Noesis

The Journal of the Mega Society

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About the Mega Society

The Mega Society was founded by Dr. Ronald K. Hoeflin in 1982. The 606 Society (6 in 10^6), founded by Christopher Harding, was incorporated into the new society and those with IQ scores on the Langdon Adult Intelligence Test (LAIT) of 173 or more were also invited to join. (The LAIT qualifying score was subsequently raised to 175; official scoring of the LAIT terminated at the end of 1993, after the test was compromised.) A number of different tests were accepted by 606 and during the first few years of the Mega Society's existence. Later, the LAIT and Dr. Hoeflin's Mega Test became the sole official entrance tests, by majority vote of the membership. After that, Dr. Hoeflin's Titan Test was added. (The Mega Test and Titan Test were also compromised, so Mega Test scores after 1994 and Titan Test scores after August 31st, 2020 are currently not accepted; the Mega and Titan cutoff is 43 - but either the LAIT cutoff or the cutoff on Dr. Hoeflin's tests will need to be changed, as they are not equivalent.) The Mega Society now accepts qualifying scores on The Hoeflin Power Test and on The Ultra Test. Both tests are still being scored. The Mega Society publishes this irregularly-timed journal. The society also has a (low-traffic) members-only email list. Mega members, please contact one of the Mega Society officers to be added to the list.

For more background on Mega, please refer to Darryl Miyaguchi's "A Short (and Bloody) History of the High-IQ Societies" —

http://miyaguchi.4sigma.org/BloodyHistory/history.html

—and the official Mega Society page,

http://www.megasociety.org/

Noesis is the journal of the Mega Society, an organization whose members are selected by means of high-range intelligence tests.

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Opinions expressed in these pages are those of individuals, not of *Noesis* or the Mega Society.

Editorial

Richard May, Ken Shea

February 2021? *Noesis* #207? Has the moment come so soon? Tempus fugit!

Chris Cole, ‘an avid movie goer,’ ushers in the body of this issue of *Noesis* and explains his reluctance, in the near future, to find his familiar theater seat in “A New Normal.” Chris, also, outlines a scalable plan for resuming ‘business as usual’ - a plan to mitigate these troubled times and soothe patrons’ nerves - with the aid of a handful of cost-efficient pieces of tech.

Bob Williams, then, examines whether reported gains in IQ represent actual gains in intelligence and whether, in fact, the reported gains in IQ could be more complicated than meets the untrained eye. Bob sums up the difficulty: “the concern that deserves particular attention is that methodological issues appear to be confounded with real world causes.” Can the use of item response theory enable researchers to overcome these intermingled challenges?

After that, Bob Williams, James Flynn, Richard May, and Heinrich Siemens kick off a quartet of multi-part interviews with the busy Scott Douglas Jacobsen. Thank you, Scott, for your hard work and generosity in conducting and extending these interviews for *Noesis* readers!

Bob Williams is a member of the Triple Nine Society, a fellow Hoeflin society. In a two-part interview, former nuclear physicist Bob Williams discusses growing up in Virginia and an early aptitude for engineering. Bob also weighs in on the differences between profound intelligence and genius in the arts and sciences as well as intelligence, *g*, and IQ generally.

A key figure shaping discussions of intelligence in the 20th century, James Flynn (1934-2020) passed away late last year on December 11th. Early in Professor Flynn’s career he emigrated to New Zealand, where he eventually became emeritus professor at the scenic University of Otago, teaching the ‘scarfies’ along the way. James Flynn is perhaps best known for the ‘Flynn effect,’ which Arthur Jensen analyzes at length, e.g., on pages 318-333 of *The g Factor*. Jensen homes in on Professor Flynn’s claim of ‘massive IQ gains’ based primarily on evidence deriving from 1930-1980, purportedly demonstrating the secular increase in IQ scores around the world.

James ‘Jim’ Flynn was equally well-known in certain circles for being a stalwart defender of freedom of expression, which is evident from the joyful three-part interview conducted by Scott Douglas Jacobsen in 2019. Throughout the three-part interview James Flynn contemplates a number of possibly interrelated issues: the functioning of *g* in everyday life; changes in the university over the decades; academic freedom; the role that increases in IQ may play in forming sociopolitical perceptions and moral views; and, possible reversals of the Flynn effect.

Richard May, also known by attentive *Noesis* readers as May-Tzu, generously treats readers to a sumptuous five-part interview. Against the backdrop of ‘Sisyphean shlepping’ and regarding the universe as ‘Rorschach inkblot interpreted by human intelligence,’ May continues to “blur the lines between philosophy, cosmology, poetry and humor” in a wide-ranging interview which

encompasses: the persisting tribal nature of humanity, the possible survival value of stupidity, Buddhist ethics, Jorge Luis Borges, ‘May’s Razor,’ the Theory of Nothing, science as religion, ‘May’s Paradox,’ *Stains Upon the Silence*, the future of AI and “The Silicon Scream.”

Next is a two-part interview with Mega Society member Heinrich Siemens. Heinrich thoughtfully reflects on the experience of growing up without electronic gadgets in a Plautdietsch-speaking Low German community in Latvia. Heinrich reports being multilingual and feeling most comfortable with Plautdietsch, German, and Russian. Heinrich is the president of an international association for speakers of Plautdietsch and creator of the ‘Three Sonnets Test.’ The nature of religious belief and its implications are also discussed.

In "Metaphysics of Change" Werner Couwenbergh ponders dialetheism, the view that permits truth and its negation to coexist, i.e., true contradictions in Graham Priest's construal. A dialetheic account of change in terms of other metaphysical factors (e.g., motion and time) is contextualized for abstract and real-world dialetheias.

Then, Mega Society founder, Ron Hoeflin, traces the early origins of the *Encyclopedia of Categories*, which he wrote from 2013 to 2020. The determination at age 7 to 'know everything' eventually led to Ron's pivotal discovery of Stephen Pepper's *World Hypothesis* 17 years later in 1968. Two decades from that point, in 1988, Ron rounded out Pepper's *World Hypothesis* in a paper titled "Theories of Truth: A Comprehensive Synthesis" and was awarded top prize by the American Philosophical Association for his efforts. Ron regards the culmination of his 13-volume opus, *Encyclopedia of Categories*, in 2020 (at the age of 76) as the end of a 69-year-long odyssey to ‘know everything.’

Throughout an “Author’s Autobiography,” Ron also showcases his prodigious memory and lifelong affinities for mathematics and philosophy by walking with the reader through the 13 most positive and 13 most negative experiences of his life as well as recounting an impressive array of formative experiences in between.

After that, Ken Shea takes a look at the philosophy of language and semantics in "Dogtooth and the Plasticity of Meaning." How does subjective ontology become objective epistemology? How does a belief form a web connecting thoughts? Are sense and reference distinct? These and other questions are considered.

Bob Williams returns to scrutinize the psychometric properties of high range 'hobby' tests in "High Range IQ Tests: Are They Psychometrically Sound?"

Almost in call-and-response fashion, May-Tzu invites readers to submit more high range IQ test scores in the hopes of seizing a truly out-of-this-world opportunity in "Type 4 and Type 5 Kardashev-Scale IQ Societies." Are you, dear reader, ready to test your mettle?

The boundless imagination of May-Tzu then challenges the limits of objectivity itself with “A Fine Mess,” before finding some issues sublime and ineffable within "Umami Shadows."

Please submit material for the next issue of *Noesis*, tentatively planned for August 2021.

Contents

A New Normal

Chris Cole

Will behavior return to *status quo ante*? Not for me. I am an avid movie goer, usually going to the theater once per week, but the pandemic has taught me that this is where I contracted the two or three colds I suffered each year. No movie is worth contracting a cold, which for me is a few days of misery. So unless the theater operators change something, I won't be giving them my business in the future.

Masks don't work. We have convincing evidence of this, such as the September flight where a third of the masked people seated close to the index case were infected. The diameter of the coronavirus virion is 120 nanometers. N95 masks screens out 95% of particles larger than 300 nanometers. Cross-section varies as the square of linear dimension. A simple estimate of the fraction of virions blocked by an N95 mask is 95% * (120 nanometers / 300 nanometers)^2 = 15%. Most masks are not N95 masks. Most people do not wear masks correctly. When drinking or eating people remove masks.

Masks are useful for breaking up aerosol balls indoors. When I must be indoors, e.g., shopping for groceries, I wear an organic mask rated for viruses, stay at least six feet from everyone else, and hurry. When outdoors I don't wear a mask since an aerosol ball is dispersed quickly by ambient air movement, but I still stay at least six feet from everyone else.

The coronavirus threat will end eventually. Either widespread vaccination or herd immunity or both will minimize the threat down to a fraction of the threat of endemic viruses like colds and influenza. However, as mentioned above, it is not coronavirus that will keep me out of the movie theater. It is the rhinovirus.

What can theater operators do to regain my business in this new normal?

They need to assure me that I will not contract the disease in their establishment. Even the best air filtration is not good enough. Viruses can bypass filtration by direct transmission in aerosol balls or on surfaces on which they last long enough to allow me to pick them up by contact. The only feasible solution is to prevent infectious people from entering the establishment.

An infectious person may not have symptoms. Temperature screening is ineffective.

An infectious person is breathing out virions. Virions can be detected by terahertz sensors. A terahertz sensing breathalyzer can be manufactured in bulk for a hundred dollars. The main components are a laser and an FPGA chip for signal processing. The laser pulse lasts a picosecond and the data analysis less than a second. It is affordable and expedient to screen all customers to make sure they are not infected.

This same technology works for restaurants, airliners, cruise ships, shopping malls, theme parks, bars, and in short any indoor establishment which previously was the venue for virus transmission. It is affordable in mass production. It is easy to operate and non-invasive. It will reassure patrons that they are not risking infection.

The pandemic revealed what was hidden. Screening will be part of my new normal.

