).

⁵³⁶ See IMDB (1991). Thelma and Louise.

⁵³⁷ See IMDB (n.d.). Jonah Hill.

⁵³⁸ See IMDB (n.d.). Channing Tatum.

⁵³⁹ See Downing, L. (2013).

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 Stross⁵⁴⁰ 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 slow⁵⁴¹. Maybe your rich grandma in a failing body offers you \$50 million to let her consciousness ride piggyback on yours. (Steve Martin⁵⁴² 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.

- 29. You calculated the information-in-common/information-not-in-common based on various velocities (.15v and .3v). We can symbolize them: $I_c/I_{\sim c}$.⁵⁴³⁵⁴⁴⁵⁴⁵⁵⁴⁶ Gravitational lensing across ultra-deep cosmic time could form pockets beyond expected, i.e. calculated, arithmetic mean of derived spheres from $I_c/I_{\sim c}$ at .15v, .3v, .45v, and so on. Insofar as calculated $I_c/I_{\sim c}$ 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**

⁵⁴⁰ See Stross, C. (2014, August 1). Fiction by Charles Stross: FAQ.

⁵⁴¹ See United States Census Bureau (2013, September 19). International Population Growth Rates: 1950-2050.

⁵⁴² See Martin, S. (2014). Steve Martin.

⁵⁴³ "I" means "information."

⁵⁴⁴ " I_c " means "information-in-common."

⁵⁴⁵ " $I_{\sim c}$ " means "Information-not-in-common."

⁵⁴⁶ " I_c " and " $I_{\sim c}$ " stated as " $I_c/I_{\sim c}$ " based on mutual definitional dependence. One minus $I_{\sim c}$ produces I_c .

information theoretic framework, these 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.”⁵⁴⁷ 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.⁵⁴⁸ Self-consistent and information processing subsystem equates to consciousness⁵⁴⁹. Therefore, we have the possibility for sound consideration of consciousness emergent from blackish holes in universe.

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).

30. In the current theory of universe composed of ~4.6% baryonic matter⁵⁵⁰, ~24% non-baryonic⁵⁵¹/exotic ‘dark’

matter, and ~71.4% non-baryonic/exotic ‘dark’ energy, your theory would shirk the current weight of astrophysical consensus.⁵⁵² Although, we cannot disprove or by necessity deny the validity of the theory based on *argumentum ad verucundiam*⁵⁵³, even authoritative authority⁵⁵⁴. 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 the evidence. With these in mind, what do you make of dark matter⁵⁵⁵ and dark energy⁵⁵⁶? Do they exist? How would your theory supersede present explanations?

I think the universe isn’t inherently unstable in size,⁵⁵⁷ 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).

⁵⁴⁷ See Glossary of Terms.

⁵⁴⁸ Ibid.

⁵⁴⁹ Ibid.

⁵⁵⁰ See Swinburne University of Technology (n.d.). Baryonic Matter.

⁵⁵¹ Ibid.

⁵⁵² See Wollack, E.J. (2014, January 24). What is the universe made of?.

⁵⁵³ “Argumentum ad verucundiam” means “argument from authority.”

⁵⁵⁴ “Authoritative authority” means respected scientists, mathematicians, applied physicists, and others.

⁵⁵⁵ See NASA (2014). Dark Energy, Dark Matter.

⁵⁵⁶ Ibid.

⁵⁵⁷ See Chuss, D.T. (2014, January 24). Will the Universe expand forever?.

⁵⁵⁸ See University of Virginia (1999, October 1). Open, Closed, or Flat: Past and Future of the Universe.

⁵⁵⁹ See Castelvecchi, Davide (2011, July 25). What Do You Mean, The Universe Is Flat?, Part 1.

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.⁵⁶⁰

(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 a while. 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 10^8 ⁵⁶¹ neutron stars^{562,563} in the Milky Way⁵⁶⁴, compared to 10^{11} ⁵⁶⁵ 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.

31. How would a burned-out galaxy be recycled?

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-heavy⁵⁶⁶ – 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 neutrons⁵⁶⁷ into protons⁵⁶⁸. 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 universe⁵⁶⁹ are hotter, denser, more spatially curved, more bombarded with neutrinos streaming from the active center. Here, it's harder for neutrons⁵⁷⁰ 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-producing⁵⁷¹ 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

⁵⁶⁰ See Cornell University (n.d.). Rotation Curves.

⁵⁶¹ " 10^8 " = 100,000,000 = One Hundred Million.

⁵⁶² See NASA (2007, August 23). Germe: Neutron Stars.

⁵⁶³ See Ohio University (n.d.). NASA study reveals mysteries of neutron star.

⁵⁶⁴ See Milky Way Galaxy. (2014).

⁵⁶⁵ " 10^{11} " = 100,000,000,000 = One Hundred Billion.

⁵⁶⁶ See Glossary of Terms.

⁵⁶⁷ Ibid.

⁵⁶⁸ See proton. (2014).

⁵⁶⁹ See Glossary of Terms.

⁵⁷⁰ Ibid.

⁵⁷¹ Ibid.

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 Bang⁵⁷² universe.)

32. Science history presents examples of widely accepted substances. For a trite example, *élan vital*⁵⁷³⁵⁷⁴ 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*?

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

Dark energy⁵⁷⁵ can be seen as a tweak to the inverse-square law⁵⁷⁶ of gravitation⁵⁷⁷ (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 energy⁵⁷⁸.

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 GR⁵⁷⁹, 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 gun fighting 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 QM⁵⁸⁰⁵⁸¹, but

⁵⁷² See Glossary of Terms.

⁵⁷³ See Henri Bergson. (2015).

⁵⁷⁴ See biology, philosophy of. (2015).

⁵⁷⁵ Ibid.

⁵⁷⁶ See University of California, Riverside (n.d.). The inverse-square law.

⁵⁷⁷ See gravity. (2014).

⁵⁷⁸ See Glossary of Terms.

⁵⁷⁹ "GR" means "General Relativity".

⁵⁸⁰ "QM" means "Quantum Mechanics".

⁵⁸¹ See Glossary of Terms.

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.)

33. What about gravity?

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} ⁵⁸² times smaller than the smallest force ever measured.)

34. Do we need gravitons to have gravity?

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

⁵⁸² " 10^{40} " = Ten Duodecillion.

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.

35. 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?

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.)

36. What about entropy?

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-entropy⁵⁸³ 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 Principle⁵⁸⁴ 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.)

37. What about subatomic particles?

Of the dozens of subatomic particles, only five – the electron⁵⁸⁵, proton⁵⁸⁶, neutron⁵⁸⁷,

⁵⁸³ See Glossary of Terms

⁵⁸⁴ See Mach's principle. (2015).

⁵⁸⁵ See Glossary of Terms

⁵⁸⁶ Ibid.

⁵⁸⁷ Ibid.

neutrino⁵⁸⁸, and photon⁵⁸⁹ – 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 DeBroglie⁵⁹⁰⁵⁹¹ 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.)

38. What about black holes?

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

⁵⁸⁸ Ibid.

⁵⁸⁹ Ibid.

⁵⁹⁰ See Louis de Broglie. (2014).

⁵⁹¹ See Davis, D. (2002).

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.)

39. How does this come together?

Non-velocital redshift is an indicator of information not-in-common (NIC) 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 (IC) 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 IC and NIC with us. The farther a galaxy is from us, the greater its apparent recession, the less information it has IC and more NIC with us. I think the proton-electron mass ratio is proportional to the NIC-IC 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 NIC 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 IC and NIC 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 NIC-IC ratio. This is ballpark for a NIC-IC-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 NIC-IC ratios of 1,000 and higher, and there are enough of them to raise the NIC-IC 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 NIC-IC 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!

40. What does this mean in a nutshell?

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 be 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).

41. 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.

42. Why these principles of existence⁵⁹² ('laws')?

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 Leibnizian⁵⁹³ monads⁵⁹⁴ – 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 protons⁵⁹⁵ (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.

Neutrons⁵⁹⁶ are locked-down dimensions. Proximity is like correlation – two protons⁵⁹⁷ 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.

43. Let's make a concrete calculation along the dimension of time, your novel framework for the structure of the universe may gain clarity from such calculations. Using the accepted canon age of the cosmos at ~13.77⁵⁹⁸ billion years old as the referent, by your own theorizing and within your framework, how might we

⁵⁹² See Glossary of Terms.

⁵⁹³ See Look, B.C. (2014). Gottfried Wilhelm Leibniz.

⁵⁹⁴ Ibid.

⁵⁹⁵ See Glossary of Terms.

⁵⁹⁶ See Glossary of Terms.

⁵⁹⁷ Ibid.

⁵⁹⁸ See Chuss, D.T. (2012, December 21).

calculate the universe's age? What age would the calculation produce?

If you didn't know how brains worked, and you saw a half-second PET⁵⁹⁹ 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, and 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.

⁵⁹⁹ "PET" means Positron Emission Tomography.

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.

44. If I may extend the implications of informational cosmology⁶⁰⁰, the discipline implies two complementary fields: informational cosmogony⁶⁰¹ 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)?

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 inflational add-ons) with more and more matter gradually falling into visibility from the farthest reaches – the outskirts close to $T^{602} = 0^{603}$, the apparent beginning of time. But as we age, we can lose

⁶⁰⁰ See Glossary of Terms.

⁶⁰¹ Ibid.

⁶⁰² “T” means time.

⁶⁰³ “T = 0” means the dimension of time’s value equates to zero, which delineates the absolute beginning of the universe.

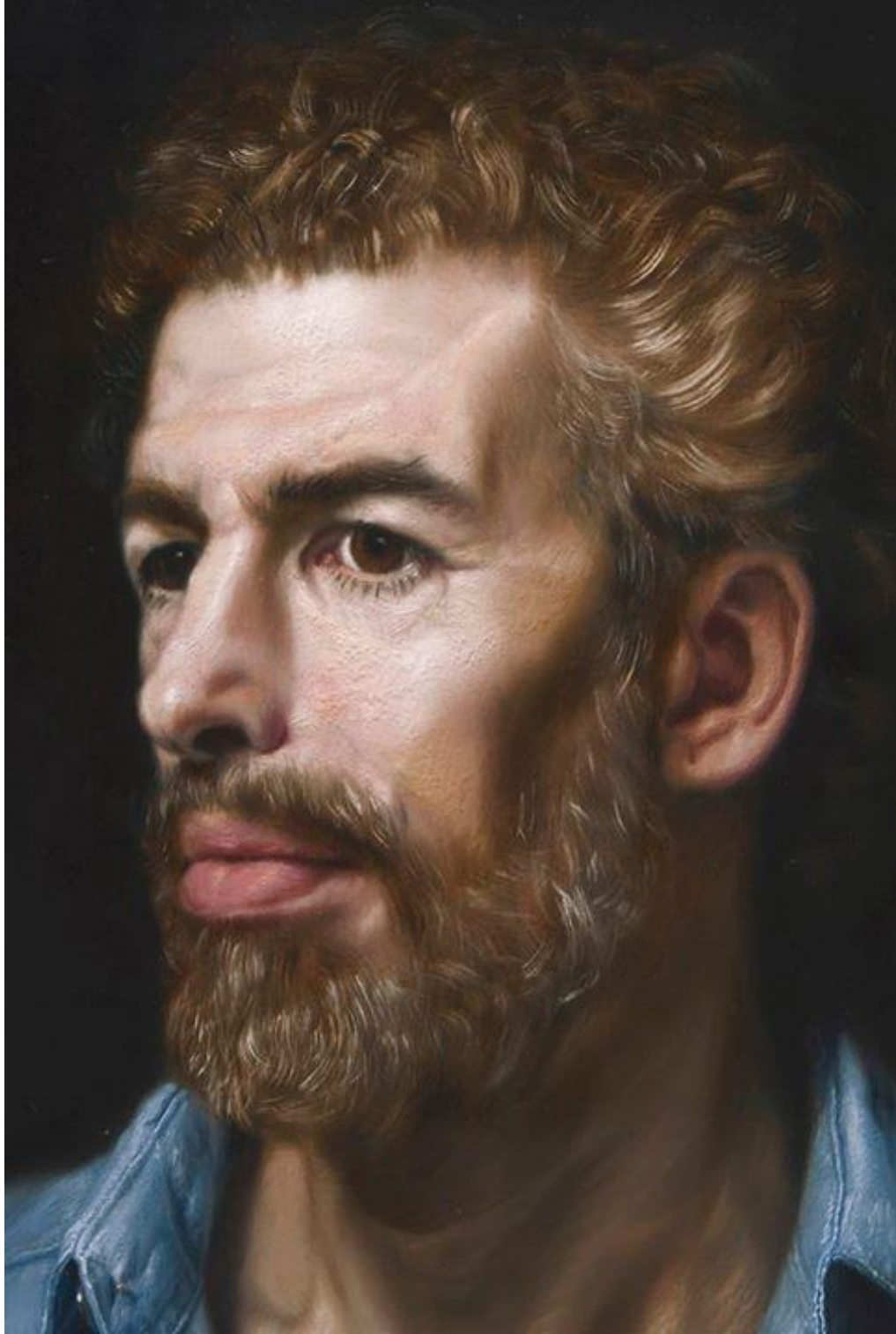
information. Instead of our information space becoming bigger and more complex, with the primordial background radiation spreading out and getting cooler and cooler, the information space would heat up, becoming smaller, hotter, and less complex. Information melts away, lost in background noise. As information 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.)⁶⁰⁴

⁶⁰⁴ See IMDB (1996).

RICK G. ROSNER (PART FIVE)⁶⁰⁵⁶⁰⁶⁶⁰⁷



⁶⁰⁵ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Five).

⁶⁰⁶ First publication on November 8, 2014 at www.in-sightjournal.com.