Overview of the Flynn Effect

Bob Williams

Abstract

Following WW2, various researchers found and reported secular gains in IQ, but it was not until additional reports appeared in the 1980s that researchers began to look for the cause or causes. It was quickly apparent that the gains were not limited to any group or nation, but the manifestation of the gains was different depending on time and place. For every discovery, there was a different or opposite result in a different data set. Gains have been large, small, variable, and even negative. Some researchers have found that the gains were on *g*, while more have found no *g* loading. Abstract test formats, such as the Raven [Matrices -Ed. Note] have often shown the greatest gains, but gains have also appeared in tests of crystallized intelligence. Some data has shown greater gains for the lower half of the intelligence distribution, while others have shown greater gains in the top half, and others have shown equal gains at all levels. Hypotheses for the causes have included environmental factors, genetic effects, reduced fertility, and methodological dependence. Two models are discussed.

1. Introduction

The secular rise in IQ scores appeared unexpectedly and has defied explanation. Smith (1942) recorded a gain (in Honolulu) over a 14 year span. Later, Tuddenham (1948) found an increased intelligence when he compared inductee scores for the U.S. Army from World War I and World War II and proposed that the gains might be due to increased familiarity with tests; public health and nutrition; and education [the gains from 1932 to 1943 were 4.4 points per decade.]. He cited a high correlation (about .75) between years of education and the Army Alpha and Wells Alpha tests that he was studying.

The secular gain remained relatively dormant until it was rediscovered by Lynn (1982) while working on a comparison of Japanese and U.S. data. It was then rediscovered again, using American data, by Flynn (1984a,b). The raw score gains did not have a name until Herrnstein & Murray (1994) coined the term Flynn effect in their book *The Bell Curve* (p. 307). [“We call it ‘the Flynn effect’ because of psychologist James Flynn’s pivotal role in focusing attention on it, but the phenomenon itself was identified in the 1930s when testers began to notice that IQ scores arose with every successive year after a test was first standardized.” -Ed Note] Some researchers choose to refer to the secular gain as the Lynn–Flynn effect, or use an uppercase FL (FLynn effect) for the obvious reason that they feel Lynn has been somewhat slighted by not including his name.

[FE is the shorthand used throughout the remainder of this overview. -Ed. Note]

Since the early ‘80s, researchers have found the FE in virtually every group they have examined (Flynn, 1987 and others). They have published a huge number of papers (well over 100) on the gains and possible causes, but the results have been contradictory.

2. Gains

FE gains vary from country to country and over different time intervals, but the gains are usually a fraction of a point per year. As a matter of convenience, the gains are usually given as the number of points gained over a decade and written “ΔIQ.” A few typical national gains:

- U.S. ΔIQ = 3 (14 points over 46 years, 1932–1978)
- Estonia ΔIQ = 1.65 (12 points over 72 years, 1933/1936 to 2006)
- Japan ΔIQ = 7.7 (19 points over 25 years, 1940 to 1965)
- Argentina ΔIQ = 6.91 (21.35 points over 34 years, 1964 to 1998).

[Numerous other rates are given in Flynn and Rossi-Casé (2012).].

South Koreans born between 1970 and 1990 gained at about the same rate as did the Japanese (te Nijenhuis, Cho, Murphy, & Lee, 2012). Chinese gained 4.53 points over 22 years (ΔIQ = 2.1) on the Chinese WPPSI (Liu, Yang, Li, Chen, & Lynn, 2012). [WPPSI = Wechsler Preschool & Primary Scale of Intelligence. -Ed. Note] FE gains have been found in both industrialized and third world nations. The number of countries showing a FE is subject to change, since additions are frequently reported. Kanaya, Ceci, and Scullin (2005) reported 20 nations; Flynn and Rossi-Casé (2012) reported 31.

Teasdale and Owen (1989) examined two samples of Danish draftees, consisting of 32,862 and 6,757 males. They found that the gains were concentrated mostly among the lower IQ levels and concluded that changes in the educational system were driving the score gains. They also performed an interesting test, using Monte Carlo simulations to demonstrate that the FE gain was not caused by a ceiling effect. Flynn and Rossi-Casé (2012) noted that some data sets (they were examining Raven scores) have attenuated SDs [standard deviations -Ed. Note] because of ceiling effects.

Other researchers, including Lynn and Hampson (1986) and Colom, Lluis-Font, and Andres-Pueyo (2005), have found FE gains that were mainly concentrated in the lower IQ levels. This pattern suggests that the gains are related to improving environmental conditions in non-industrialized countries, rural areas, and low-income sectors.

Although it has now been 14 years since Jensen (1998) published *The g Factor*, his discussion of the FE remains current with respect to the items he considered. He reported U.S. gains:

- Raven ΔIQ = 5.69
- Wechsler ΔIQ = 5.2

  Performance ΔIQ = 7.8

  Verbal ΔIQ = 4.2

These show greater gains on the most abstract tests and subtests, although it is surprising to see the Wechsler as close to the Raven as the above numbers indicate — both being above the usually cited U.S. rate (ΔIQ = 3).

When Jensen examined subtests more closely, he found that non-scholastic test items showed increases at the same time (same test data sets) that scholastic items were decreasing. He noted that this is not what one would expect to see, but this is indeed what other researchers have reported. Jensen examined the SAT for the period 1952–1990 and found the well-known decline. The usual explanation for the decline is that each year more students took the test and most of the additions to the pool of test takers were added below (lower intelligence) the prior group, leading to a decline at the mean. But Jensen corrected for the changes in demographics and showed that 3/4 of the decline was due to the addition of more lower IQ testees, while the remaining 1/4 was a real decline in scores. The ΔIQ loss for the SAT was −5 for the time period in question, while the FE gain was +3. This strongly suggests that the IQ test scores were not reflecting real world gains in intelligence.

2.1. Estonia

Thanks to the work done by Olev and Aasa Must, there is a good bit of information about the FE as it has appeared in Estonia. The messages from their studies are that the FE gains follow different trajectories in different countries and the factors most likely to be driving those changes are also different.

In the Estonian studies, subtests that needed computation skills and mathematical thinking were unchanged over 60 years. The information subtest declined; verbal subtests showed moderate gains; but there were impressive gains in symbol–number and comparison subtests (Must, Must, & Raudik, 2003).

Must, te Nijenhuis, Must, and van Vianen (2009) examined data over a 72-year span and found a relatively small ΔIQ of 1.65. But when the eight [nine? -Ed. Note] years from 1998 to 2006 were examined separately, the ΔIQ almost doubled to 3 points. The *g* factor loadings were different at the subtest level for each of the three birth cohort groups examined, with the greatest difference between the oldest cohorts compared to the other two relatively recent cohorts.

In recent years, large gains were observed in arithmetic, information, and vocabulary. These gains are opposite from score changes seen in the U.S. and Britain. The authors identified several possible causes: greatly improved education, better nutrition, better health care, and changes in demographics (smaller families).

In 2012, the Estonian data was re-examined at the item level (see Section 4.2.1). The results of that effort are important to the understanding of at least one cause and of an otherwise perplexing difference between Classical Test Theory and Item Response Theory results (see Section 4.9.2).

2.2. South Africa

ΔIQ = 3.63 Whites (same group took two different test batteries)

ΔIQ = 1.57 Indians (same group took two different test batteries)

The FE score gain is stronger for the Afrikaans speakers than for the English speakers (te Nijenhuis, Murphy, & van Eeden, 2011).

2.3. Gains seen in young children

British children aged 6 and 18 months displayed large developmental gains over the period from 1949 to 1985. When measured on the Griffiths Test, developmental quotients (DQ) gained 2.45 points per decade. Similar studies, using the Bayley Mental Scales (Bayley, 1993) were done by other researchers in the U. S. and Australia and show gains of 2.9 DQ points per decade (Black, Hess, & Berenson-Howard, 2000; Campbell, Siegel, Parr, & Ramey, 1986; Lynn, 2009a; Tasbihsazan, Nettlebeck, & Kirby, 1997). Similarly, Kanaya et al. (2005) reported that elementary school children show FE gains on the WISC that are similar to adult gains on the WAIS. [WISC = Wechsler Intelligence Scale for Children, WAIS = Wechsler Adult Intelligence Scale -Ed. Note] These DQ and IQ gains show a FE that is as large in infants and preschool children as in adults, making education an unlikely explanation for the cause (at least in the data sets examined).

As is already apparent, FE findings in one place do not generalize globally. Cotton et al. (2005) found no FE effect, using the Raven's Colored Progressive Matrices, for a group of Australian children ages 6–11 from 1975 to 2003; but Nettelbeck and Wilson (2004) found 5 point gain for a range of Australian elementary-grade children from 1981 to 2001.

2.4. Gains in the Raven's Progressive Matrices

The Raven tests have been cited frequently in the FE literature because most samples show particularly large gains on these tests. The Raven and similar tests have shown gains of 18–20 IQ points per generation in many industrialized countries (Flynn, 1999). Dutch gains were 21 points over 30 years (ΔIQ = 7), while urban Chinese gained 22 points between 1936 and 1986, ΔIQ = 4.4 (Neisser, 1998).

Hiscock (2007) found a higher rate of FE gains for the Raven's Progressive Matrices than for the Wechsler and Stanford–Binet tests. He also showed that British Raven scores for birth years from 1877 to 1967 increased steadily, but rolled off over that time span to a possibly flat (no effect) rate for the last 10 year interval.

[The popular Raven’s matrices tests - e.g., Standard Progressive Matrices, Colored Progressive Matrices, and Advanced Progressive Matrices - are non-verbal, multiple choice tests which purport to gauge abstract reasoning, i.e., pattern recognition. -Editor’s Note]

2.5. Low-end versus high-end gains

As previously mentioned, Teasdale and Owen found that FE gains for Danish draftees were concentrated in the lower end of the intelligence spectrum, suggesting a cause or causes such as improved nutrition, better health care, or increased education. Colom, Andre's Pueyo, and Juan-Espinosa (1998) noted that FE gains were much greater on the Raven's Standard Progressive Matrices (19.2 points over 28 years, ΔIQ = 6.9) than on the Advanced Progressive Matrices (6.75 points over 28 years, ΔIQ = 2.4). They concluded that the cause of the increases probably had a greater impact in the low and medium segments of the intelligence distribution. In a later study, Colom et al. (2005) also found that gains were more pronounced in the lower range.

Lynn and Hampson (1986) reported a low-end gain that was about double the high-end gain, for a British group over the period 1932 to 1982. Similarly, Kagitcibasi and Biricik (2011) found greater gains in Turkey at the low end, over the period from 1977 to 2010. The differences were particularly large (23 points, ΔIQ = 7) for remote villages. Within urban locations, the lower SES groups also showed more gains (7.4 points, ΔIQ = 2.2) than higher SES groups, but these were less than in the remote villages.

The FE is so specific that for every finding, there seems to be an opposite finding. Flynn (1996, 2009) claimed IQ gains at “every level,” based on his observation that “score variance remains unchanged over time.” His “every level” projection held in a study conducted in La Plata, Argentina, where ΔIQ = 6.3 and showed no bias towards high or low IQ ranges. Flynn extended this observation as meaning that nutrition is an unlikely explanation, since it would presumably apply more readily to gains seen at the lower end, and not throughout the intelligence spectrum (Flynn & Rossi-Casé, 2012). Flynn (2009), cited Sundet, Barlaug, and Torjussen (2004)) as an example in which IQ gains were concentrated in the lower half of the IQ spectrum, while height gains were mostly in the upper half, pointing out that this combination is inconsistent with the nutrition argument.

Colom, Flores-Mendoza, Francisco, and Abad (2007) examined data for Brazilian children covering a span of 72 years. They found that the FE gains were greater for urban samples than for rural samples and concluded: “Whatever the causes of the increase, they act more intensively for more intelligent children.”

Ang, Rodgers, and Wänström (2010) computed FE gains from the National Longitudinal Survey of Youth (NLSY) data, which include scores from the Peabody Individual Achievement Test (PIAT); the math portion was deemed to be closest to fluid intelligence. In this instance, the gains were skewed towards more educated and higher income families. Only the PIAT-math showed FE gains, which the authors believe is difficult to explain by a nutrition hypothesis. This study showed no race or sex related differences in FE gains.

2.6. Right tail gains

Only one study examined the FE in a data set that is limited to very high IQ individuals. Wai and Putallaz (2011) examined the huge (1.7 million scores) American data set of 7th grade students who took the SAT and ACT and 5th and 6th grade students who took the EXPLORE test. These tests are given to students who have scored in the top 5% for their grade on a standardized test (composite or subtest), and are part of the Duke Talented Identification Program 7th grade search.

Flynn (1996) argued that the gains were present at all levels, but did not have data specific to the high range that is usually considered as gifted. Wai and Putallaz found the following generational IQ gains in the top 5%:

- 5.1 SAT-M
- 13.5 ACT-M
- 11.1 EXPLORE-M

The gains were concentrated on math and nonverbal subtests (see previous comments on Ang et al., 2010).

Wai and Putallaz also examined SAT-M scores of 500 and above (top 0.5%) and equivalent scores for the ACT, with the following results:

- SAT-M 1981–1985, 7.7% at or above 500
- 2006–2010, 22.7% at or above 500
- ACT-M 1990–1995, 17.7% at or above a similar level
- 2006–2010, 29.3% at or above a similar level

The obvious conclusion is that either there are a lot more truly bright children in the 2006–2010 set, or the test results are showing a significant score inflation that is not merited. They also used multigroup confirmatory factor analysis to determine whether the data sets were invariant with respect to cohort; they were not. Consequently, it can be concluded that something changed in the test construct from one cohort to the other.

[The SAT 'recentered' scores in 1995 ostensibly "as an attempt to stave off international embarrassment."

Source: https://en.wikipedia.org/wiki/SAT#1995_recentering_(raising_mean_score_back_to_500)

Cf. The section "Secular Decline in Scholastic Achievement Scores" on page 322 in Chapter 10 of Arthur Jensen's *The g Factor*. -Ed. Note]

2.7. FE gains but without a change in inspection time

Perhaps the only study to link a biological correlate of intelligence and test scores with the FE was carried out by Nettelbeck and Wilson (2004) in Australia. In 1981, Wilson conducted a study of school grades 1 through 7, administering the Peabody Picture Vocabulary Test (PPVT) and measured inspection times (IT) for each of the participants. In 2001, the study was

replicated with virtually every parameter held constant, other than the students. The study was done in the same school, with the same grade levels, using the same PPVT and the revised PPVT-III. IT was measured with the same Gerbrands tachistoscope, under identical conditions.

The results of the study were that the students in 2001 scored essentially the same on the PPVT-III as did the students in 1981 on the PPVT. The 2001 students scored almost 5 points higher when they took the PPVT (ΔIQ = 2.5). IT measurements were the same to within the error bands. Thus, the FE was shown, but was not accompanied by improvements in IT. I asked Nettlebeck if there were any observable differences in SES or nutrition between the two groups. He said that the area served by the school was stable and that there were no observable differences in such things as nutrition or standard of living.

While IT does not correlate significantly with fluid intelligence (Burns & Nettelbeck, 2003; Burns, Nettelbeck, & Cooper, 1999), it does correlate with nonverbal IQ at about 0.50 (Deary & Stough, 1996; and others) and with Raven's matrices and performance IQ. The finding suggests that FE gains were unrelated to processing speed or other factors that explain the IT to general ability correlations.

3. Academic performance down

While IQ test scores have been rising (in some cases soaring), academic performance has done the opposite. As Jensen (1998) pointed out, when he observed that the SAT and subtests of scholastic test items have declined, real world academic performance has done the same.

Adey and Shayer (2006), of King's College London, studied the test scores of 25,000 children across both state and private schools and concluded: “The intelligence of 11-year-olds has fallen by three years' worth in the past two decades. In 1976 a third of boys and a quarter of girls scored highly in the tests overall; by 2004, the figures had plummeted to just 6% of boys and 5% of girls. These children were on average two to three years behind those who were tested in the mid-1990s.”

For an assessment of how well U.S. students are doing, this URL leads to a well-written, if depressing, description of the state of teaching, education, and students: http://www.lhup.edu/~dsimanek/decline1.htm.

4. Hypothetical causes

Among the causes that have been proposed to explain the FE are these:

- Education
- Increased exposure to testing
- Exposure to artificial light
- Nutrition
- Decreased family size
- Heterosis
- More complex visual environment

- Child rearing practices
- and the use of Classical Test Theory versus Item Response Theory

4.1. Education

Since FE gains have been observed in preschool children, education is unlikely to be a cause in all data sets. As previously discussed, FE gains have usually been more pronounced on non-scholastic items, while scholastic subtests have presented lower scores at the same time and within the same tests. Direct measures of academic performance have also shown secular declines while FE gains were evident in IQ tests (Jensen, 1998). Lynn (1998) argued that the Raven tests are being inflated as a result of mathematical education; however, the relationship of simple math to increased education is a questionable factor, especially in the Colored or Standard tests (Carlson & Jensen, 1980).

Rönnlund and Nilsson (2008, 2009) examined data from the Betula prospective cohort study. This Swedish data set consists of four age-matched samples (35–80 years; N = 2,996) tested on the same battery of memory tasks. Data was taken in 1989, 1995, 1999, and 2004. A FE was found at ΔIQ = 1.5 (relatively low, relative to other nations). FE gains in fluid and crystallized intelligence were approximately equal. Years of education, height (interpreted as a marker for nutrition), and sibsize [number of siblings -Ed. Note] were used as markers; together they accounted for over 94% of the time-related differences in cognitive performance. But education was a much stronger predictor than the other two items. The authors wrote: “The fact that education emerged as the strongest predictor across all cognitive measures enforces the conclusion that education may exert influence on time-related patterns on (broad) fluid (visuospatial ability, episodic memory) as well as crystallized/semantic aspects of cognition.”

4.2. Increased exposure to testing

There is little doubt that testing frequency has increased over the past years. Tuddenham listed it as one possible explanation for the secular gains he found between WW1 and WW2 cohorts. There are two mechanisms that have been proposed. Brand (1996) suggested that the use of timed tests has caused students to work faster by guessing more frequently on multiple choice tests. This largely ignored hypothesis has recently been supported by item level data (Must & Must, 2012). This finding explains other observations (lack of *g* loading in some studies and inconsistency between scoring methodologies) but does not cover all aspects of this category of causation. For example, FE gains are seen on tests that are untimed and on tests that do not use multiple choice.

Jensen (1998, p. 327) mentioned “increasing test wiseness from more frequent use of tests.” His point was that frequent testing may have the same sort of impact on test scores as the increase associated with test–retest. This is the same process that is associated with learning and shows up in situations where test training has been used (as is common with the SAT). When this happens, the test *g* loading decreases and its s loading (specificity) increases.

Both Brand's and Jensen's ideas would presumably cause test scores to increase without showing gains on *g*. As will be seen later, numerous studies, but not all, have shown that FE

gains that are not *g* loaded. Flynn (2009) agreed with Jensen's comment (above), but only for the early years of testing: “The twentieth century saw us go from subjects who had never taken a standardized test to people bombarded by them, and, undoubtedly, a small portion of gains in the first half of the century was due to growing test sophistication. Since 1947, its role has been relatively modest.”

4.2.1. Estonian data supports Brand's hypothesis

Brand (1996) wrote: “The correct strategy for testees is: ‘When in doubt, guess.’” This hypothesis has been occasionally noted in the literature, but seldom described as a likely and significant driver of FE gains.