⁶⁰⁷ Second publication on TBD in *Noesis: Journal of the Mega Society*.

ABSTRACT

Part five 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: 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 with religion continuing continues to operate as faith.

Keywords: armature, computer science, consciousness, evolution, faith, falsificationism, Giga Society, global, heaven, hell, information processing, informational cosmogony, informational cosmology, informational eschatology, irreligious, karma, law of non-contradiction, local, logic, mathematical, Mega Society, metaphysics, nirvana, Novikov Self-Consistency Principle, physics, predictions, probabilities, religion, religious, Rick G. Rosner, science, self-consistency, universe.

American Psychological Association (APA, 6th Edition, 2010): Rosner, R.G. & Jacobsen, S.D. (2014, November 8). Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Five). *In-Sight: Independent Interview-Based Journal*. Retrieved from <http://in-sightjournal.com/2014/11/08/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-five/>.

Modern Language Association (MLA, 7th Edition, 2009): Rosner, Rick, and Scott D. Jacobsen. "Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Five)." *In-Sight: Independent Interview-Based Journal* 6.A (2014): Nov. 2014. Web. <<http://in-sightjournal.com/2014/11/08/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-five/>>.

45. We discussed mathematics and physics, logic and metaphysics⁶⁰⁸⁶⁰⁹, consciousness and its subcategories, and these conceptualizations' mutual interrelationships. In particular, refinement of digital physics⁶¹⁰ into "informational cosmology."⁶¹¹⁶¹²

Furthermore, in informational cosmological nomenclature⁶¹³, your definition of consciousness⁶¹⁴ divides into and emerges from two broad ideas: self-consistency⁶¹⁵⁶¹⁶⁶¹⁷⁶¹⁸ and information processing⁶¹⁹. 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"⁶²⁰ and phrase "information processing"⁶²¹ 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"⁶²² – which might have less decipherability than "information processing,"⁶²³ we can begin with this informational cosmology expression "self-consistency." German mathematician and founder of set theory⁶²⁴ (fundamental theory for mathematics), Georg Ferdinand Ludwig Philipp Cantor⁶²⁵, defined self-consistency as the inability to derive both the statement and negation of the statement at the same time. Cantor⁶²⁶ argued, if deriving the statement and its negation, the derivation would self-contradict. (One *can* transform this into more formal set theoretic⁶²⁷ language about elements contained in sets – or the language of mathematics, self-consistency⁶²⁸ holds great weight for mathematicians, and logic, see *Law of Non-Contradiction*⁶²⁹ below.)

Self-consistency does have other theoretical universes of discourse in addition to multiple practical and

⁶⁰⁸ See metaphysics. (2015).

⁶⁰⁹ See van Inwagen, P., & Sullivan, M. (2014). Metaphysics.

⁶¹⁰ See Glossary of Terms.

⁶¹¹ Ibid.

⁶¹² Rick does have reservations about renaming the field of digital physics into informational cosmology. However, he considers this more accurate in terms of the new discipline. As well as "informational cosmology," we discussed the complementary disciplines of "informational cosmogony" and "information eschatology" in '(Part Four)'.

Informational cosmogony delineates research into penultimate origins of universe; informational eschatology delineates research into penultimate ends of universe.

⁶¹³ See Glossary of Terms.

⁶¹⁴ Ibid.

⁶¹⁵ Ibid.

⁶¹⁶ Gregor Cantor defined "self-consistent" in a specific way. One cannot derive both the statement and the negation of the statement at the same time. This can take the form of the 'Law of Non-Contradiction' in formal logic.

⁶¹⁷ See Horn, L.R. (2014).

⁶¹⁸ See formal logic. (2014).

⁶¹⁹ See Glossary of Terms.

⁶²⁰ Ibid.

⁶²¹ Ibid.

⁶²² Ibid.

⁶²³ Ibid.

⁶²⁴ See set theory. (2014).

⁶²⁵ See Georg Cantor. (2015).

⁶²⁶ Ibid.

⁶²⁷ See set theory. (2014).

⁶²⁸ See Glossary of Terms.

⁶²⁹ See Gottlieb, P. (2013). Aristotle on Non-contradiction.

applied venues of human venture: logic, set theory, mathematics, physics, computer science, and many others.

In logic, the *Law of Identity*⁶³⁰ (A equals A), *Law of Non-Contradiction*⁶³¹ (A cannot equal not-A), and *Law of the Excluded Middle* (For all A: either A or not-A) all introduced - informally & implicitly by Plato⁶³² in *Theaetetus*⁶³³ & *The Republic*^{634,635,636} and formally & explicitly by Aristotle⁶³⁷ in *Metaphysics*⁶³⁸ - in ancient Greece⁶³⁹. 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^{640,641,642,643} derived *Leibniz' Law*, 'x = y': if, and only if, x contains every property of y, and vice versa.⁶⁴⁴ 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.^{645,646,647,648} 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

⁶³⁰ See Gottlieb, P. (2013). Aristotle on Non-contradiction.

⁶³¹ See Ibid.

⁶³² See Plato. (2015).

⁶³³ See Chappell, S.G. (2013).

⁶³⁴ See Brown, E. 2011

⁶³⁵ See Bobonich, C. & Meadows, K. 2013

⁶³⁶ See Kraut, R. 2013

⁶³⁷ See Shields, C. (2014). Aristotle.

⁶³⁸ See Cohen, S. M. (2014).

⁶³⁹ See Gottlieb, P. (2013). Aristotle on Non-contradiction.

⁶⁴⁰ See Look, B.C. (2014).

⁶⁴¹ See history of logic. (2015).

⁶⁴² See formal logic. (2014).

⁶⁴³ See Gottfried Wilhelm Leibniz. (2015).

⁶⁴⁴ See Noonan, H. and Curtis, B. (2014).

⁶⁴⁵ See Look, B.C. (2014).

⁶⁴⁶ See history of logic. (2015).

⁶⁴⁷ See formal logic. (2014).

⁶⁴⁸ See Gottfried Wilhelm Leibniz. (2015).

‘=’ or ‘equals sign’ signals synonymous meaning with the *Law of Identity* or the *Law of Reflexivity* between 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*⁶⁴⁹, ‘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 the Shannon’s work in a coauthored 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” (second 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” to prevent 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.

⁶⁴⁹ See University of Oregon (n.d.).

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 material of the universe equals input, process equals laws plus time, and output equals transformations of the material 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?

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.⁶⁵⁰ 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

⁶⁵⁰ See Georgia State University (n.d.).

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.

46. 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?

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.

47. 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?

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

⁶⁵¹ “4D space-time” means “4-dimensional space-time.”

⁶⁵² Traditional x-, y-, and z- axes delineate spatial dimensions (width, height, and depth, respectively) with one additional dimension for time.

and rules as the universe and its physics. It has 4D^{651,652} space-time, atoms, the whole deal (with allowances for the universe having about 10^{80} ⁶⁵³ particles and our brains having 10^{11} ⁶⁵⁴ 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} ⁶⁵⁵). 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

⁶⁵³ “ 10^{80} ” equals “ $(10^{16})^5$ ” or “ten quadrillion to the 5th power.”

⁶⁵⁴ “ 10^{11} ” equals “100,000,000,000” or “one hundred billion.”

⁶⁵⁵ “ 10^{16} ” equals “10,000,000,000,000,000” or “ten quadrillion.”

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.

- 48. 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

⁶⁵⁶ See American Museum of Natural History (2014). Ichthyology.

⁶⁵⁷ See American Museum of Natural History (2014). Herpetology.

⁶⁵⁸ See Loh, R. (n.d.).

⁶⁵⁹ See Callaway, E. (2012, February 20). Alex the parrot's last experiment shows his mathematical genius.

considerations about the nature of mathematics. Any speculation about this? What does this imply?

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 fish⁶⁵⁶ and reptiles⁶⁵⁷ feel and think, though they can be pretty boring as companions. I had a genius goldfish⁶⁵⁸ 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 parrot⁶⁵⁹). 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*⁶⁶⁰.

I think of subjective degrees of consciousness like the number of sides in a polygon⁶⁶¹.⁶⁶² 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 polygons⁶⁶³. 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.⁶⁶⁴

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

⁶⁶⁰ See Darwin, C. (1872).

⁶⁶¹ See Weisstein, Eric W. (2014). Polygon.

⁶⁶² See Figure 3.

⁶⁶³ See Figure 3.

⁶⁶⁴ Ibid.

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 neurons⁶⁶⁵ 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 10,000⁶⁶⁶ discernable mind-space events that led up to a neuron firing.⁶⁶⁷ (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.)

⁶⁶⁵ See The Guardian (n.d.). How many neurons make a human brain? Billions fewer than we thought.

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

⁶⁶⁶ “10,000” means “ 10^4 .”

⁶⁶⁷ See Bryant, A. (2013, August 27).

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.

49. 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.

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

This is a recent excerpt from a book by evolutionary biologist Professor Andreas Wagner⁶⁶⁸ on *Salon.com*:

Selection did not—cannot—create all this variation. A few decades after Darwin⁶⁶⁹, Hugo de Vries⁶⁷⁰ 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.⁶⁷¹

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.⁶⁷² 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

⁶⁶⁸ See Santa Fe Institute (2014). Andreas Wagner.

⁶⁶⁹ See Charles Darwin. (2014).

⁶⁷⁰ See Hugo de Vries. (2014).

⁶⁷¹ See Wagner, A. (2014, October 4). A mystery Darwin couldn’t solve: It’s not what the religious right thinks.

⁶⁷² See Luskin, C (2013, September 16). Evolutionary Biologist Andreas Wagner: We "Know Little" about How "Innovations Originate".

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.”

- 51. 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 it these ‘Statistical Arguments for Consciousness’⁶⁷³: consciousness of universe (and consciousness of minds within it) cannot not exist.**

⁶⁷³ See Glossary of Terms.

⁶⁷⁴ Ibid.

Indeed, the simple existence of universe could be called ‘Statistical Argument for Universe’⁶⁷⁴: 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 idea? How can you state this in formal terms?

You can view Descartes⁶⁷⁵ "I think, therefore I am"⁶⁷⁶ 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

⁶⁷⁵ See Hatfield, G. (2014). René Descartes.

⁶⁷⁶ Ibid.

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.

- 52. 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?

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."

⁶⁷⁷ See Baez, J. (1998).

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,"⁶⁷⁷ 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.

- 53. 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 Leibniz⁶⁷⁸⁶⁷⁹⁶⁸⁰⁶⁸¹, 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 *inductivist*. 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

⁶⁷⁸ See Look, B.C. (2014).

⁶⁷⁹ See history of logic. (2015).

⁶⁸⁰ See formal logic. (2014).

⁶⁸¹ See Gottfried Wilhelm Leibniz. (2015).

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 sciences attempts for fixed boundaries before appears too optimistic and

eventually detrimental to science itself, and therefore the search for universe boundaries of operation should cease.

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?

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.⁶⁸² 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

⁶⁸² Zemcov M, Smidt J, Takehiko W, et al. On the origin of near-infrared extragalactic background light anisotropy.

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.)

54. 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)?

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.)

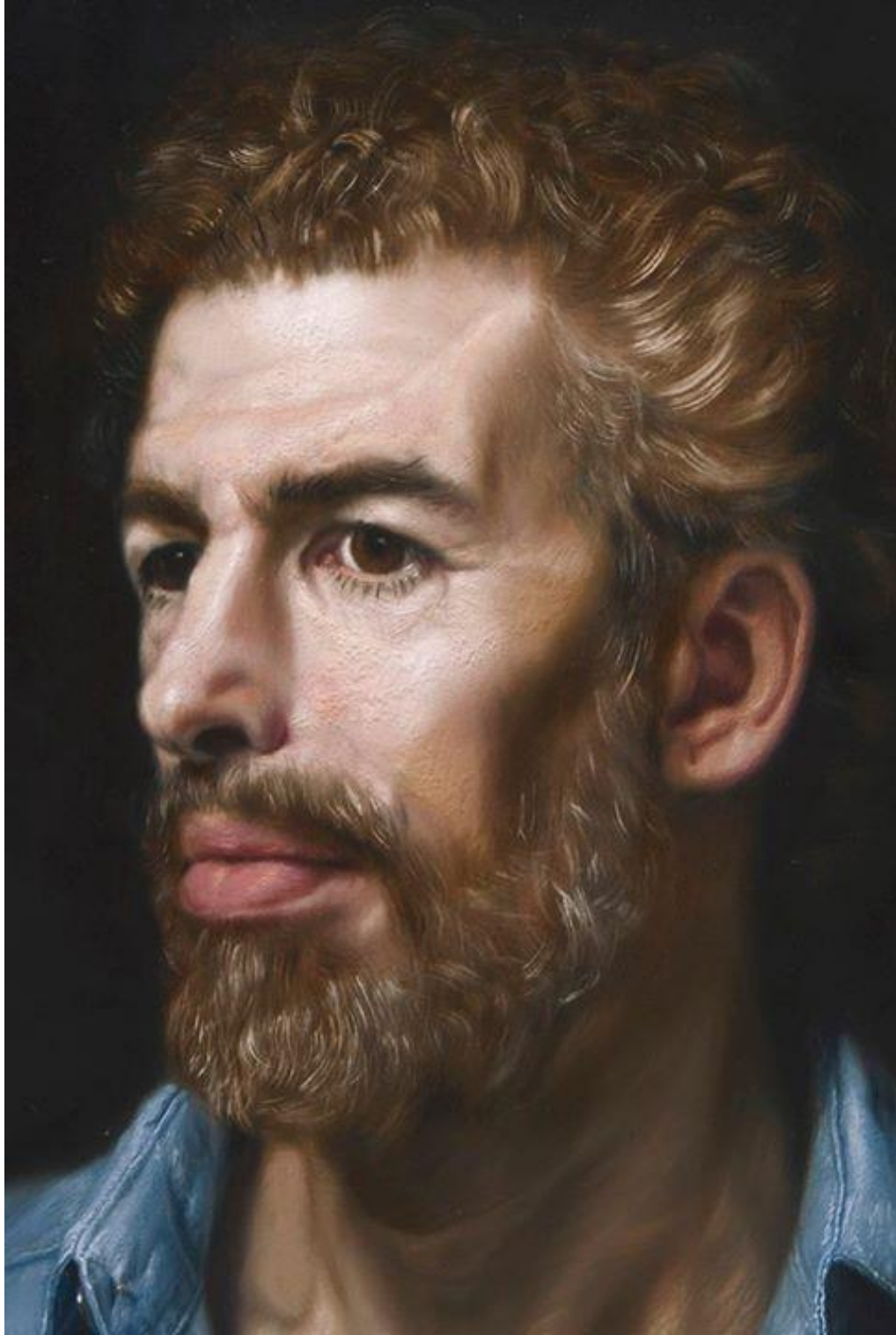
As to whether the universe has non-human means for continuing or resuming human consciousness - could be. If there are high degrees of infinity of worlds that can and do exist at some point, then finite beings such as ourselves (or close approximations of ourselves) could pop up. But this pop-up existence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

55. Based on the last response, any thoughts on religion?

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 (PART SIX)⁶⁸³⁶⁸⁴⁶⁸⁵



⁶⁸³ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Six).