Item level data was preserved for the Estonian National Intelligence Test, from 1933/1936 and 2006. These data show a change in test taking strategy that is best described as increased guessing (Must & Must, 2012). The numbers of correct answers increased (SD .79), but that increase was accompanied by an increase in incorrect answers (SD .15). The number of missing answers decreased. Scores were not penalized by wrong answers, but were boosted by correct answers. The Estonian data showed relatively little guessing effect for comparisons and other simple tasks, but had a large presence on time-pressured and mentally taxing tasks (math). In the 1934–1936 tests the item level data do not suggest the guessing strategy that is apparent in the 2006 tests. It should be noted that these same data show FE gains in excess of those that can be attributed to a guessing strategy.

4.3. Nutrition and medical care

Both nutrition and medical care have improved over the past century and have been accompanied by a large number of gains that appear to be caused by these improvements: increased mean height, increased head size, faster growth, earlier maturation, etc. Lynn (2009a) argues that gains in developmental quotients (DQs — hold up head, sit up, stand, walk, jump, etc.) are indicators of gains in IQ. DQs have gained 3.7 points per decade, while IQ gains of 3.9 points per decade have been seen in preschool children (age 4–6). Using the Griffiths Test, British children at age 6 months showed an average DQ gain of 2.8 points per decade and children, age 18 months, showed an average gain of 2.1 points per decade. Flynn (1984b) and Bocerean, Fischer, and Flieller (2003) have reported IQ gains that are similar to the DQ gains (Hanson, Smith, & Hume, 1985) for preschool children.

Lynn (2009a,b) cites various studies that show poor nutrition in the early part of the 20th century in the U.S. and Western Europe. Those indications of poor nutrition disappeared over the course of that century. Three nutrients that are known to be related to the development of intelligence are iron, folate, and iodine. Lynn (2009a) presented references showing insufficient intake of these in various countries in the early part of the 20th century. Liu et al. (2012), pointed to improvements in standard of living, nutrition, and education as possible causes for the gains in China. The studies that have shown greater FE gains in the lower part of the IQ distribution are consistent with the nutrition argument.

4.3.1. Birth weights

One factor influencing birth weight is pre-natal nutrition. Birth weight correlates positively with IQ and with DQs. Brazelton, Tronik, Lechtig, Lasky, and Klein (1977) reported that when birth weights reached 3,500 g, infants were advanced by approximately 15 DQ points at age 28 days (compared with lower birth weight babies). Low birth weights show the opposite; Drillien (1969) reported DQ score depressions of 12 points for infants with birth weights under 2,000 g, compared to those with birth weights over 2500 g (ages 6 months through 2 years). Various other studies have reported similar findings. In general, improved pre-natal nutrition increases birth weights and head size [birth weight is correlated with head size at r =0.75 (Broman, Nichols, & Kennedy, 1975).]. It is head size that is directly linked to higher cognitive performance.

[3,500 grams ~ 7.7 pounds, 2,000 grams ~ 4.4 pounds, 2,500 grams ~ 5.5 pounds -Ed. Note]

4.3.2. Height

Lynn (2009a) attributes the change in height and in DQs as being caused by nutritional improvements. Both measures increased by about one standard deviation (SD) over 50 years. Flynn (2009) countered that gains in height have not happened at the same times as gains in IQ. This argument seems to imply a degree of data tracking, with respect to time, that is not necessary for the argument to hold (Lynn, 2009a). Height and intelligence gains for Norwegian conscripts were reported by Sundet et al. (2004) continuing until the late 1980s, when height gains ended. For the period from 1969 to 2002, the height gains were more pronounced in the upper half of the distribution, while intelligence gains were greater in the lower half.

4.3.3. Head size

Lynn (2009a) cited numerous sources that have reported head size increases of about one standard deviation over the past 50-plus years. In Britain, the head circumference of 1 year olds has increased by approximately 1.5 cm from 1930 to 1985 (Cole, 1994). Head circumference, DQs, IQs, and height, over that time span, have all shown gains of about 1 SD. Head size is an approximate measure of brain size; the two correlate at r = 0.8 (Brandt, 1978).

Jensen (1998) found that head size is mostly correlated with *g* (as opposed to group factors) and notes that the reason for the correlation is that head size is a proxy for brain size. When measured with MRI, the correlation between brain size and IQ is about 0.40 (Rushton & Ankney, 1996). Larger brain size means more neurons and is logically consistent with the correlations between head and brain measurements versus IQ.

The correlation between brain volume and IQ is presumably due to the larger number of neurons in larger brains (Rushton & Ankney, 1996), although Miller (1994) has suggested that it may be due to higher levels of myelination in larger brains. In any case, increases in brain size should be direct contributors to higher intelligence (Miller & Penke, 2007).

4.3.4. Not nutrition

- Neisser (1998) pointed out that studies of nutrition have shown that neither vitamins nor supplements have had any impact on intelligence.
- Nutrition is unlikely to have declined over the past 20 years in those countries that have a negative FE; height did not decline.

- Contrary to the intelligence gains seen in Norway, height gains from 1969 to 2002 were mostly in the upper half of the intelligence range (Sundet et al., 2004).

- With the exception of Spain, Denmark, and Norway, gains have not been frequently concentrated in the bottom half of the distribution. Flynn and Rossi-Casé (2012) argued that for all other cases, the nutrition argument is not viable.

- Mingroni (2007) argued that all postnatal environmental factors are implausible because of the high consistency of heritability estimates.

- Mingroni (2007) also contended that heterosis is a better explanation for increases in height than are nutritional and health care considerations.

4.4. Exposure to artificial light

This hypothesis is not seen often in the literature and might have been omitted in this review, except that it did not come from a weak source, but was one of the items listed by Jensen in *The g Factor*. The idea is based on the response of the pineal gland in animals to artificial light. The pineal gland appears to play a major role in sexual development, hibernation, metabolism, and seasonal breeding. Artificial light is used by poultry farmers to stimulate growth and increase their output.

There does not seem to be any data available for whether this effect happens in humans, but the speculation is that it might. There has been an obvious increase in the use of electric lighting by humans over much of the time that the FE has been observed. Besides lighting, people have been increasingly exposed to artificial light from television and computer screens, even during early childhood.

4.5. Decreasing family size

It has been known for some time that the mean IQ of families decreases as family size increases. There are two factors that contribute (presumably independently) to this effect:

- Maternal IQ correlates negatively with fertility. This is the underlying factor behind Richard Lynn's papers and book relating to global dysgenics and has been shown for numerous data sets from various countries (Lynn, 1996; Lynn & Harvey, 2008). Low IQ people statistically have more children than high IQ people. The high heritability of intelligence, therefore, is a source of dysgenic pressure. If there is a decrease in average family size (not limited to the upper end), the

reduced numbers of low IQ children should produce a net increase in the mean, which would show up as a FE gain.

- Dating as far back as Sir Francis Galton, it was believed that IQ declined as a function of birth order. That belief was disputed by Rodgers, Cleveland, van den Oord, and Rowe (2000) after they examined the American NLSY data and did not find a birth order effect. This argument seemed strong and held until Bjerkedal, Kristensen, Skjeret, and Brevik (2007) published a study based on a very large data set of Norwegian conscripts, which showed the birth order effect in Norway. The mechanism of the effect has not been resolved. Hypotheses that have been advanced include prenatal gestational factors and social factors. The former seem more consistent with the general finding that social factors have little, if any effect on intelligence. Causation of the birth order effect does not matter with respect to the FE. If family size is declining in various groups, there must be a positive contribution to mean IQ due to fewer low IQ children being born.

4.6. Heterosis

Mingroni (2004, 2007) suggested that since the effects of the environment on intelligence are so small (Loehlin, Horn, & Willerman, 1989; Scarr & Weinberg, 1978), the possibility of a genetic effect should be investigated. If environmental factors were significant, between-family variance would cause MZA twins (identical, reared apart) to be less alike and siblings to be more alike.

[MZA = Monozygotic twins reared apart -Ed. Note]

Besides IQ, there have been secular trends in height, growth rate, myopia, asthma, autism, ADHD, and head circumference. It may, therefore, seem reasonable to argue that there is a global change that is affecting some or all of these factors (possibly consistent with Lynn's nutrition hypothesis). If selective breeding was involved, in order to produce the magnitudes seen in the FE, breeding would have to be restricted to only those people in the upper half of the IQ distribution (Jensen 1998, p. 327). As previously discussed, it is the bottom half that has the higher fertility.

Lynn (2009a) argued that heterosis is unlikely for three reasons:

1. There was little immigration in Europe before 1950 (the FE was present before that date).

2. The FE for IQs and DQs is just as large in Europe as in other places.

3. Studies of heterosis have shown little positive effect on IQ.

Woodley (2011) also concluded that heterosis is an unlikely cause because the FE gains are seen on the least *g* loaded components of intelligence tests [Colom, Juan-Espinosa, and Garcia (2001) reported opposite findings for Spanish standardizations of the DAT.].

[DAT = Differential Aptitude Test -Ed. Note]

Perhaps the most important consideration in determining whether there is a heterosis effect was pointed out by Mingroni: If the FE is found within-families, the cause is not genetic. Sundet, Eriksenb, Borren, and Tambs (2010) found that the FE operates within sibships. Unless this finding cannot be extended beyond Norway, the heterosis hypothesis does not look viable.

Mingroni (2007) argued in favor of a heterosis explanation from the perspective of real gains on intelligence and did not address situations, such as increased exposure to testing (Section 4.2), that show a FE, but which are inherently not Jensen effects. He also argued that increases in height were better explained by heterosis than by nutrition, but did not address that at least some of the height gains are related to leg length and are best explained by sexual selection (Jensen, 1998, p. 331).