⁶⁸⁴ First publication on November 15, 2014 at www.in-sightjournal.com.

⁶⁸⁵ Second publication on TBD in *Noesis: Journal of the Mega Society*.

ABSTRACT

Part six 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: 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 a technological booms on the horizon with 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.

Keywords: administrators, bullies, bullying, First Amendment, gifted, Giga Society, Los Angeles, Mega Society, parents, Rick G. Rosner, teachers, unfolding, universe, writer.

American Psychological Association (APA, 6th Edition, 2010): Rosner, R.G. & Jacobsen, S.D. (2014, November 15). Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Six). *In-Sight: Independent Interview-Based Journal*. Retrieved from <http://in-sightjournal.com/2014/11/15/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-six/>.

Modern Language Association (MLA, 7th Edition, 2009): Rosner, Rick, and Scott D. Jacobsen. “Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Six).” *In-Sight: Independent Interview-Based Journal* 6.A (2014): Nov. 2014. Web. <<http://in-sightjournal.com/2014/11/15/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-six/>>.

56. 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 above-the-norm talents and abilities. 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. 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?

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 Ruf⁶⁸⁶⁶⁸⁷⁶⁸⁸. 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*⁶⁸⁹ has a variety of programs, including the *Caroline D. Bradley Scholarship*⁶⁹⁰, 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*⁶⁹¹ 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 Watson⁶⁹² 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 cut-offs 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.)

⁶⁸⁶ See Educational Options (2014). Deborah L. Ruf, Ph.D. High Intelligence Specialist.

⁶⁸⁷ See LinkedIn (2014). Deborah Ruf, Ph.D.

⁶⁸⁸ See Great Potential Press (2012). Deborah L. Ruf, Ph.D..

⁶⁸⁹ See Institute for Educational Advancement (n.d.). About Us.

⁶⁹⁰ See Institute for Educational Advancement (n.d.). Caroline D. Bradley Scholarship: Vision and Mission.

⁶⁹¹ See Davidson Institute for Talent Development (n.d.).

⁶⁹² See IBM (n.d.). What is Watson?.

57. 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?

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) bogged 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 SF⁶⁹³, market forces pop up frequently. (Of course, right now in this country, a lot of powerful douchebags are putting a terrible face on capitalism⁶⁹⁴ – 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.)

⁶⁹³ "SF" means "science fiction."

⁶⁹⁴ See capitalism. (2014).

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.

- 58. Most children have negative experiences. Not to argue for life in shelter from the world. 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 more 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?**

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.

- 59. 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?**

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 SadLifesville. 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.)

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

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 a while.

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.

61. What about adaptive passive approaches and consolation over time?

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.

62. How about helping others undergoing it?

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.)

63. 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?

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 Gosling⁶⁹⁵ I still wasn't. It gets better, but it sucks wasting years in a situation that's not gonna get much better.

64. 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.

⁶⁹⁵ See IMDB (2014). Ryan Gosling.

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, keep track, coordinate, and even advise some on trials. This assists 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.

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.

65. 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?

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.⁶⁹⁶ 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.)⁶⁹⁷

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

66. 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?

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.⁶⁹⁸ 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's⁶⁹⁹ lecture on the danger of exponential population growth more than

⁶⁹⁶ See College Confidential (2014).

⁶⁹⁷ See Waldman, P. (2014, September 3).

⁶⁹⁸ "U.S." means "United States of America."

⁶⁹⁹ See Bartlett, A.A. (2014). About Professor Emeritus Albert A. Bartlett.

once.⁷⁰⁰⁷⁰¹ 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 Stephenson⁷⁰², Charles Stross⁷⁰³, and Cory Doctorow⁷⁰⁴.

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 2050.⁷⁰⁵

I am hopeful that, by the end of the century, the world will transform into if not a technological wonderland, then at least a

livable place for most people, rather than the squalid dystopias of *Blade Runner* or *Elysium* or *Idiocracy* or *The Hunger Games*. I am 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 am 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 intelligence⁷⁰⁶, and some very creepy people have spent a lot of time and money learning how to manipulate them.

Right now in America, gerrymandering⁷⁰⁷ is a huge problem, making for some of the worst politics and politicians since the Civil War⁷⁰⁸⁷⁰⁹. (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.⁷¹⁰ Not suggesting any radical new form

⁷⁰⁰ See Bartlett, A.A. (2014). Video parts 1 through 4 of Arithmetic, Population and Energy - a talk by Al Bartlett.

⁷⁰¹ See Bartlett, A.A. (2014). Video parts 5 through 8 of Arithmetic, Population and Energy - a talk by Al Bartlett.

⁷⁰² See Stephenson, N. (2008). Bio.

⁷⁰³ See Stross, C. (2014, August 1). Fiction by Charles Stross: FAQ.

⁷⁰⁴ See Doctorow, C. (2014). About Cory Doctorow.

⁷⁰⁵ See United States Census Bureau (2013, September 19). International Population Growth Rates: 1950-2050.

⁷⁰⁶ See Wolfram Alpha LLC (2014). "20th Percentile".

⁷⁰⁷ See gerrymandering. (2014).

⁷⁰⁸ See American Civil War. (2014).

⁷⁰⁹ See America's Library (2014). Civil War (1850-1865).

⁷¹⁰ Rick refers to long-term degradation of American Infrastructure.

of government – just saying it would be nice to have the government work the way it did before it was broken.

67. 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?

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.

68. 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*), 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*), 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*), virtuosity with classical European musical instruments (e.g., Yehudi Menuhin 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, 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*, 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*⁷¹¹⁷¹²⁷¹³, and John Stuart Mill, *On the Subjection of Women and Utilitarianism*), a great work of art (Leonardo da Vinci, *Mona Lisa*), earning tremendous amounts of wealth (Bill Gates, *Microsoft*), engineered inventions (e.g., Bucky Fuller, Geodesic Dome, Dymaxion Map and Car, and *Synergetics*), 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?

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

⁷¹¹ See Brown, E. 2011

⁷¹² See Bobonich, C. & Meadows, K. 2013

⁷¹³ See Kraut, R. 2013

well-known examples of people with social challenges who have astonishing eidetic memories or math skills or sculptural ability.⁷¹⁴

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.

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

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

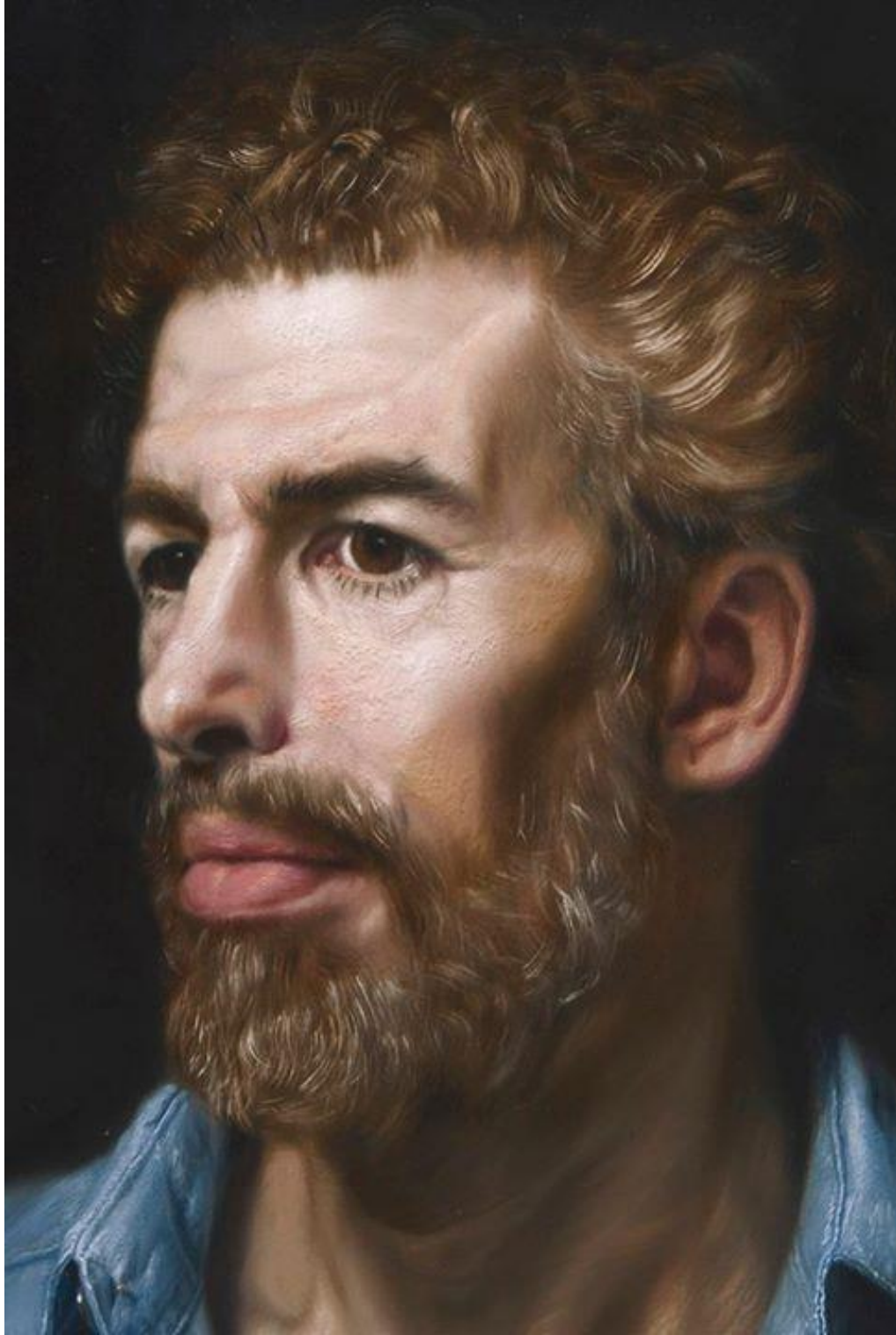
⁷¹⁴ See Art Sales (2014).

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 (PART SEVEN)⁷¹⁵⁷¹⁶⁷¹⁷



⁷¹⁵ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Seven).

⁷¹⁶ First publication on November 8, 2014 at www.in-sightjournal.com.

⁷¹⁷ Second publication on TBD in *Noesis: Journal of the Mega Society*.

 ABSTRACT

Part seven 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: 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.

Keywords: arrow of time, bidirectional time, blackish hole, dark energy, dark matter, Einstein, empty space, Giga Society, gravitation, infinity, informational cosmogony, informational cosmology, informational eschatology, innovation, isomorphism, logical possibility, Mega Society, mind-space, Occam's Razor, Plato's Cave, Rick G. Rosner, science, technology, The United States of America, universe, writer.

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Modern Language Association (MLA, 7th Edition, 2009): Rosner, Rick, and Scott D. Jacobsen. "Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Seven)." *In-Sight: Independent Interview-Based Journal* 6.A (2014): Nov. 2014. Web. <<http://in-sightjournal.com/2014/11/22/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-six-2/>>.

70. 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?

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.

- 71. 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?

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.

- 72. 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 cosmology, 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?

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 operish 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?

73. 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:

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

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_i” 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:

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

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:

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

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?

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.)

74. What about the Goldilocks Zone for universes existing?

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.”

75. What role do infinities play in informational cosmology? How about metric of minds? How about metric of universe?

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).

76. 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?

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.

77. 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?

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.

78. What about other scenarios with the possibility of a time-asymmetric process?

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.

79. 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?

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.

80. 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?

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).

- 81. 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, seyfert 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?**

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.

82. 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?

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.

83. What does it all mean?

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.

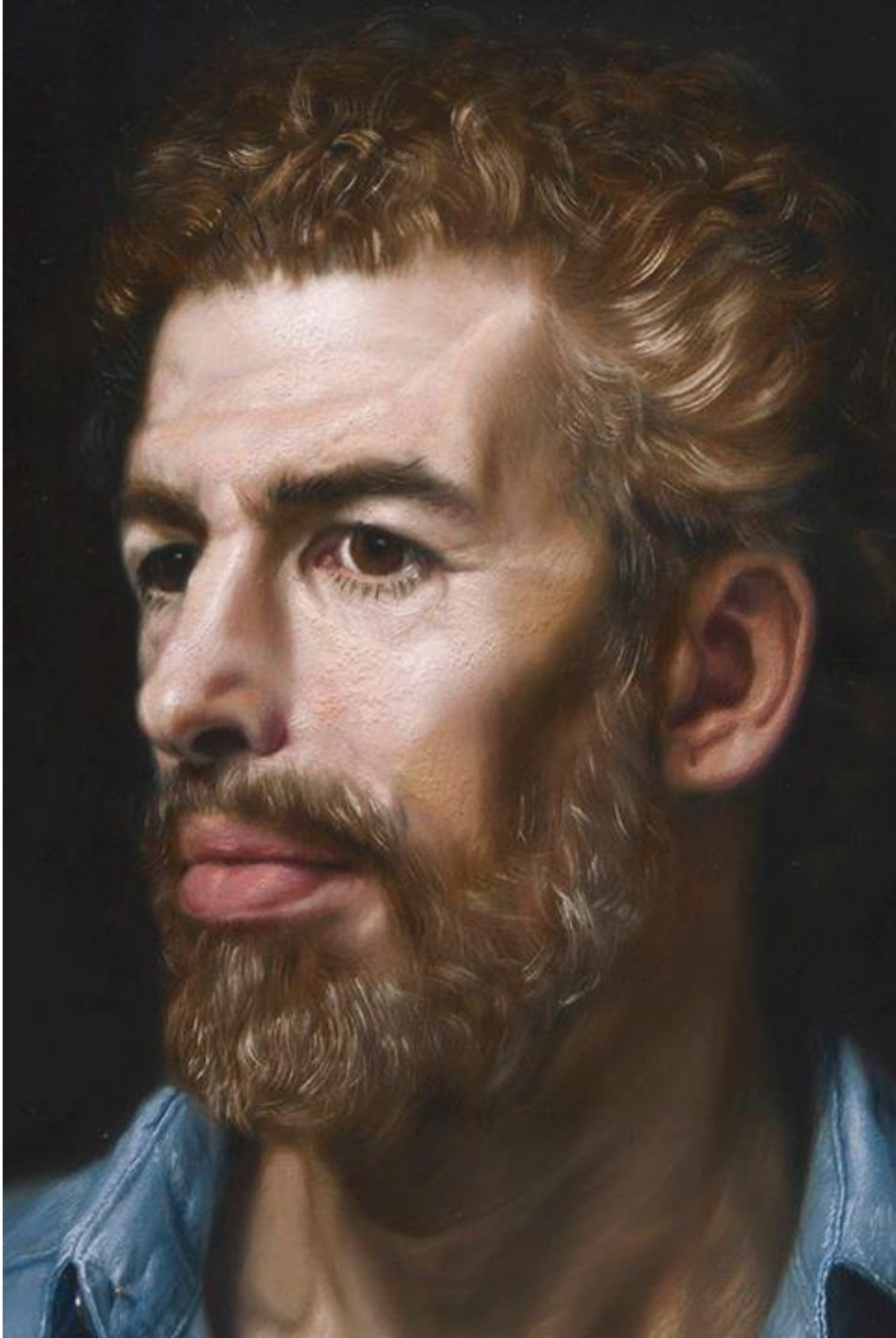
(Humans have very jazzy, souped-up consciousness – emotionally charged, rich in special effects and value judgments and motivation to take action. Is a quieter consciousness, more of an observer than an actor, not wired for strong emotion, still conscious? That is, is the drama of amped-up consciousness 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 (PART EIGHT)⁷¹⁸⁷¹⁹⁷²⁰



⁷¹⁸ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Eight).

⁷¹⁹ First publication on December 1, 2014 at www.in-sightjournal.com.

⁷²⁰ Second publication on TBD in *Noesis: Journal of the Mega Society*.

ABSTRACT

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.

Keywords: axiology, aesthetics, Deontological, ethics, comparative/descriptive ethics, applied ethics, Friedrich Nietzsche, Giga Society, Gorgias, informational cosmology, informed will, Mega Society, metaethics, moral antirealism, moral realism, moral psychology, moral truth, Napoleon Bonaparte, normative ethics, Pierre-Simon Marquis de Laplace, Rick G. Rosner, Søren Kierkegaard, targeted thinking, Teleological, universe, Virtue, writer.

American Psychological Association (APA, 6th Edition, 2010): Rosner, R.G. & Jacobsen, S.D. (2014, December 1). Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Eight). *In-Sight: Independent Interview-Based Journal*. Retrieved from <http://in-sightjournal.com/2014/12/01/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-eight/>.

Modern Language Association (MLA, 7th Edition, 2009): Rosner, Rick, and Scott D. Jacobsen. "Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Eight)." *In-Sight: Independent Interview-Based Journal* 6.A (2014): Dec. 2014. Web. <http://in-sightjournal.com/2014/12/01/rick-g-rosner-giga-society-member-mega-society-member-ex-editor-1990-96-and-writer-part-eight/>.

84. Fundamentals of universe deals with bits⁷²¹ or links - information.⁷²²⁷²³ Units of sufficient individuation of universe with self-consistency and information processing - and by implication complexity - might not implicate ethics.⁷²⁴ No explicit connection there; a possible tacit linkage.

Akin to Pierre-Simon Marquis de Laplace's⁷²⁵ – likely apocryphal - determinist universe statement to

Napoleon Bonaparte⁷²⁶, 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 based view⁷²⁷ of processing reflects a meaningless, clockwork mechanism conceptually synonymous with the Laplacian determinate⁷²⁸⁷²⁹⁷³⁰ – or even indeterminate,

⁷²¹ See Rosner, R.G. & Jacobsen, S.D. (2014, November 8). Rick G. Rosner: Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Five). *In-Sight: Independent Interview-Based Journal*.

⁷²² When asked about the basic unit of the world, history presents Leucippus and Democritus with atoms, a space-time manifold, quanta, and so on. Others with philosophical assertions of everything as singular associated with monism, dual associated with dualism, or plural associated with pluralism. In essence, monist views relate to three categorizations according to experts: 1) idealist monism: mind or spirit alone, 2) neutral monism: mental and physical reduced to one, 3) material monism (physicalism or materialism – eliminative and reductive materialism too): everything reduced to physical.

Informational cosmology postulates informational monism. A relational ontology with everything derived down to bits or links. Everything derivable to information - bits or links (not by necessity digitized like computers).

If everything reduces to information alone, this defines the philosophy of informational monism.

Informational cosmology would derive from existence within an informational monic perspective. Plurality of universe constructed from origin in information of bits or links.

⁷²³ In correspondence, Rick states, "Universe doesn't necessarily work by bits. Works by links among particles, which come in various strengths - electrons and their shells, nuclei and their shells." I replied, "We'd need to revise the Shannon and Weaver question "2)" at that point." He retorted, "Will it require that much revision? Information is information, whether it comes in bits or links..." he later continued, "...I think everything can be translated to binary, similarly to how everything can be reduced to a Turing Machine." I concluded, "That's a great point come to think on it more. Translation into binary or basic logic does not mean universe necessarily operates in those translations, but in something deeper than those

translations..." I would consider this proposed relational ontology in informational cosmology to derive information as the basis of universe of utility in descriptive capacity, but this raises a question: What becomes translated to produce information? By necessity, this directs attention to an emergent information-based cosmology with another fundament from which relations occur and translate into information via bits or links.

⁷²⁴ See Rosner, R.G. & Jacobsen, S.D. (2014, November 8).

⁷²⁵ See Pierre-Simon, marquis de Laplace. (2014).

⁷²⁶ LaPlace replied to Napoleon Bonaparte's query about the place for God in LaPlace's mathematical works. LaPlace said, "Je n'avais pas besoin de cette hypothèse-là." It translates to "I had no need of that hypothesis." This probably never happened because of the likely apocryphal nature of the narrative.

⁷²⁷ Informational cosmology implicates some precision in definition through lists and definitions of views with relation to the appropriate correspondence of theory to universe. Variegated philosophical vantages purport correspondence to real universe: agnosticism, atheism, deism, holopanthemism, ignosticism, materialism, mentalism, monism, pandeism, pantheism, panentheism, physicalism, theism, All definitions from the Canadian Oxford Dictionary (2nd edition). IN addition to the prior listing, three primary classifications exist with regards to reality's reduction to one associated with monism, two associated with dualism, or many associated with two or more.

⁷²⁸ See Hoefer, C. (2010).

⁷²⁹ See de Laplace, M. (1814).

⁷³⁰ Laplace opens *A Philosophical Essay on Probabilities* (1814) with the following statement, "IN ALL events, even those which on account of their insignificance do not seem to follow the great laws of nature, are a result of it just as necessarily as the revolutions of the sun. In ignorance of the ties which unite such events to the entire system of the universe, they have been made to depend upon final causes or upon hazard, according as they occur and are repeated with regularity, or appear

meaningless quantum – world with everything lacking inherent, even derived, moral truths.

Axiologists⁷³¹ might enlighten the shroud of these problems. Indeed, information-based ethics might implicate ethics with some background and thought.

Axiologists⁷³² study value. Value divided into aesthetics⁷³³⁷³⁴ and ethics⁷³⁵. Aesthetics studies beauty. Ethics studies moral conduct. In general agreement among ethical axiologists, ethics splits five ways: metaethics⁷³⁶, comparative/descriptive ethics⁷³⁷, applied ethics⁷³⁸, normative ethics⁷³⁹, and moral psychology⁷⁴⁰.

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 realist⁷⁴¹⁷⁴² (“Yes”). Each provides complete conceptual and functional affirmations. “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.

Probabilistic answer argues for moral truths in thoughts about and behavior with respect to them. Undecidable 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.

without regard to order; but these imaginary causes have gradually receded with the widening bounds of knowledge and disappear entirely before sound philosophy, which sees in them only the expression of our ignorance of the true causes. Present events are connected with preceding ones by a tie based upon the evident principle that a thing cannot occur without a cause which produces it. This axiom, known by the name of the principle of sufficient reason, extends even to actions which are considered indifferent; the freest will is unable without a determinative motive to give them birth; if we assume two positions with exactly similar circumstances and find that the will is active in the one and inactive in the other, we say that its choice is an effect without a cause. It is then, says Leibnitz, the blind chance of the Epicureans. The contrary opinion is

an illusion of the mind, which, losing sight of the evasive reasons of the choice of the will in indifferent things, believes that choice is determined of itself and without motives.”

⁷³¹ See Schroeder, M. (2012).

⁷³² Ibid.

⁷³³ See Slater, B.H. (n.d.)

⁷³⁴ See aesthetics. (2014).

⁷³⁵ See ethics. (2014).

⁷³⁶ See metaethics. (2014).

⁷³⁷ See comparative ethics. (2014).

⁷³⁸ See ethics. (2014).

⁷³⁹ See normative ethics. (2014).

⁷⁴⁰ See Doris, J. & Stich, S. (2014).

⁷⁴¹ Sayre-McCord, G. (2011).

⁷⁴² See realism. (2014).

This leaves definite negation and definite affirmation.

Definite negation of moral truth includes one ethics set: nihilism. Greek sophist Gorgias⁷⁴³⁷⁴⁴ (485 BCE-380 BCE) equates to the most stated ancient exemplar of moral antirealism. Some argue for Socrates⁷⁴⁵⁷⁴⁶ (469 BCE-399 BCE) as a nihilist based on the *Method of Elenchus*⁷⁴⁷ or the method of questioning. A modern instance in the person of Søren Kierkegaard⁷⁴⁸⁷⁴⁹.

With another common instance adumbrated in the writing of Friedrich Nietzsche⁷⁵⁰⁷⁵¹ (1844-1900), he writes in *The Will to Power*⁷⁵² (1901), "I describe what is coming, what can no longer come differently: *the advent of nihilism*."⁷⁵³ In short, exemplars (Gorgias and Kirkegaard) 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 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*⁷⁵⁴⁷⁵⁵ of ethics. A near-complete analogue.

A definite affirmation of moral truth includes many ethics supersets: Act Utilitarian⁷⁵⁶, African⁷⁵⁷, Anarchist⁷⁵⁸, Aristotelian, Atheist, Biological⁷⁵⁹, Buddhist, Business⁷⁶⁰, Casuist⁷⁶¹, Christian, Communication, Confucian, Consequentialist, Daoist, Deontological, Environmental, Epicurean, Evolutionary⁷⁶², Feminist⁷⁶³, Gender, Global, Hedonist, Hindu, Humanist,

⁷⁴³ See Higgins, C.F. (2006).

⁷⁴⁴ See Plato (380 BCE).

⁷⁴⁵ See Nails, D. (2014).

⁷⁴⁶ See Socrates. (2014).

⁷⁴⁷ See Woodruff, P. (2014).

⁷⁴⁸ See McDonald, W. (2014).

⁷⁴⁹ See Crowell, S. (2010).

⁷⁵⁰ See Wicks, R. (2014).

⁷⁵¹ See Friedrich Nietzsche. (2014).

⁷⁵² See Nietzsche, F. & Kaufman, W. (1901).

⁷⁵³ See Pratt, A. (2005).

⁷⁵⁴ See Weisstein, Eric W. (2014). Empty Set.

⁷⁵⁵ See set theory. (2014).

⁷⁵⁶

⁷⁵⁷ See Gyekye, K. (2011).

⁷⁵⁸

⁷⁵⁹ See bioethics. (2014).

⁷⁶⁰ See Marcoux, A. (2008).

⁷⁶¹ See casuistry. (2014).

⁷⁶² See biology, philosophy of. (2014).

⁷⁶³ See Tong, R. & Williams, N. (2014).