4.7. Enriched visual environment

Greenfield (1998) and others suggested that the FE gains are caused by the ever increasing shift from verbal communication to visual and interactive media. This is seen globally in the increased presence of movies, television, photography, video games, computers, puzzles, mazes, exploded views, etc. Advertising has become ubiquitous and is saturated with images, graphs, charts, and rapid sequence visuals.

The mechanism for this hypothesis is that the shift towards visual representations removes some of the novelty from tests, especially in the culture reduced tests that have shown about double the FE gains as found in other tests. This is particularly convincing for tests such as the Raven which presents abstract figures in a matrix. Several decades ago these figures may have been more baffling than they are today.

4.8. Child rearing practices

The FE has been seen throughout the world, in both developed and undeveloped countries where child rearing practices vary greatly. It is unlikely that this hypothesis is a significant factor, not only because of the cultural variation in child rearing practices, but also because the shared environment has essentially no impact on adult intelligence (per prior discussion). To some extent, this category overlaps the increased visual environment and education. In that regard, it may contribute to the FE in some instances.

4.9. Methodological and test construct issues

As previously mentioned, ceiling effects can distort FE measurements. Other methodological issues have been found, but not fully resolved.

4.9.1. Is the FE invariant?

When researchers have tested for invariance, they have found that the data sets they were examining were not invariant (Must et al., 2009; Wai & Putallaz, 2011). Wicherts et al. (2004) did a study of five data sets to test for invariance. These included the Must et al. and Teasdale & Owen studies. Multigroup confirmatory factor analyses of these data sets showed that they were

not invariant, meaning that FE gains were not gains on the latent variables that the tests were supposed to measure. Besides providing insight as to the nature of the FE gains, the rejection of factorial invariance demonstrates that subtest score interpretations are necessarily different over time.

Flynn (2009) pointed out that cultural changes over time cause some test items to become easier because they have lost their novelty. Some words that were previously not common become more common because usage has changed. He gives several examples of this, including his frequently used example: “What do dogs and rabbits have in common?” He says that past generations would more likely focus on the use of dogs to hunt rabbits, while later generations would immediately identify that they are both mammals. This example of differential item functioning is probably responsible for at least some subtest score increases, especially in tests of similarities and vocabulary. Periodic test revisions should remove these non-*g* gains.

4.9.2. Classical Test Theory versus Item Response Theory

Beaujean and Osterlind (2008) did an analysis that is related to the Wicherts et al. analysis of invariance, which examines the underlying nature of the test itself. Most studies in the literature are based on Classical Test Theory (CTT) and present results which are not based on item level analysis. This practice hides some of the information that could be extracted from a data set. Test scores are given, but the latent constructs they are designed to measure cannot be examined. Item Response Theory (IRT), on the other hand, allows the researcher to examine the changes in underlying latent ability. Thus, CTT can show differences in scores, even when there is no change in the latent variable. An increase may be due to a general gain in real intelligence, or a decrease in the levels of difficulty of test items.

Despite its relatively infrequent use, IRT is generally considered to be the better methodology. It is particularly useful in FE studies because it reveals changes in item properties between two groups measured at different times. CTT requires groups that are being compared to have similar ability distributions, but this is not a requirement when IRT is used. In IRT, the item parameters do not depend on the ability level of the testees.

Results using CCT and IRT to measure FE gains in the American NLSY data:

- *Peabody Picture Vocabulary Test-Revised (PPVT-R)*

  CCT 0.44 points per year

  IRT 0.06 points per year

- *Peabody Individual Achievement Test-Math (PIAT-M)*

  CCT 0.27 points per year

  IRT 0.13 points per year

The results show that the FE essentially vanishes for the PPVT-R when IRT is used. The PIAT-M gains are cut to half using IRT. Ergo, the FE gains are a function of the methodology, leading to the concern that much of the literature has reported findings that might be quite different if IRT had been used.

Now that an item level study has been reported for the Estonian data (see Section 4.2.1), it is apparent that some of the score gains were due to increased guessing on the most complex subtests. Shiu, Beaujean, Must, te Nijenhuis, and Must (2012) reported effect sizes for the FE gains in this data set. All subtests, except computations, showed gains; the largest gain was in analogies. The research group concluded that there was some real increase in abilities (beyond the guessing related gains previously discussed).

5. Real or hollow gains?

When David Wechsler studied his WAIS, he gave the old 1953 version and the new revised 1978 version (WAIS-R) to the same group. That group averaged 103.8 on the new version and 111.3 on the old version yielding ΔIQ = 3 (Neisser, 1997).

If children of 1997 took the 1932 Stanford-Binet, 1/4 would score above IQ 130 (an increase of 10X). If children in 1932 took the 1997 test, the mean would be about 80! 1/4 would be "deficient" (Neisser, 1997).

Vroon made a similar observation about Dutch men: When scored against 1982 norms, men in 1952 would have had a mean IQ of 79 (Neisser, 1998).

Flynn initially questioned the reality that intelligence has increased:

> "Has the average person in The Netherlands ever been near mental retardation?" "Does it make sense to assume that at one time almost 40% of Dutch men lacked the capacity to understand soccer, their most favored national sport?" He noted that there are not more gifted Dutch school children now and that patented inventions have shown a sharp decline.The U.S. mean in 1918 would have been 75, if scored against today's norms.If the score gains were real intelligence gains, real-life consequences would be conspicuous (Neisser, 1998). In discussing paradoxes related to the secular gains, Flynn (2009) wrote: "How can people get more intelligent and have no larger vocabularies, no larger stores of general information, no greater ability to solve arithmetical problems? ...Why do we not have to make allowances for the limitations of our parents?"

5.1. Is the Flynn effect a Jensen effect?

[A Jensen effect is one that loads on *g*. It was named by Rushton.]

> • Colom et al. (2001) Paper title: The secular increase in test scores is a "Jensen effect."
>
> • Must et al. (2003) Paper title: The secular rise in IQs: In Estonia, the Flynn effect is not a Jensen effect.

• Rushton and Jensen (2010): “The Flynn effect is not a Jensen effect (because it does not occur on *g*).”

5.1.1. Not a Jensen effect

In a meta-analysis of 64 test–retest studies using IQ batteries (total N = 26,990), te Nijenhuis, van Vianen, and van der Flier (2007) found a correlation between *g* loadings and score gains of −1.00. A similar finding was reported for a different meta-analysis by van Bloois, Geutjes, te Nijenhuis, and de Pater (2009). Must et al. (2003) found (in Estonia) a correlation of −0.40 between *g* and FE gains. These all show that the gains were not on *g* and were, therefore, hollow. The discussion in Section 4.2.1 shows that at least part of the Estonian gains were the result of an increased tendency to guess.

Rushton and Jensen (2010) showed that heritabilities calculated from twins also correlate with the *g* loadings, r = 0.99, P < 0.001 (for the estimated true correlation), providing biological evidence for a genetic *g*. The importance of this is that if the FE is being driven by environmental factors, it is unlikely that the gains would load on *g*. If the cause is genetic (as in the Mingroni hypothesis), the gains should show a Jensen effect.

They also pointed out that *g* loadings and inbreeding depression scores on the 11 subtests of the WISC correlate significantly positively with racial differences and significantly negatively (or not at all) with the secular gains. This is further evidence that the FE is caused by environmental factors.

Perhaps the strongest argument that the FE does not load on *g* came from Rushton (1999). He used principal components analysis to show the independence of the FE from known genetic effects.

- The IQ gains on the WISC-R and WISC-III form a cluster. This means that the secular trend is a reliable phenomenon.

- This cluster is independent of the cluster formed by racial differences, inbreeding depression scores (purely genetic), and *g* factor loadings (largely genetic). The secular increase is, therefore, unrelated to *g* and other heritable measures.

Must et al. used the Method of Correlated Vectors (see Jensen, 1998) to test the FE gains for *g* loading. Rank order correlations between the various subtests and the rank of those subtests on the *g* factor were negative and nonsignificant: r = −.40 (one-tailed P = .13). Subtests with the lowest *g* loadings showed the greatest FE gains. The authors concluded: “In Estonia, the Flynn effect is not a Jensen effect.”

5.1.2. Yes, it is a Jensen effect

Colom et al. (2001) examined two successive Spanish standardizations of the Differential Aptitude Test (DAT) battery and found gains on *g*, r = .78; P < .05. Colom: “Not a ‘Jensen effect’ is true for crystallized tests but not for fluid tests.” Using the DAT, Colom et al. showed that

subtest gains increased as their rank order of *g* loading increased [the subtests in the DAT are (in order of increasing *g* loading) numerical ability, verbal reasoning, mechanical reasoning, abstract reasoning, and spatial relations.].

5.2. Predictive bias

Jensen (1998, p. 331) stated that the definitive test of whether FE gains are hollow or not is to apply the predictive bias test. This means that two points in time would be compared on the basis of an external criterion (real world measurement, such as school grades). If the gains are hollow, the later time point would show underprediction, relative to the earlier time. This assumes that the later test has not been renormed. In actual practice tests are periodically renormed so that the mean remains at 100. The result of this recentering is that the tests maintain their predictive validity, indicating that the FE gains are indeed hollow.

[Editor's Note: See discussion above about SAT recentering, section 2.6]

6. Which explanations work?

Most of the mechanisms that have been proposed as causes of the FE are plausible under some circumstances. Even when one is ruled out by a specific study, it may apply elsewhere. As has been shown in the foregoing material, the most consistent aspect of the FE is that it is inconsistent from one time or place to another. Sometimes the gains have been mostly in abstract reasoning (as in the U.S.), but elsewhere the gains have been strongly tilted towards scholastic subtests (Estonia). Gains have been strong, weak, flat, or have reversed, even within the same country when measured at different times — Norway and Denmark (Sundet et al., 2004; Teasdale & Owen, 2008).

Finally, there are the issues of non-invariance and of methodological inconsistency when IRT is used instead of CTT. The instances in which confirmatory factor analysis has failed to show invariance (every case so far) tell us that the meaning of IQ tests is not constant over time. The reduction in FE magnitude (to near zero in some cases) when IRT is applied suggests that the test vehicle is contributing 50 to 100% of the gains and that those gains are methodological artifacts and carry no *g* loading. For example, the FE gains due to guessing (Estonia) were not resolved by CTT because the successful strategy was not apparent at the subtest level.

6.1. Real or hollow?

Most of the tests for *g* loading have shown little or no *g* saturation. The majority of researchers who have addressed the issue have argued that the gains are hollow, with the exception of Lynn and Colom, both of whom have made strong arguments that there is at least some genuine gain in intelligence. This inconsistency may be due in part to different data sets and may be due in part to CTT methods. It is likely that most of the FE gains that have been reported are hollow. If this were not true, renorming would cause predictive validity to change, but there are no reports that this has happened.

7. Can the Flynn effect be modeled?

Most studies of the FE have attempted to apply a single explanation, such as heterosis, or a narrow category of causation, such as nutrition/health care. This overview, however, strongly suggests that multiple causes are acting, and that the mix of causes varies over time and from one place to another. Flynn and Rossi-Casé (2012) agree: “Even in developed nations, the notion that the Flynn effect will have identical causes should be banished from the literature.”

A quantitative model of causation is beyond present understanding, but a qualitative model can be constructed, such that the most likely active components can be identified. Two approaches to this follow.

7.1. A life history model

Woodley (2012) presented a model in which a large number of FE causes (as discussed here) are assumed to vary as a group. His model assumes that the FE gains are unrelated to *g* and are the result of a shift in life history from fast to slow. A fast life history is taken to be the set of tradeoffs that are associated with relatively high fertility and lower parental investment in offspring, as described by Rushton (1985) in his Differential K Theory; slow life history is the opposite (lower fertility and more parental investment). Woodley describes his model as a cognitive differentiation–integration effort (CD–IE) hypothesis.

- Cognitive integration effort (CIE) – a strengthening of the manifold via the investment of bioenergetic resources – fast life history.

- Cognitive differentiation effort (CDE) – a weakening of the manifold via the unequal investment of resources into individual abilities – slow life history.

If it happens that a given population is moving from a fast towards a slow life history, multiple environmental factors can be expected to move in the direction that would cause a secular rise in test scores: fertility, education, pathogen stress, and nutrition.

7.2. Independent Drivers model

The Woodley model, described above, focuses on a latent variable, such that variations in that variable contribute to the FE by means of the causes that are assumed to increase or decrease together. An alternative model assumes that the various FE drivers act independently, may combine in any combination, and may include negative driver components. The causes that are present in a given data set over an observation period are difficult to quantify, but can be estimated on a limited scale, such as high, medium, and low, with the expectation that their contributions to FE gains will be larger or smaller, depending on the strength of the driver.

Each driver is assumed to exert a FE influence as a function of how much contribution potential remains in association with that driver. For example, the reduction in family size is likely to initially contribute more to a study group that has had high fertility and is moving in the direction

of smaller families. As the process continues, diminishing FE gains will be seen as the maximum total effect is used up. The path may appear to be somewhat linear over a short time period, but it must approach an asymptote. The gain for any given driver should follow a relationship that is similar to

$$FEG_i = FEM_i\ (t) / (t+k_i)$$

where FEG_i is the FE gain due to driver i; FEM_i is the maximum FE gain that can be contributed by driver i; t is the time in years; and k_i is a constant for driver i. Multiple drivers would be additive, but each will have its own maximum contribution and constant.

The shape illustrated in Fig. 1 is consistent with the gains (general shape) shown by the Raven's Progressive Matrices in Britain (Hiscock, 2007).

7.2.1. Reversals

Reversals may occur either as the sum of positive drivers decreases to less than the sum of negative drivers, or the positive drivers reverse direction. A lack of FE push might result in a reversal due to an existing negative cause, such as an underlying dysgenic trend or the decline in educational participation. The net FE gain (or loss) may contain negative factors that are not evident in the data, because the result is a positive FE. Thus, the positive drivers need only reach saturation for a reversal to appear (assuming the presence of one or more negative drivers).

It is possible that some of the drivers that have been discussed could reverse direction and directly cause a FE decline. For example, nutritional factors may change and become negative due to the introduction of harmful chemicals into diets or the living environment; health care standards could deteriorate; family sizes could reverse direction, at least for a segment of a population.

7.2.2. FE Drivers

Group and environmental characteristics over the time period ΔT	FE driver
Many school years completed	Education
Qualitatively improved education	
Higher scores on scholastic tests	
Score gains in preschool children	Not education, but possibly
More testing in primary and secondary schools	nutrition, healthcare, etc.

Increased use of tests for college level selection	Increased exposure to testing
Recent electriciation, as might be seen in remote areas	Exposure to artificial light
Increased availability of television	
Growth of personal computers in homes and schools	
Increased pediatric care	Nutrition and healthcare
Diet improvements of critical nutrients	
Mean increases in weight, head size, or birth weight	
Accelerated childhood development	
Lower fertility for low SES levels	Decreased family size
Increased availability of television	More complex visual environment
Growth in personal computers in homes and schools	
Increased visual complexity of school textbooks	
Advertising growth, accompanied by charts, symbols, etc.	
Measured increase in mean *g*	Nutrition and healthcare
Change in breeding pattern from isolated groups to	
breeding among groups, not accompanied by	Decreased family size
within-family FE	Heterosis

For a given data set, the presence of items from the first column implies a cause from the second column. For example, Must and Must (2009) reported a height increase (in Estonia) of 2.9 SD over approximately 2 centuries. At the beginning of the 20th century, the diet was primarily bread and herring. From 1925 to 1958 there was a shift from vegetarian foods to meats. This pattern signals that the nutritional FE driver was active during and after the dietary change. FE gains were seen in scholastic performance and reasoning, suggesting that education was also a factor. The general increase in prosperity of the country may also signal matches for other changes (first column), such as decreased family size.

In some situations, the Independent Drivers model could reduce to the Woodley model, but in situations where the effect can only be linked to one or two drivers, this model is accommodating. In any situation where a gain in *g* is seen, the Woodley model would not apply, but this model identifies nutrition, health care, and heterosis as possible *g* loaded drivers.

8. Summary

- The FE exists between birth cohorts.
- It has been found within sibships.
- It sometimes appears early in life (before school age).
- There are presumably multiple causes.
- The gains are often hollow (not Jensen effects) but some gains appear to be on *g*.
- There are methodological issues to be resolved which may be a cause of some of the gains.
- The FE is not invariant over time.

9. Recommendations

Despite the huge mass of papers, the FE remains enigmatic. Part of the problem is the complication of what strongly appears to be varying combinations of multiple drivers; individual studies cannot be consistently compared. But the concern that deserves particular attention is that methodological issues appear to be confounded with real world causes. Perhaps ways can be found to examine more data sets with IRT. It would be very helpful to know how much of the various FE gains are the result of CTT methodology. The findings of non-invariance presumably mean that some FE gains are attributable to test revisions and to cultural shifts. A better grasp of the categories of test items that are causing non-invariance may enable test designers to reduce or eliminate these test-specific items.

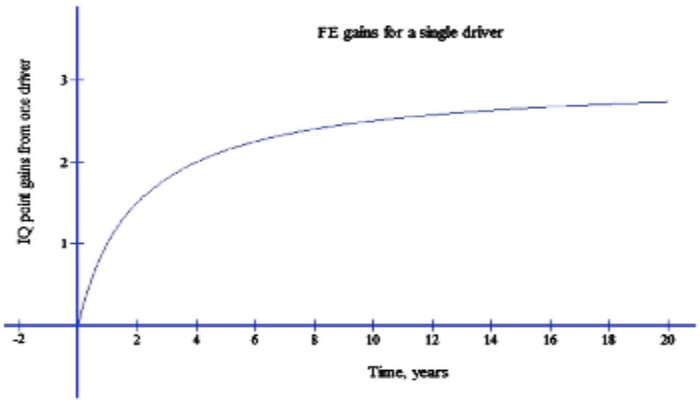

Fig. 1. Flynn effect gains for a single driver. In the illustration the maximum contribution for the driver is shown as 3 IQ points and the value of k is set at 2.

Fig 1. Flynn effect gains for a single driver. In the illustration the maximum contribution for the driver is shown as 3 IQ points and the value of k is set at 2.

[Editor's Note: X axis reads "Time, years" and Y axis reads "IQ point gains from one driver"]

Some direct connections between environmental conditions and the FE have been identified, such as those in Estonia (dietary changes, family size reductions, and educational improvements). These point to causes for a single country, but cannot be generalized. Future researchers should be encouraged to examine national data sets from health and social service agencies to identify sharp changes that correspond to FE rate changes. Some of this has already been done by Lynn, but there may be additional factors that have not yet surfaced. In the U.S. the National Institute of Health and the Food and Drug Administration are probable data sources. Other environmental factors that might be worth examining for coincidence with FE rate changes: the introduction of radio, television, computers, the Internet, and cell phones, etc. Educational policies and numbers of graduates might be considered as well, despite declines in academic performance, there may still be FE drivers associated with formal or informal education.

Finally, it would be helpful to perform studies of biological parameters that relate to intelligence. There is the IT study by Nettelbeck & Wilson, but little else in this category. The question to answer is whether other biological measurements (RT, brain pH, nerve conduction velocity, pitch discrimination, EEG latencies, glucose uptake rates, etc.) remain stable over decades, or do they vary in the direction that would be predicted by an increase in intelligence?