Islamic, Machine, Military, Objectivist, Personal, Political, Postmodern, Professional, Publication, Relational, Research, Role, Role utilitarian, Sexual, Shinto, Social, Stoic, Teleological⁷⁶⁴, and Virtue⁷⁶⁵. (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*⁷⁶⁶, animal care⁷⁶⁷⁷⁶⁸, autonomy⁷⁶⁹, beneficence⁷⁷⁰, carefulness⁷⁷¹, *Charter of Medina (Constitution of Medina)*⁷⁷², *Code of Hammurabi*⁷⁷³, *Code of Li k’vei*, competence, Computer and Information⁷⁷⁴, confidentiality⁷⁷⁵, *Declaration of Helsinki*⁷⁷⁶ (1964), *Declaration Toward Global Ethic*⁷⁷⁷, discipline-based conduct⁷⁷⁸, *English Bill of Rights*⁷⁷⁹, *Exodus’ Ten Commandments*⁷⁸⁰, *Great Laws of*

*Manu*⁷⁸¹, *Hippocratic Oath*⁷⁸², honesty⁷⁸³, human rights protection⁷⁸⁴, *International Charter on Medical Professionalism* (First published in 2002)⁷⁸⁵, justice⁷⁸⁶, *Justinian Code*⁷⁸⁷, least harm⁷⁸⁸, legality⁷⁸⁹, *Magna Carta*⁷⁹⁰, *Mosaic Law*⁷⁹¹, *Napoleonic Code*⁷⁹², non-discrimination⁷⁹³, *Nuremberg Code* (1947)⁷⁹⁴, objectivity⁷⁹⁵, openness⁷⁹⁶, respect for colleagues⁷⁹⁷, respect for integrity⁷⁹⁸, respect for intellectual property⁷⁹⁹, responsible mentoring⁸⁰⁰, responsible publication⁸⁰¹, *Ṣaḥīḥ al-Bukhārī* (Sunni Islam)⁸⁰², *Sharia*⁸⁰³ and *Fiqh*⁸⁰⁴, social responsibility⁸⁰⁵, *T’ang Code* (including *T’anglǔ shūyì* – commentary for it)⁸⁰⁶, *The Golden Rule*⁸⁰⁷, 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;

⁷⁶⁴ See teleological ethics. (2014).

⁷⁶⁵ See Hursthouse, R. (2013).

⁷⁶⁶ See Cornell University Law School (n.d.)

⁷⁶⁷ See American Psychological Association (2014).
Overview: Guidelines for Ethical Conduct in the Care and Use of Nonhuman Animals in Research.

⁷⁶⁸ See American Psychological Association (2014).
Guidelines for Ethical Conduct in the Care and Use of Nonhuman Animals in Research.

⁷⁶⁹ See Pantilat, S. (2008).

⁷⁷⁰ Ibid.

⁷⁷¹ See

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⁷⁷³ See Code of Hammurabi. (2014).

⁷⁷⁴ See Bynum, T. (2011).

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⁷⁷⁶ See University of Ottawa (n.d.).

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⁷⁹⁰ See British Library: Magna Carta (1215).

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⁸⁰³ See Shari’ah. (2014).

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⁸⁰⁷ See Bible: New International Version (2014).

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 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.

85. 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”⁸⁰⁸ lit and kept alight through the arrow of time⁸⁰⁹.

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.

⁸⁰⁸ Hawking quotation

⁸⁰⁹ See Jones, A.Z. (n.d.).

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 .⁸¹⁰ 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 finites 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?

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

logical possibilities of moral choices, we construct the following conditional formulation: 1) $C \Rightarrow C_n$, 2) $C_n \Rightarrow C_n^E$, 3) $C, 4) \therefore C_n^E$.

⁸¹⁰ Where C equals total set or space of logical possibilities of choices, C_n equals unit(s) of sufficient individuation's (individuations?) set or space of logical possibilities of choices, and C_n^E equals unit(s) of sufficient individuation's (individuations?) set or space of

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.

86. 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^E⁸¹¹⁸¹²⁸¹³. 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.

We get principles of living from principles of existence because informational cosmology implies informational ethics. Perhaps, an imperative for increased physical and mental possibilities to increase the magnitude of informed will and targeted thinking. More information on and ability to enact proper living can

⁸¹¹ Units of sufficient individuation such as evolved creatures arose through and require continued persistence - for the individual and collective in general - and, therefore, have intrinsic and in some cases *informed* values of continued persistence. Informational cosmology describes principles of existence ("laws") based on nonabsolute high probabilities of chance of universe and consciousness. Each based in existence and persistence of existence. Universe and consciousness "cannot not exist"; *Statistical Argument for Universe* and *Statistical Argument for Consciousness*, respectively. Each contained in *The Persistence Project*. *The Persistence Project* implicates prime status to values of existence - for continued existence. A hierarchy of informational ethics constructs a tower with one Arkenstone above the rest. A referent, the Arkenstone. Theoretical informational ethics asks, "How much *might* this gem shine like the

Arkenstone?" Practical informational ethics asks, "How much *does* this gem shine like the Arkenstone?"

⁸¹² John Stuart Mill had a relevant quote, "The theory of the foundations of morality... For the remainder of the practice of life some general principle, or standard, must still be sought; and if that principle be rightly chosen, it will be found, I apprehend, to serve quite as well for the Ultimate principle of Morality... I merely declare my conviction, that the general principle to which all rules of practice ought to conform, and the test by which they should be tried, is that of conduciveness to the happiness of mankind, or rather, of all sentient beings: in other words, that the promotion of happiness is the ultimate principle of Teleology."

⁸¹³ See Mill, J.S. (1843). *A System of Logic, Ratiocinative and Inductive: Being a Connected View of the Principles of Evidence and the Methods of Scientific Investigation*.

increase probability of continued existence.⁸¹⁴⁸¹⁵

This could provide the basis for calculation of the mind-space constructed from varied A_n , armatures, and M_n , universes. Furthermore, this could calculate the degree of informed will (even ill-informed will) and, therefore, targeted thinking (even ill-targeted thinking). Or the relative level of C_n and C_n^E .

Does this hold merit to you? How might we refine or extend this argument?⁸¹⁶ 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 levels at the individual and collective level?

⁸¹⁴ More technical terminology in full description: informational cosmology provides absolute descriptive status of universe – total set or space of logical possibilities of choice of universe and its universe of sufficient individuation - with informational ethics implicating absolute prescriptive status by description of unit(s) of sufficient individuation's (individuations) – with sufficient physical and mental possibilities – informed will depicted by set or space of logical possibilities of choices and targeted thinking depicted by unit(s) of sufficient individuation's (individuations) set or space of logical possibility of moral choice. Universe pertains to total set or space or logical possibility of choices; units of sufficient individuation correspond to set of space of logical possibility of choice and set or space of logical possibility of moral choice. Increased physical or mental possibilities increases magnitude of set or space of logical possibility of choice and set or space of logical possibility of moral choice – or more informed will and targeted thinking, respectively.

⁸¹⁵ 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 or “existence-valuing principles,” 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_e , 6) \therefore, I_e .

To clarify, informational ethics derives from informational cosmology because of existence-valuing

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

principles. From the facts of informational cosmology, you derive values for informational ethics. A gradual implication from “to be” to “what should be” here – so much for David Hume's *is/ought* divide. Facts imply values.

Ergo, universe and its units of sufficient individuation contain informed will and targeted thinking. Minds in universe pertain to C_n or informed will - conscious or unconscious. Furthermore, minds in universe pertain to C_n^E or targeted thinking. Minds in universe construct a modified form of free will entitled informed will. Minds in universe construct ethics based in persistence, C^E , entitled targeted thinking, C_n^E . As Rick stated, “General ethical and moral principles and existence itself aren't just human constructs.”

⁸¹⁶ Sigma, \sum , self-consistency, S , times, $*$, sigma information processing, I_p , would equal mind-space, S_n , where mind-space equals information-space, I_s : $(\sum S * \sum I_p = S_n = I_s)$.⁸¹⁶⁸¹⁶

For a first approximation, this could provide the basis for calculation of the mind-space constructed from varied A_n , armature, and M_n , universe. Furthermore, this could calculate the degree of informed will (even ill-informed will) and, therefore, targeted thinking (even ill-targeted thinking). Or the relative level of C_n and C_n^E .

Duly note, if A_n and M_n equals S_n , and if $(\sum S * \sum I_p = S_n)$, one should have the ability to derive $(A_n$ and $M_n)$ from $(\sum S * \sum I_p)$ because of the fulcrum of S_n in each argument: $(\sum S * \sum I_p = S_n = A_n + M_n)$.

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.

- 87. 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?**

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

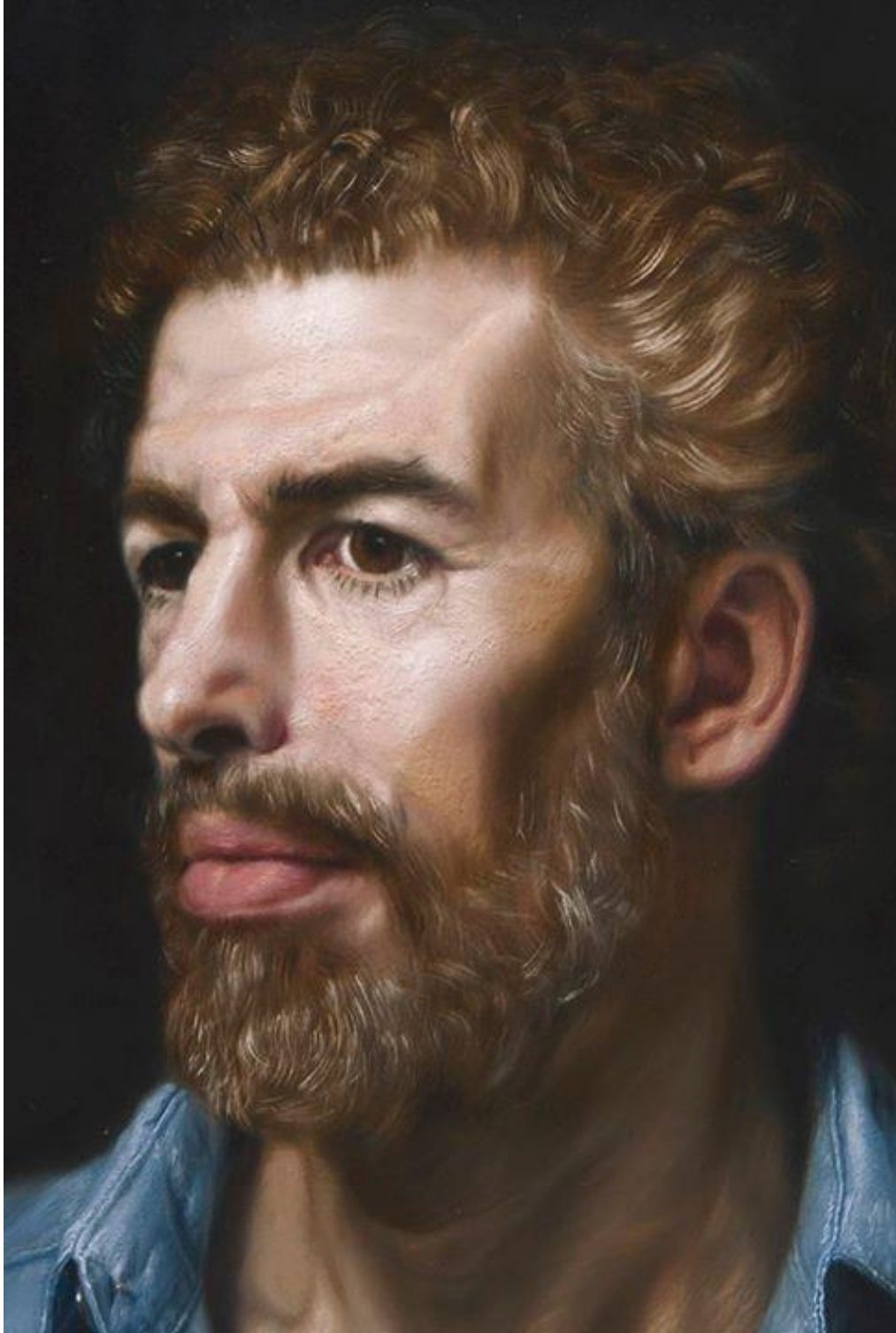
decision to strive is itself based on information). Will can be understood as a decision (I will work on this paper until I pass out) or as a tendency in decisions (I will always go to the utmost extreme when working on something I deem to be of value). As such, will comes from a combination of hardware, 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.

88. How do informed will and targeted thinking influence every day and outlier morality?

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 (PART NINE)⁸¹⁷⁸¹⁸⁸¹⁹



⁸¹⁷ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Eight).

⁸¹⁸ First publication on December 8, 2014 at www.in-sightjournal.com.

⁸¹⁹ Second publication on TBD in *Noesis: Journal of the Mega Society*.

ABSTRACT

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 the 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.

Keywords: collective, ethics, fame, Giga Society, good, informational cosmology, informational ethics, intellectuals, journalism, Mega Society, mind-space, objective, Rick G. Rosner, subjective, writer.

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89. 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?

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.

90. Ethics appears more in the fore of the public conversation – for the better. I do

⁸²⁰ See Malcolm X. (2014).

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 X⁸²⁰, "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)⁸²¹. His grand perspective appears to have create a myopia in a historical perspective. 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?

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

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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).

91. **You spoke in another venue for motivating intellectuals into a force for good⁸²². 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 multiculturalism⁸²³ and moral relativism⁸²⁴. 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,**

⁸²² See The World Genius Directory (2013).

⁸²³ “Multiculturalism” means “cultures differ.” A trivial truth. “Bland multiculturalism” gives no scale to cultures – personal appellation to the phenomena.

⁸²⁴ Derivation from the prior trivial truth – cultures differ or multiculturalism - to disallow any moral

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?

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:

calculus or assertion of human construction of ethics. Information cosmology implies informational ethics and, therefore, by necessity requires objective and binding nature of ethics rather than assertion of human construction of ethics.

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.

92. What about the long-term? How can those with particular gifts and talents contribute to society?

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.

93. 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?

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.

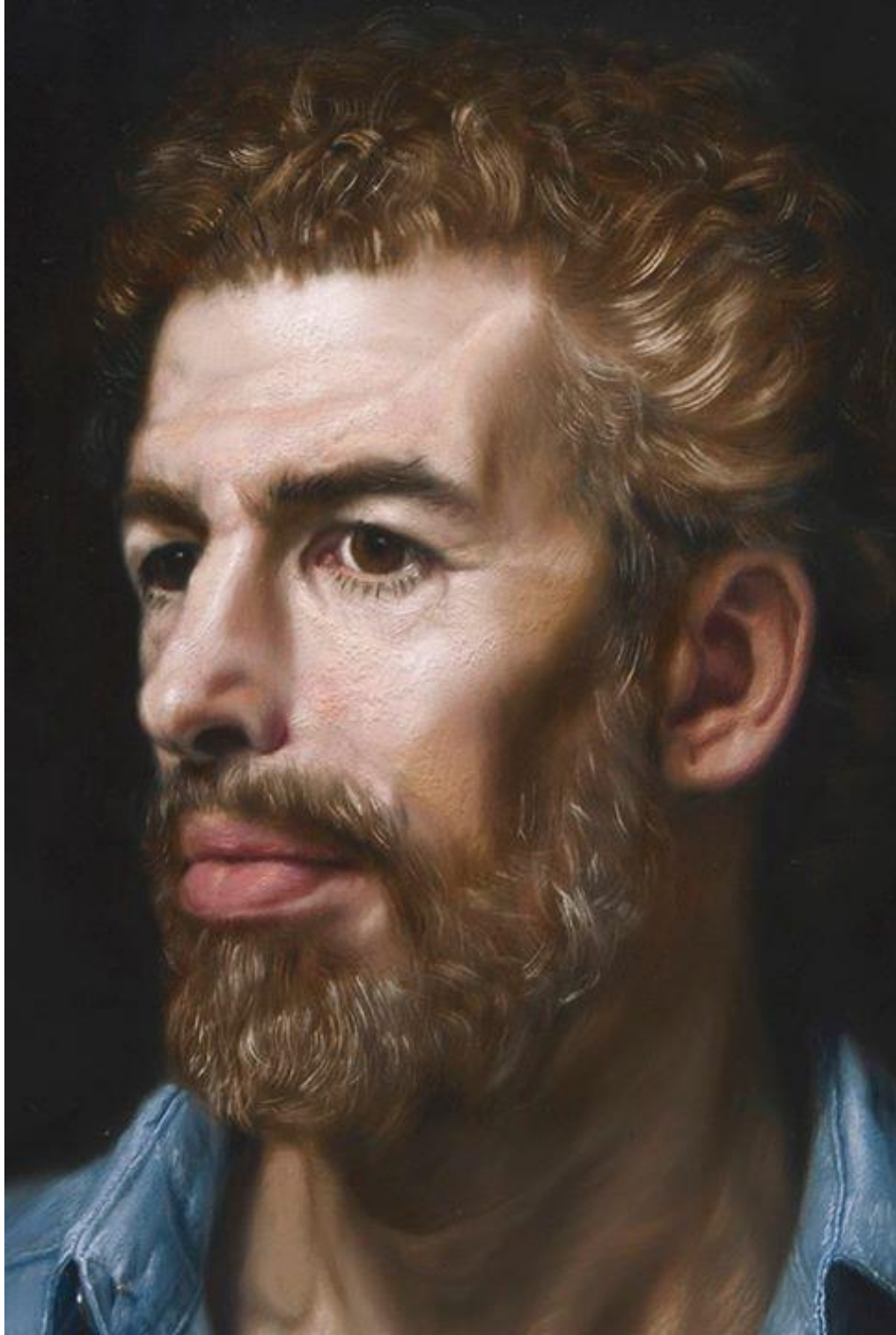
And let's say my theory of the universe is at least partially correct. It could lead to big steps forward in our understanding of the world and our place in it. It could help us figure out how to make our brains work better. If some fame draws some attention to the theory, then good.

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 (PART TEN)⁸²⁵⁸²⁶⁸²⁷



⁸²⁵ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Eight).

⁸²⁶ First publication on December 15, 2014 at www.in-sightjournal.com.

⁸²⁷ Second publication on TBD in *Noesis: Journal of the Mega Society*.

ABSTRACT

Part ten 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: 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.

Keywords: Charles Stross, Cory Doctorow, David Marusek, Dr. Rosalyn Yow, ethics, Giga Society, informational ethics, John Stuart Mill, Mega Society, Millennium Development Goals, Neal Stephenson, Plato, Rick G. Rosner, UN, writer.

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94. 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.⁸²⁸⁸²⁹

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 3⁸³⁰, 4⁸³¹, and 5⁸³² 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?

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

⁸²⁸ See Grimke sisters. (2015).

⁸²⁹ See Advocate of Moral Reform. (2015).

⁸³⁰ See United Nations (2013, September). We Can End Poverty: Millennium Development Goals and Beyond 2015: Fact Sheet: Goal 3.

⁸³¹ See United Nations (2013, September). We Can End Poverty: Millennium Development Goals and Beyond 2015: Fact Sheet: Goal 4.

⁸³² See United Nations (2013, September). We Can End Poverty: Millennium Development Goals and Beyond 2015: Fact Sheet: Goal 5.

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 next five years, 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, with some of the coverage being flawed and stupid. 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.⁸³³

95. Many, not all, women tend to have a hard time in science too. Improvements in welfare, access, and attainment continue. Dr. 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.⁸³⁴

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

⁸³³ See Krebs, Christopher P., Lindquist, Christine H., Warner, Tara D., S. Fisher, Bonnie, & Martin, Sandra L. (2007, December).

⁸³⁴ See The Emily Fund for a better world (n.d.).

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 apace with the rapidity of technological change, and scientific discovery and innovation?

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.⁸³⁵ 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.

96. 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."⁸³⁶⁸³⁷⁸³⁸ 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*⁸³⁹⁸⁴⁰⁸⁴¹, 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.⁸⁴²⁸⁴³⁸⁴⁴ Well-ordered society reflected well-ordered individual – man or woman. Germinations from the dialogue on an ideal society in the seminal work *The Republic*⁸⁴⁵⁸⁴⁶⁸⁴⁷ became the seeds for partial, by the accepted canon of ethics today, female equality, most saliently found in the work *The Republic*⁸⁴⁸⁸⁴⁹⁸⁵⁰.

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)⁸⁵¹ - 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

⁸³⁵ See Plumer, B. (2013, February 26)

⁸³⁶ See Brown, E. 2011

⁸³⁷ See Bobonich, C. & Meadows, K. 2013

⁸³⁸ See Kraut, R. 2013

⁸³⁹ See Brown, E. 2011

⁸⁴⁰ See Bobonich, C. & Meadows, K. 2013

⁸⁴¹ See Kraut, R. 2013

⁸⁴² See Brown, E. 2011

⁸⁴³ See Bobonich, C. & Meadows, K. 2013

⁸⁴⁴ See Kraut, R. 2013

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⁸⁴⁷ See Kraut, R. 2013

⁸⁴⁸ See Brown, E. 2011

⁸⁴⁹ See Bobonich, C. & Meadows, K. 2013

⁸⁵⁰ See Kraut, R. 2013

⁸⁵¹ See Wilson, F. (2014).

his wife Harriet Taylor Mill's essay, *The Enfranchisement of Women* (1851)⁸⁵², 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?

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 1980.⁸⁵³ 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.

97. 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 Alexandria⁸⁵⁴, 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

⁸⁵² See Mill, Mrs. J.S. (1851, July).

⁸⁵³ See Kruse Kronicle (2008, March 18).

⁸⁵⁴ See Stilo, A. (n.d.).

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., 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?

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 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, the worlds can be shitty for women – for example, the *Grand Theft Auto* series is brutal to women, even as it presents highly detailed virtual worlds. 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.))

- 98. 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 Develop 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 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?

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 spent in misery before social and tech trends make things better and/or weird?”

The happy eventual situation is that tech creates a utopia in which all people get what they want. The unhappy 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.

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.)

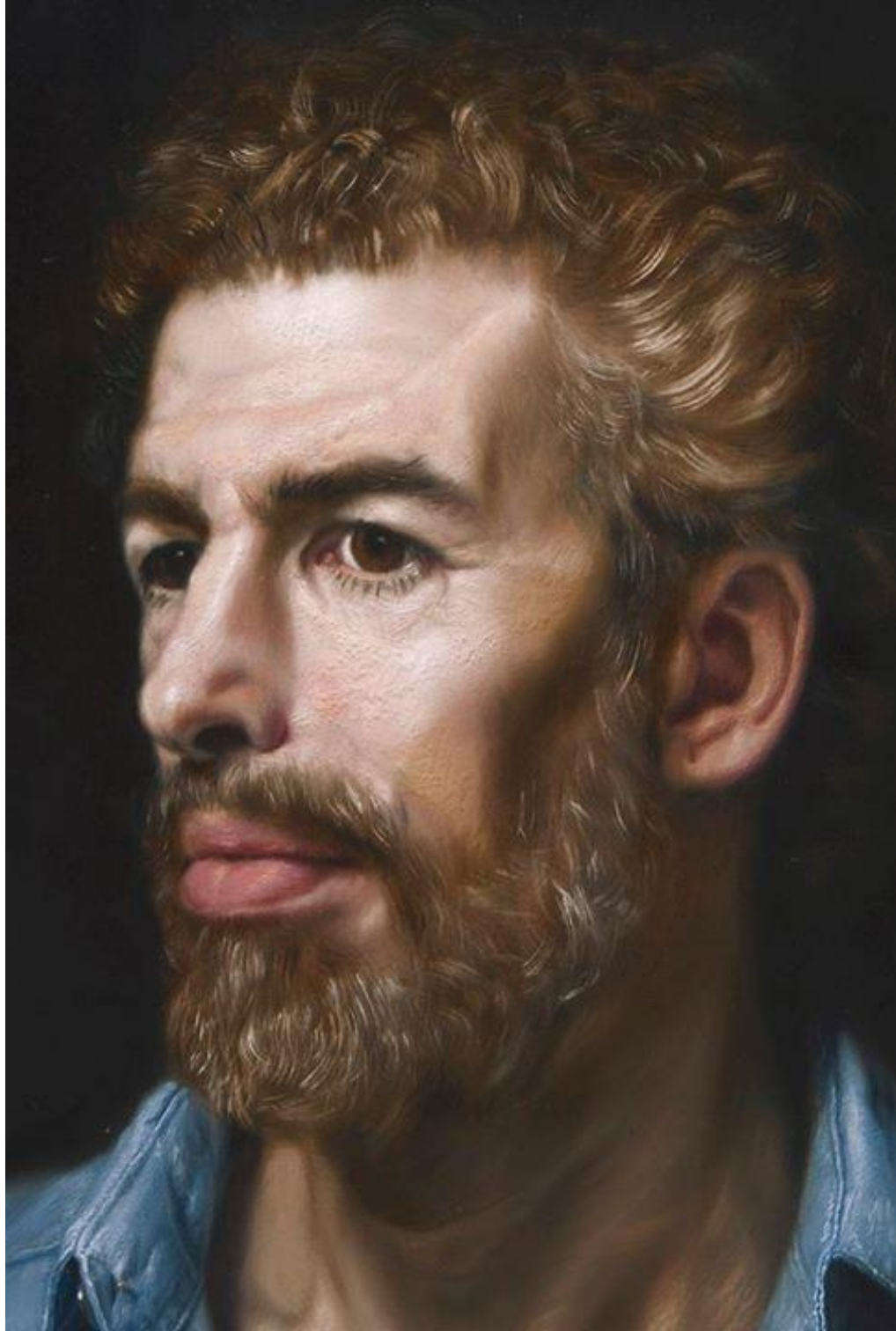
But our current problems will be largely replaced by fantastically weird problems. Virtual people will be subject to virtual attacks

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.⁸⁵⁵⁸⁵⁶

⁸⁵⁵ See io9 (2014).

⁸⁵⁶ See boingboing (2014).

RICK G. ROSNER (PART ELEVEN)⁸⁵⁷⁸⁵⁸⁸⁵⁹



⁸⁵⁷ Giga Society, Member; Mega Society, Member & ex-Editor (1991-97); and Writer (Part Eight).

⁸⁵⁸ First publication on December 22, 2014 at www.in-sightjournal.com.

⁸⁵⁹ Second publication on TBD in *Noesis: Journal of the Mega Society*.

ABSTRACT

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.

Keywords: aesthetics, armature, armature/universe, Big Bang Cosmology, common sense, consciousness, Einstein-Podolsky-Rosen Nonlocality, *ex nihilo* cosmogony, Fr. Teilhard de Chardin, Giga Society, gods, history, informational cosmogony, informational cosmology, informational eschatology, IQ, isomorphism, Mega Society, Omega Point, principles of existence, Rick G. Rosner, The Heisenberg Uncertainty Principle, The Problem of Evil, theology, Turing Machine, universe, Wave-Particle Duality, writer.

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99. You earned the *Genius of the Year Award - North America* in 2013 from PSIQ⁸⁶⁰. 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."⁸⁶¹ 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 POVs⁸⁶², within the universe in service of God. Does this fairly characterize the statement? What did you attempt to address with such a statement?

I was addressing a strain of religiosity which is hostile to science (or which misrepresents science to advance an agenda).⁸⁶³ 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.