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Interview with Bob Williams

Abstract

Bob Williams is a Member of the Triple Nine Society, Mensa International, and the International Society for Philosophical Enquiry. He discusses: growing up; a sense of an extended self; the family background; the experience with peers and schoolmates; some professional certifications; the purpose of intelligence tests; high intelligence; the geniuses of the past; the greatest geniuses in history; a genius from a profoundly intelligent person; profound intelligence necessary for genius; job path; the more important aspects of the idea of the gifted and geniuses; thoughts on the God concept or gods idea; science; some of the tests taken and scores earned (with standard deviations); the range of the scores; worldview-encompassing philosophical system; meaning in life; intelligence in the abstract; and the mainstream and fringe theories of human intelligence on offer over time.

Keywords: Bob Williams, intelligence, International Society for Philosophical Enquiry, IQ, Triple Nine Society.

Scott Douglas Jacobsen: When you were growing up, what were some of the prominent family stories being told over time?

Bob Williams: Family stories were about what my grandparents and parents experienced before I was born. I recall thinking that I would not see advances as dramatic as those experienced by my grandparents. They were born before electrification and before flight, yet lived to see the first humans land on the moon. It is difficult to compare my life to theirs, but I think there have been at least as many big changes as they experienced.

Jacobsen: Have these stories helped provide a sense of an extended self or a sense of the family legacy?

Williams: Stories of past lives and experiences help to put my life in perspective. There has been an enormous change in the standard of living that my family has experienced as a result of increasing amounts of education and the technology that has increased exponentially in the last two centuries.

Jacobsen: What was the family background, e.g., geography, culture, language, and religion or lack thereof?

Williams: I was born during WW2 and grew up in Virginia in the suburbs of a city that was third largest (back then) in our state. We had two groups: whites and blacks. (Today this seems strange. As a student I only met one child who was Jewish and that was in primary school. We had one Catholic church, but I only knew of one student in my school who was Catholic. There

were no Hispanics, Arabs, Russians, or any of the ethnic groups that we only knew about from movies.) Everyone claimed to be Christian; that meant Protestant as Catholics were presumed to mostly live elsewhere. Crime rates were low and violent crimes almost nonexistent. There was a very strong hatred of the North that was residue from the war.

My great-great-grandfathers fought for the South, as did the families of those I knew. Today, that feeling has vanished. Technology and multiple generations caused many changes, even in local demographics.

[Post WWII: https://en.wikipedia.org/wiki/Brown_v._Board_of_Education -Ed. Note]

Jacobsen: How was the experience with peers and schoolmates as a child and an adolescent?

Williams: I began first grade when I was 5 (6 was the usual). I had to go to a private school for one year, then transfer to the public schools. Through every grade, I was the youngest and, fortunately, one of the tallest in every class. One curiosity I have is about what was known about me by the schools and teachers. I don't recall what if any standardized tests were given back then. I was apparently tested by a psychologist before being allowed to start school at age 5.

Jacobsen: What have been some professional certifications, qualifications, and trainings earned by you?

Williams: I have two degrees in physics and one in business administration. I went into the nuclear reactor business and worked (core design, modeling, analysis, instrumentation, etc.) in the private sector, then in the nuclear weapons business (we were intending to build a tritium producing reactor, before the SALT treaty made it unnecessary). In that particular market, everything is either proprietary (private sector) or classified (weapons program). As a result, despite constant writing, nothing was seen "outside." We had only advancement as a reward. I joined my private sector company as an associate physicist, but the company decided to make everyone an engineer, so my job titles went that way, from engineer, to senior engineer, to principal engineer, and to fellow engineer. During that time I also held a range of management titles. I also became the company representative (we had research labs and production plants scattered over the eastern part of the US) for joint research projects, which led me to a very enjoyable stint of high level meetings with people in the US, over much of Europe, and the Middle East.

[SALT = https://en.wikipedia.org/wiki/Strategic_Arms_Limitation_Talks -Ed. Note]

Jacobsen: What is the purpose of intelligence tests to you?

Williams: Today we can measure intelligence reliably and with good predictive validity. The only purpose of these tests is to predict important life outcomes. If the tests don't do that, they are worthless…but they do it quite well. More intelligence means that there is a higher probability that desirable outcomes will happen and undesirable ones will not. More intelligent people are more likely to experience: higher income, increased longevity, greater general

health, more life satisfaction, higher degree of body symmetry, higher educational achievement (grades, years completed, difficulty of major), higher SES (a product of intelligence, not a cause of it), faster speed of mental functions, better memory, faster learning rate, greater number of interests (held with competence), higher job performance, higher brain efficiency (relative to glucose uptake rate and speed of mental operations). And…they are less likely to be impacted by smoking, HIV infection, crime, incarceration, school dropout, teen pregnancy, illegitimate births, and unemployment.

At the national level, mean national IQ correlates positively with per capita GDP, economic growth, economic freedom, rule of law, democratization, adult literacy, savings, national test scores on science and math, enrollment in higher education, life expectancy, and negatively with HIV infection, employment, violent crime, poverty, % agricultural economy, corruption, fertility rate, polygyny, and religiosity.

This effect does not have a known ceiling. The Study of Mathematically Precocious Youth is a longitudinal study started by Julian Stanley and maintained today by Camilla Benbow and David Lubinski. Part of the study evaluated cohorts in the top 1% of intelligence. It showed that there are large differences between those in the bottom quarter of this range and those in the top quarter of the top 1%. These differences, favoring the more intelligent top quarter have been found in number of doctorates, number of STEM publications, number of patents awarded, income and literary publications.

Jacobsen: When was high intelligence discovered for you?

Williams: Apparently it was well before I was aware of it. Even in primary school, I was selected for special treatment (a summer camp), a place on the varsity high school debate team when most participants were 4 years older, etc. By age 15, I began to win awards in science fairs that led to half a dozen trips to various parts of the nation; two trips to the International Science and Engineering Fair (one was part of the World's Fair in Seattle); lots of prizes, a summer job, and ultimately scholarships that paid for much of my college education. Upon entering my university I was given a chemistry test, which led to my being put in an advanced chemistry class that destroyed 2/3 of the students who were placed in it (I was up to it). Then there was a surprise trip by the Air Force (I was at Virginia Tech, which was compulsory military for two years, but I stayed in the Corps of Cadets for all four.) to send me to visit an airbase. It was years later that they told me I had made the second highest score on the Air Force Officer Qualifying Test. The only thing I knew was that I did well on tests; it took years for me to connect various events to testing.

[https://en.wikipedia.org/wiki/Century_21_Exposition? -Ed. Note]

Jacobsen: When you think of the ways in which the geniuses of the past have either been mocked, vilified, and condemned if not killed, or praised, flattered, platformed, and revered, what seems like the reason for the extreme reactions to and treatment of geniuses? Many alive today seem camera shy – many, not all.

Williams: It is amusing to see how interested people are in genius (the real thing, not simply high IQ), yet bright people who are successful seem to be frequently looked down on. Genius is such a complex thing that it is extraordinarily rare. It happens when a constellation of necessary, but not sufficient traits exist at maximum expression. Hans Eysenck believed that both traits Neurosis and Psychoticism had to be elevated in true genius. Obviously if either trait is overly expressed, the individual would be hobbled and not achieve enormous feats of creative genius. When N and P are somewhat elevated they positively impact success, while likely creating an unpleasant personality. For example, P may cause a person to be seen as aggressive, cold, egocentric, impersonal, impulsive, antisocial, unempathic, tough-minded, and creative. Arthur Jensen believed that genius is the product of high ability x high productivity x high creativity.

ability = *g* = efficiency of information processing

productivity = endogenous cortical stimulation

creativity = trait psychoticism

The result of genius traits is not pretty, nor is it consistent in how it is displayed in geniuses. We have all read about the lives of various composers, artists, and scientists who were sufficiently "unusual" as to be unable to fit into normal life patterns. I think the common reactions that you mention are not restricted to genius. We see other people rejected when they have personality, or even physical, differences. Curiously, I see this same rejection and bullying among the Canada geese that live in my yard. Lame geese and even normal geese without a group are rejected and sometimes attacked.

[Indeed, German-born British psychologist Hans Eysenck associated creativity with 'psychotic overinclusiveness' and said a few more words about genius in an essay titled "The Meaning and Measurement of IQ": "What does the genius need, then, apart from high intelligence and high creativity? Clearly if creativity implies an associative gradient that slopes gently to give access to large numbers of remote ideas, these ideas have to be *acquired* in the first place, so hard work, motivation and great persistence are needed. If you do not have two ideas to rub together, you are not going to have enough fodder for your creativity to produce anything worthwhile. Next, circumstances have to be right; Einstein would not have prospered in an igloo, or Mozart in a kraal, or Shakespeare in a wigwam! Thus the trait of creativity is a necessary but not a sufficient ingredient of genius; very much like intelligence, genius cannot do without it, but by itself it is not enough to produce works of genius." -Ed. Note]

Jacobsen: Who seems like the greatest geniuses in history to you?

Williams: As a scientist, I am going to surprise you. It is the great artists, because they give us things that only they can produce. The major scientific discoveries would all be made, even if the people who discovered them had not existed. Of the greats, I think Beethoven is the most important person in all of history. His work was so profound, moving, and complex that nothing compares. Of course, the other composers (Bach, Mozart and many others) have made contributions that are treasures. In the arts, Michelangelo and Picasso lead the list of greats.

I have never seen a credible list of the IQs of any real geniuses. My guess is that those in the arts may be reasonably bright, but that it is their creativity and skill that sets them apart. In science, things are different. The scientists are brighter and higher on traits Agreeableness and Consciousness.

[cf. https://en.wikipedia.org/wiki/Big_Five_personality_traits -Ed. Note]

Jacobsen: What differentiates a genius from a profoundly intelligent person?

Williams: Personality and creativity. I have already discussed how personality can make a genius seem unlikable and unreachable. The thing that I find to be interesting is that the biological factors that are associated with bright brains are sometimes opposite from those associated with creative brains. We know from prodigy studies that prodigies have IQs that range from 100 to about 147 (those actually studied). Prodigies are found in rule-based disciplines: chess, art, music, and mathematics. The highest IQs are those of the math prodigies.