Teleology⁸⁶⁴ 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.

100. 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?

Start with the Arthur C. Clarke⁸⁶⁵ 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 Way⁸⁶⁶⁸⁶⁷ – 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

⁸⁶⁰ See The World Genius Directory (2013).

⁸⁶¹ Ibid.

⁸⁶² "POVs" means "point-of-views."

⁸⁶³ See Answers in Genesis (2014). "Creationism".

⁸⁶⁴ See teleology. (2014).

⁸⁶⁵ See Sir Arthur C. Clarke. (2014).

⁸⁶⁶ See NASA (n.d.). The Milky Way Galaxy.

⁸⁶⁷ See NASA: Hubble Site (2009, November 10).

NASA's Great Observatories Celebrate International Year of Astronomy.

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's information spaces all the way up.

These different levels of goddish 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?

101. What about our future rather than these “gods”?

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.

102. What would a timeline of the future look like?

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*.

103. Any thoughts on aesthetics within your framework for understanding the world?

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*.

104. Any comments on informational eschatology?

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.

105. Deep and shallow recorded human history present numerous examples of prior attempts at absolute definitions of consciousness, universe, and their mutual

⁸⁶⁸ See Hesiod. (2014).

⁸⁶⁹ See Evelyn-White, H.G. (1914).

⁸⁷⁰ See Curd, P. (2012). Presocratic Philosophy.

⁸⁷¹ See Thales of Miletus. (2014).

⁸⁷² Named one of the *Sophoi* or 'Seven Wise Men' of antiquity.

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 some examples, earliest known individuals with works focused on the gods such as Hesiod⁸⁶⁸ with *Theogony*⁸⁶⁹, which went through the traditional Greek mythological timeline including the triumphs of Cronos over Ouranos and Zeus over Cronos.⁸⁷⁰

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 Thales⁸⁷¹⁸⁷² (Water), Anaximander⁸⁷³ (*Apeiron* or the indefinite, infinite, unlimited), and Anaximenes (Mist, air, or vapour).⁸⁷⁴ 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.⁸⁷⁵ These speculations continued to lack comprehensive integration, even with the question-based philosophies of Socrates⁸⁷⁶⁸⁷⁷ and the Sophists. Plato and Aristotle⁸⁷⁸ provided the most thorough accounts of a comprehensive philosophy covering numerous subjects over many, many

⁸⁷³ See Anaximander. (2014).

⁸⁷⁴ See Western philosophy. (2014).

⁸⁷⁵ Ibid.

⁸⁷⁶ Ibid.

⁸⁷⁷ See Nails, D. (2014). Socrates.

⁸⁷⁸ See Shields, C. (2014). Aristotle.

writings. This continued onward to the present day with individuals attempting unification such as David Deutsch⁸⁷⁹, 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?

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.

106. What makes the Big Bang so convincing? Is it at risk of being replaced?

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.

⁸⁷⁹ See Watkins, J. j. (2014). The Beginning of Infinity: Explanations that Transform the World by David Deutsch. *Mathematical Intelligencer*, 36(1), 80-81.

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 $1/10,000,000,000,000,000,000,000,000,000,000,000$ 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.

107. Who do you consider the three greatest mathematicians/physicists/cosmologists?

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.

108. What do you consider the three greatest mathematics/physics/cosmology concepts?

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.

109. How does informational cosmology incorporate high level concepts like *The Heisenberg Uncertainty Principle*? How about *Wave-Particle Duality*?

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.)⁸⁸⁰

110. **How about *Einstein-Podolsky-Rosen* (EPR) Nonlocality?**

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.

111. **How about the possibility of universe operating in something more essential than information?**

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

⁸⁸⁰ See PhysOrg (2014, December 19).

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.)

112. How does everything in essence equate to a *Turing Machine* in informational cosmology?

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.

113. 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 ?

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.

114. What can we never know? In other words, what count as, by their nature, mysteries?

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 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.

115. 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?

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.

116. 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?

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.

117. 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?

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's 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.

118. How might this calculate the most difficult issue in the history of theology, *The Problem of Evil?*

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.

119. Do souls exist? How do you define them?

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 postperfusion 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.

120. Fr. 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 the 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?

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.

121. What do you see as still needing to be done with Informational Cosmology?

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 were not discovered until the 1920s. We did not even know that the universe extended beyond the Milky Way until Hubble provided incontrovertible evidence in the 20s. So we have 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 will not go away, the same way Newton's gravitation did not 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.)

122. Would you ever have theorized without your outlier background?

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.

123. Do you see a difference between common sense and intelligence?

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.

124. What do you most regret?

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, CT⁸⁸¹ scan.... I regret not being born a couple decades further into the future. I regret not becoming wildly handsome in my 20s.

125. 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?

There are probably more hyper-intelligent people not in high-IQ societies than in them. Smart, highly successful people tend to be

⁸⁸¹ See U.S. FDA (2014). What is Computed Tomography?.

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.

- 126. 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 chop 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?**

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.

- 127. 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_c 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) $C^E \Rightarrow I_c$, 5) I_c , 6) \therefore, I_c . 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, Σ , self-consistency, S , times, $*$, sigma information processing, ΣI_p , would equal mind-space, S_n , where mind-space equals information-space, I_s : $(\Sigma S * \Sigma I_p = S_n = I_s)$.

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 : $(\Sigma S * \Sigma I_p = S_n)$. 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?

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, 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.

128. In 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 defense 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.

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.

GLOSSARY OF DEFINITIONS

Aesthetics: study of beauty.

Applied Ethics: studies professional and public affairs related to morality.

Armature: material framework of universe, or processor.

Armature Universe: a universe which includes the armature that supports an information-space. For instance, our universe includes our brains, which are the armatures of our minds (which are information-spaces).

Axiology: study of value bifurcated into aesthetics and ethics.

Baryonic matter: subatomic particles made of three quarks. The most notable baryons are protons and neutrons.

Big Bang Cosmology: consensus view of mainstream cosmologists and physicists on the origin of the universe, with the universe beginning in an explosively expansive phase known as the “Big Bang” approximately 13.77 billion years ago.

Black(ish) Holes: spheres of collapsed matter with extreme gravitational fields. In general relativity, a black hole’s gravitational field is so strong that no light can escape and no nuclear forces can stop gravity from collapsing the black hole to a single point. However, if sufficient concentrations of matter reduce the scale of space, then black holes can stop short of complete collapse.

Century of Choice: term describing the 22nd century, when humanity's technical advancement will give humans and whatever turned into or created enormous powers of choice in how to live and what forms to take.

Collapsed Matter: bodies of high-density normal matter consisting largely of neutrons formed from fusion which has collapsed under the force of a strong gravitational field. In some instances, the extreme concentration of matter in a collapsed object reduces the scale of space to the extent that neutrons at the center of the object can be unlocked and behave as normal matter within uncollapsed space.

Consciousness: a technical property of information processors whose subsystems pervasively share information with each other (resulting in a feeling of realness within the processor).

Cosmic Background Radiation: very low-energy photons which, according to Big Bang theory, are left over from shortly after the beginning of the universe. Can also be seen as noise which has been reduced in volume by the ordering of the universe.

Cosmological Constant: a fudge factor added to general relativistic equations so the universe is stationary, neither expanding nor contracting.

Descriptive Ethics: the study of beliefs about morality.

Determinate Universe: a precise, clockwork universe in which knowing the state of the universe at any one time allows you to predict all future states and recover all past states.

Digital Physics: a set of theories which consider the universe to be an information processor.

Electron: subatomic particle which orbits atomic nuclei and which has equal but opposite charge to the proton and about $1/1836^{\text{th}}$ of its mass. Fusion involves the net loss of one proton and one electron when a neutron is created.

Empty Space: space which contains no actual particles (but which contains fields and virtual particles).

Entropy: inevitably increasing disorder within a closed system. The probabilistic tendency of hot and cold regions within an enclosed volume to mix, creating an increasingly uniform lukewarm volume.

Ethics: study of moral conduct.

Flat Universe: expanding universe which has just enough momentum to keep expanding forever – any less momentum and it would reach a maximum volume and collapse back into itself.

Free Will: the hypothetical ability of conscious beings to make choices free of material constraints.

Ic/I~c: information-in-common/information-not-in-common – the amount of information different regions of the universe have in common with each other (as a consequence of the extent to which they share histories).

Indeterminate Universe: a universe which is inherently unpredictable due to having an only finite amount of self-defining information. This is our quantum mechanical universe.

Information: specific states within a system which can take on a variety of states – the accumulated result of a series of choices among possible states.

Information-Space: the space including matter consisting of the information in a nearly closed self-defining system of information. Used interchangeably with mind-space.

Information Processing: creating a system which can make and record choices among possible states; making and recording a series of such choices. Choices can be made by the system or through receiving external information.

Informational Cosmogony: the reasons why and processes through which mind/information-spaces form according to informational cosmology.

Informational Cosmology: the related hypotheses that space, time and matter are information within a conscious information-processing system, that the spatiotemporal form of the information within a conscious system shares physical properties with the universe, and that consciousness is a technical property of information widely shared among subsystems of an information processor.

Informational Ethics: ethics through the lens of informational cosmology, which suggests that consciousness is an inherent property of sufficiently complicated systems of information.

Informed Will: having the best-possible information about why you make each of the decisions you make.

Gravitation: attraction among objects with greater-than-average proximity to each other, that is, with the space containing the objects having a greater density than if matter were uniformly spread out through space.

Gravitational Lensing: distortion of images of stars and galaxies caused by the paths of light emitted by these objects being bent by the gravitational fields of matter located between the light-emitting objects and the viewer.

Gravitons: hypothetical particles which carry gravitational force.

Hubble Redshift: the shift of light from other galaxies towards the lower-energy, red end of the spectrum, with the shift being proportional to galaxies' distance from our own.

Laws: precisely defined rules, perhaps stipulated as axioms. More rigid (for our purposes) than principles.

Logical Possibility: maximal possible definition of net self-consistency or lack of net self-contradiction.

Metaethics: the study of nature of moral theories and judgments.

Mind-Space: the space including matter consisting of the information in a nearly closed self-defining system of information. Used interchangeably with information-space.

Moral Antirealism: argument for the non-reality of moral truths.

Moral Hierarchy: greatest logically possible criterion for ethics: existence-valuing principles. A referent for every other ethical system, code, creed, law, and principle. “Good” means “maximizes persistent existence.” “Evil” means “does not maximize persistent existence.”

Moral Realism: argument for the reality of moral truths.

Moral Psychology: studies the nature and development of moral agency.

Neutrino: a fast-moving, chargeless particle with extremely tiny mass and an extremely low rate of interaction with matter in normal space. Is emitted when a proton turns into a neutron during fusion and absorbed when a neutron is unlocked, turning into a proton and an electron.

Neutron: a subatomic particle with no electric charge, usually formed from a proton (and positron emission) via atomic fusion.

The Neutron Cycle: a process taking place over tens of billions of years in which proton-rich galaxies burn up their fuel through fusion, turning into neutron-rich galaxies, which eventually turn into proton-rich galaxies again (probably by absorbing a bunch of neutrinos).

Non-Baryonic/Exotic/“Dark” Energy: an unknown form of energy which permeates all of space and tends to accelerate the expansion of the universe (in that observations of the universe indicate that its expansion seems to be accelerating). In informational cosmology, any such energy-loading of space is a consequence of the scale of space being determined by the distribution of and interactions among matter.

Non-Baryonic/Exotic/“Dark” Matter: mysterious, hard-to-detect matter thought to be found on the outskirts of galaxies as an explanation for gravitational phenomena not accounted for by visible matter. In informational cosmology, normal collapsed matter created by repeated neutron cycles takes the place of much if not all exotic dark matter.

Normative Ethics: the study of ethics in practice.

Objective Ethics: the study of informational ethics on the scale of the universe.

Order: correlations among particles or variables.

Outskirts of the Universe Near $T = 0$: in informational cosmology, a neighborhood near the apparent origin point of the universe, containing huge numbers of neutron-rich burned-out galaxies. In Big Bang cosmology, the point $T = 0$ existed (as a point) only at the time of the original Big Bang, since the entire universe expanded outward from the initial explosion – the point became an expanding hypersphere.

Persistent Particles: subatomic particles which can exist for tens of billions of years and/or traverse billions of light years – protons, electrons, neutrons, photons, and neutrinos.

The Persistence Project: the desire to continue to exist, found in naturally evolved beings.

Photon: a particle of light or other electromagnetic energy, the emission of which often reflects a linkage between persistent particles such as protons and electrons.

Principles of Existence: rules which arise from principles of non-contradiction – emergent rules rather than axiomatic rules.

Proton: a charged particle which can turn into a neutron via nuclear fusion. The primary engine of correlation in an information-space – functions as a dimension or variable.

Proton-Electron Mass Ratio: the ratio between the mass of the proton and the mass of the electron. In informational cosmology, this ratio is an indicator of the amount of order in the active center of the universe.

Quantum Mechanics: the study of the consequences and phenomena of the universe having only a finite amount of information with which to define itself through self-observation. Quantum mechanical effects are most apparent at the smallest scales of space and time.

Rosner Rule: semi-facetious rule of thumb that gives a rough estimate for how weird daily life will feel for the rest of the 21st century - the last two digits of the year give the percent weirdness. 2015 is 15% weird, 2037 will feel 37% weird, 2092 will feel 92% weird, etc.

Self-Consistency: lack of self-contradiction in a system or subsystem, which intersects with the philosophical term “logical possibility” – where logical possibility indicates the maximal possible definition of self-consistency.

Self-Contained: with regard to an information-space, forming a nearly closed hypersphere and exchanging most information with itself, defining itself via the exchange of that information.

Social Ethics: the study of informational ethics on the scale of groups of individuals.

Space: the vast three-dimensional volume occupied by the universe. Space is distorted by matter and on the largest scale is curved to form a four-dimensional hypersphere.

Space-Time: the four-dimensional structure of the known universe, with three dimensions of space and one of time.

Speed of Light: 186,000 miles or 300,000 kilometres per second – the speed at which light (and the information it carries) traverses the known universe.

Subatomic Particles: particles smaller than atoms, including indivisible elementary particles and composite particles.

Subjective Ethics: study of informational ethics from the scale of individuals.

T = 0: the apparent time, about 13.77 billion years ago, of the explosion/expansion which began the Big Bang universe.

Time: a linear dimension along which change occurs, divided into the past – events which have already occurred, the present – events which are currently occurring, and the future – events which have yet to occur (though each moment in information-space is a present moment).

Ultra-Deep Cosmic Time: time scale for a universe which recycles galaxies, with a single moment of cosmic time requiring a galactic lifespan of tens of billions of years, and consisting of an unknown but enormous number of such multi-billion-year moments.

Universe: a vast and largely self-contained information-space which is self-defining via the interactions of its constituent particles.

World Line: the path of an object as it travels through space and time (more technically, a time-like curve in spacetime, with time being an explicit axis).

TABLE 1, RICKS'S HIGHEST SCORES ON HIGH-RANGE IQ TESTS⁸⁸²

Test Title	Score (SD15)	Score (SD16)	Test Constructor	Publication Year
Mega Test	190+ ⁸⁸³	200	Hoeflin, R.	1985, 1990, 2007
Titan Test	184.375+	190+	Hoeflin, R.	1990
Ultra Test			Hoeflin, R.	2007
Power Test	190.9375	197 ⁸⁸⁴	Hoeflin, R.	
SMWC ⁸⁸⁵	NA	NA	Hoeflin, R.	2007
The Quanta			Hoeflin, R.	2007
The Harding Multimax ⁸⁸⁶	190	196	Harding, C.	1991
Qoymans Multiple-Choice #4	169	173.6	Cooijmans, P. ⁸⁸⁷	2008
Qoymans Multiple-Choice #5	177	182	Cooijmans, P.	2008
Reason Behind Multiple-Choice Rev.	174	179	Cooijmans, P.	2008
Test to End All Tests	175	180	Cooijmans, P.	2008
Test for Genius (Verbal)	193 ⁸⁸⁸	199.2 ⁸⁸⁹	Cooijmans, P.	2010
Cooijmans Intelligence Test – Form 2	175	180	Cooijmans, P.	2009
Cooijmans Intelligence Test – Form 3	191	197	Cooijmans, P.	2010
Mathema	192	198.1	Betts, J. ⁸⁹⁰	2012
Numeric Intelligence Test	192	198.1	Betts, J.	2012
Asterix	178	183.2	Betts, J.	2012
World Intelligence Test	181	186.4	Betts, J.	2012
Lux25	192	198.1	Betts, J.	2012
Interrobang	192	198.1	Betts, J.	2012
Numerix			Betts, J.	2012
Xpwmatrix	172	176.8	Betts, J.	2013
Register			Betts, J.	2013
STHIQ & AtlantIQ International IQ Contest ⁸⁹¹⁸⁹²			Morelli, G., Rescazzi, B., & Hobstrom, T.	2012
Anoteleia 44 ⁸⁹³	179.4	184.6	Predavec, M.	2012

⁸⁸² Rick states in correspondence, “On these tests, I have the world's highest score outright or in a tie. In perhaps a couple cases, people have surpassed my score since I took the test.”

⁸⁸³ Grady Towers norm.

⁸⁸⁴ Zietsman norm.

⁸⁸⁵ “SMWC” mean “The Smartest Person in the World Contest.”

⁸⁸⁶ See Rosner, R. (1991, April).

⁸⁸⁷ See Cooijmans, P. (2014).

⁸⁸⁸ Renormed to 174.

⁸⁸⁹ Renormed to 179.

⁸⁹⁰ See PSIQ (n.d.).

⁸⁹¹ See AtlantIQ (2012, March 1).

⁸⁹² See AtlantIQ Society (2014).

⁸⁹³ See Predavec, M. (2014).

TABLE 2, RANK-ORDERED RICK'S HIGHEST IQ SCORES

Test Title	Score (SD15)	Score (SD16)	Test Constructor	Publication Year
Mega Test	190+ ⁸⁹⁴	200+	Hoeflin, R.	1985, 1990, 2007
Test for Genius (Verbal)	193 ⁸⁹⁵	199.2 ⁸⁹⁶	Cooijmans, P.	2010
Mathema	192	198.1	Betts, J. ⁸⁹⁷	2012
Numeric Intelligence Test	192	198.1	Betts, J.	2012
Lux25	192	198.1	Betts, J.	2012
Interrobang	192	198.1	Betts, J.	2012
Cooijmans Intelligence Test – Form 3	191	197	Cooijmans, P.	2010
Power Test	190.9375	197 ⁸⁹⁸	Hoeflin, R.	2009
The Harding Multimax ⁸⁹⁹	190	196	Harding, C.	1991
Titan Test	184.375+	190+	Hoeflin, R.	1990
World Intelligence Test	181	186.4	Betts, J.	2012
Anoteleia 44 ⁹⁰⁰	179.4	184.6	Predavec, M.	2012
Asterix	178	183.2	B11etts, J.	2012
Qoymans Multiple-Choice #5	177	182	Cooijmans, P.	2008
Test to End All Tests	175	180	Cooijmans, P.	2008
Cooijmans Intelligence Test – Form 2	175	180	Cooijmans, P.	2007
Reason Behind Multiple-Choice Rev.	174	179	Cooijmans, P.	2008
Xpwmatrix	172	176.8	Betts, J.	2013
Qoymans Multiple-Choice #4	169	173.6	Cooijmans, P. ⁹⁰¹	2008
Ultra Test	NA	NA	Hoeflin, R.	2007
SMWC ⁹⁰²	NA	NA	Hoeflin, R.	2007
The Quanta	NA	NA	Hoeflin, R.	2007
Numerix	NA	NA	Betts, J.	2012
Register	NA	NA	Betts, J.	2013
STHIQ & AtlantIQ International IQ Contest ⁹⁰³⁹⁰⁴	NA	NA	Morelli, G., Rescazzi, B., & Hobstrom, T.	2012

⁸⁹⁴ Grady Towers norm.

⁸⁹⁵ Renormed to 174.

⁸⁹⁶ Renormed to 179.

⁸⁹⁷ See PSIQ (n.d.).

⁸⁹⁸ Zietsman norm.

⁸⁹⁹ See Rosner, R. (1991, April).

⁹⁰⁰ See Predavec, M. (2014).

⁹⁰¹ See Cooijmans, P. (2014).

⁹⁰² “SMWC” mean “The Smartest Person in the World Contest.”

⁹⁰³ See AtlantIQ (2012, March 1).

⁹⁰⁴ See AtlantIQ Society (2014).

FIGURE 1, GAUSSIAN/‘NORMAL’ DISTRIBUTION⁹⁰⁵

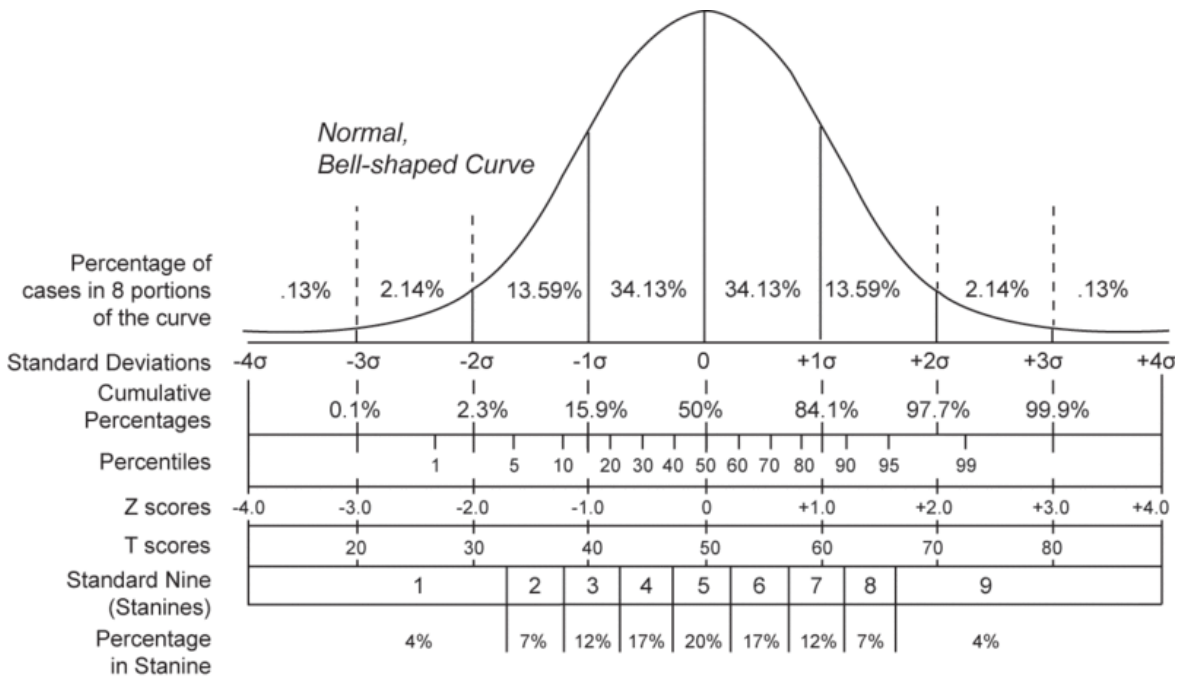
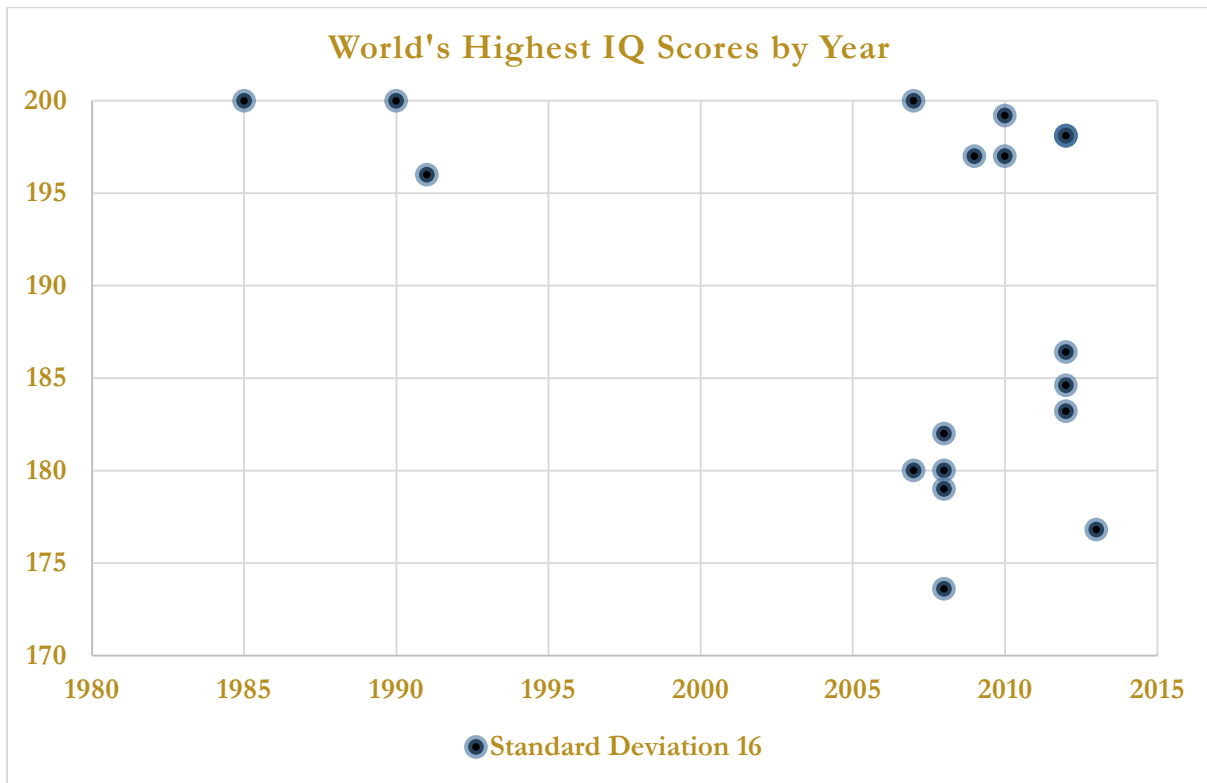


FIGURE 2, SCATTERPLOT OF RICK'S HIGHEST IQ SCORES.



⁹⁰⁵ See Arizona State University (n.d.).

CORE ARGUMENTS FROM QUESTIONS

From “24.”:

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.

From “28.”:

Consciousness⁹⁰⁶ emerges from self-consistency⁹⁰⁷ 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.⁹⁰⁸ 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.⁹⁰⁹ 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 the universe’s degree of consciousness. You call this “informational cosmology.”⁹¹⁰ 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.

From “127.”:

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.

⁹⁰⁶ Ibid.

⁹⁰⁷ Ibid.

⁹⁰⁸ Ibid.

⁹⁰⁹ Ibid.

⁹¹⁰ Ibid.

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, Σ , self-consistency, S , times, $*$, sigma information processing, ΣI_p , would equal mind-space, S_n , where mind-space equals information-space, I_s : ($\Sigma S * \Sigma I_p = S_n = I_s$).

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 : ($\Sigma S * \Sigma I_p = S_n$). 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.

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