One of the significant factors in the creative brain is an inhibitory function that is weak. This condition lowers the filtering system that rejects stimuli that are not needed for the task at hand. We experience this selective attention when we are in a noisy environment. Our brains usually tune out the noise, for example people talking in a social gathering, and focus on the sensory input that is needed (understanding the person we are talking to). When this selective attention is low, the person may find unrelated stimuli arriving in his brain simultaneously. This promotes new combinations of ideas that would normally be prevented by the inhibitory function. But this is exactly opposite of what we need for intelligence. A mathematician, scientist, or engineer must stay on task, not be distracted, and remain focused. An example of lowered inhibition is seen with alcohol and other drugs. Imagine trying to take a calculus test while you are inebriated!

[cf. https://en.wikipedia.org/wiki/Latent_inhibition -Ed. Note]

There is a similar consideration in brain networks. The brain with poor connectivity (long mean path lengths and fewer connections to hubs) causes a single thought process to follow an inefficient path around the brain before it reaches its intended destination. During this long route, it can access information that leads to creative combinations of previously unrelated ideas. Again, this is opposite of what one needs for complex problem solving. There are other examples, but the point here is that creativity taps a set of brain conditions that are often opposite of those that are required for deep scientific reasoning.

Jacobsen: Is profound intelligence necessary for genius?

Williams: “Yes,” for STEM fields, “no” for the arts. This is not to say that artistic geniuses are not bright, but rather that they do not require “profound intelligence” of the sort we see in great scientists.

Jacobsen: What have been some work experiences and jobs held by you?

Williams: I spent a long time in the commercial nuclear reactor world. I began in reactor core physics, where I did modeling, burnup analysis, isotopic balances, and calculated a variety of physics parameters that are used by other physicists/engineers. A good part of that time involved work on fast breeder reactors, which was enjoyable because I could design and analyze multiple configurations so that the best one could be identified. It turned out to be a flat cylinder that got the name “pancake.” That design worked well because it allowed a lot of axial neutron leakage which fed the breeding of U-235 to Pu-239. Then I spent years doing transient analysis. This meant calculating the outcome of accidents, such as an ejected control rod, or a broken pipe. I recall doing the loss of feedwater accident for Three Mile Island-II. That was the accident initiated a sequence of events that destroyed the plant, but it was not because of a miscalculation, it was because we didn’t consider that an operator would turn off the emergency core cooling system! I ultimately became the only person who really understood the Reactor Protection System (RPS). It was satisfying to be the resident expert, but it made it difficult for me to move to something I wanted to do in a different division. I developed the methods for determining RPS setpoints and personally determined these for every large power reactor we built. I also did the work that resulted in the licensing of the first digital RPS approved by the Nuclear Regulatory Commission.

[Three Mile Island accident: https://en.wikipedia.org/wiki/Three_Mile_Island_accident -Ed. Note]

After training several people to do my job, I managed to move to the Contract Research Division, which was the most memorable and enjoyable part of my career. I mentioned some of that in an earlier question. All in all, I had great experiences doing things that most people could not even know about. My last 6 years (before retirement) were spent in the nuclear weapons program. I ended up working in Washington, DC for most of that time, as a Senior Technical Advisor to the Department of Energy. On one trip, I went to Mound, Ohio. The old part of this site was built very deep underground and designed to withstand a direct nuclear blast. It was amazing to see that something like that even existed. I was with a small group and we went on to Fernald. During the trip, someone wanted to visit a vault where weapons grade materials were kept. We went through 3 or 4 checkpoints where we had to go through various presentations of security clearances, etc. and then ended up in a round concrete room. The walls were decorated with machine gun ports and the guys behind them were actually holding the machine guns. I understood the old quip about “shooting fish in a barrel,” from the perspective of the fish. After they finally let us out of what amounted to a cage, we saw the vault, which was a major letdown, then we had to repeat each step in reverse. This sort of thing does not appeal to me at all. I was never happy working with security that involved man traps, armed guards, magnetometers, sniffers, x-ray, and endless security checks.

One thing that I enjoyed was teaching/lecturing. For whatever reason, I became the go-to person for delivering lectures to our reactor customers, federal regulatory agencies (including one from Italy), and prospective customers. My lectures were always well-received, but we were getting feedback that our Loss of Coolant lectures were not well-received. This is an area that is focused on heat transfer and hydraulics. I had not worked in the area, but agreed to take over

the lectures, if the engineers there would give me some time, explaining their modeling. I figured it out, designed, and delivered lectures that generated accolades from our customers.

Jacobsen: Why pursue this particular job path?

Williams: From childhood, I knew I wanted to go into science, but had no specific area of interest. By high school, I was more focused on chemistry and won awards on the studies I did with fuel cells that I designed and built, then with my studies of gas chromatography, using a system that I designed, built, then altered into various configurations. (These led to multiple awards, up to and including a first and second at the International Science and Engineering Fairs.) When I had to pick a major, I only considered the math load. I selected physics because I figured it was more math heavy than anything else. I was right at the academic level, but by the time I entered the nuclear business, we had mainframe computers and did most of our work using numerical methods (beating the answers out, by iteration). At that time reactors were the big deal for electric utilities and they paid off big for those who bought them. Ultimately, interveners found a way to stop the industry by endless (pointless) lawsuits that had no merit, but they delayed construction. At that time we were in the highest inflation period of modern times, so the utilities simply couldn't pay the cost of their loans. It was a case of the interveners losing every battle, but winning the war.

Jacobsen: What are some of the more important aspects of the idea of the gifted and geniuses? Those myths that pervade the cultures of the world. What are those myths? What truths dispel them?

Williams: Very bright people have the ability to understand and deal with multiple complex disciplines and to solve problems that are beyond even bright people. The spectrum of intelligence is defined by the structures and properties of the brain and can only be degraded by environmental encounters. That means we have not found a way to increase intelligence. The brain is built from our genetic instructions and is intelligent to the extent that its components are efficient and suffer few flaws. For example, we know that tissue integrity in both gray and white matter influences intelligence, as do the multiple factors that relate to mental speed (white matter tracts, hub connections, myelination, nerve conduction velocity, etc.). Ultimately, any brain feature that has a range of efficiency between individuals is going to favor the more efficient brain.

Studies of large populations and high end intelligence have shown that extreme intelligence is not associated with one or a few genes. It is simply part of the normal distribution of the huge number of factors that each contribute to phenotypic intelligence. We are at one of the big new directions of discovery in cognitive science: genetics. Within the past few years Genome Wide Association Studies (GWAS) have been done with large sample sizes. With over 1.2 million people represented, researchers have found more than 1,200 single nucleotide polymorphisms that are associated with intelligence. Despite this number, the effect size is only around 10 percent. Despite the small effect size, polygenic scores (PGS) have been derived from the GWAS and used to predict intelligence, even in embryos. These PGS have produced almost

perfect (greater than correlations of 0.90) predictions of mean intelligence differences between breeding groups.

As the brain matures, the heritability of *g* (the *sine qua non* of intelligence) increases from around 40% in early childhood to about 85% in adults. This increase in the genotype is found in other traits as well. Despite the lower heritability found in young children, measurements done for ages 6 to 12 months are predictive of adult IQ and educational achievements. (Adult IQ, r = 0.59; Adult academic achievement, r = 0.53 (both corrected for unreliability).)

In the case of genius, as I previously noted, intelligence, creativity, and personality all have to be at optimum levels. This is an extremely rare event. Geniuses are typically born to families that have not shown outstanding performance in academics, invention, creativity, etc. Relatively few geniuses have children and many do not marry. Those who do have children rarely produce another genius (there are a few possible exceptions that we might find over the past several centuries).

Neither the general public nor those who teach at any level have even a modest understanding of intelligence. Russell Warne has been uncovering the details of just how little people understand. This year he did a survey of teachers asking them to rate a number of statements about intelligence on a Likert scale. Sadly, the results were not surprising. In recent years, he has surveyed US universities and found that most didn't offer courses on intelligence and the psychology courses they taught used textbooks that primarily discussed discredited models (Gardner's multiple intelligences) and often did not even mention *g*. He has written a book on the subject of myths about intelligence: *In the Know: 35 Myths About Human Intelligence*.

Myths

I will offer a few comments on just 3 of the many myths that are commonly accepted as facts.

1. Group differences

The single most damaging failure to understand is that there are large intelligence differences between breeding groups. These are differences in *g* and these are overwhelmingly genetic. The differences explain many of the conflicts we see between nations, within national groups, and between individuals. They explain differences in academic achievement, in job performance, in crime rates, wealth, income, health, and longevity. These differences have been known for 150 years and are forcefully denied by the proponents of political correctness. Sex differences also cause some people to get upset and deny the differences. The reality is that, around age 16 males show a higher mean intelligence and a higher variability. These combine to cause a rapidly increasing male-to-female ratio in the right tail. There is controversy over the difference at the mean, but my conclusion is that it has turned up in a large number of independent studies and seems to be real. The difference we see most often is around 4 points, but a few studies have shown up to 6 points.

2. Heritability

Those who want to argue that all humans are born with identical abilities deny the very high heritability of *g*. We can and have measured this heritability using diverse methods that show essentially the same result. Those methods are as follows:

The correlation between MZA twins – This correlation is used directly – not squared.

Falconer's Formula –This method was developed by Falconer and MacKay. It computed heritability by doubling the difference between the correlations of same-sex MZT and DZT twins. Numbers are typically r = 0.88 and 0.51, respectively. After correction for reliability the numbers become .98 and .56, respectively. The difference is 0.42, so the computed heritability is 0.84.

Richard Lynn also reported two studies of heritability in India, both using Falconer's Formula. One study yielded heritability of 0.81 and the other 0.90. After correction for reliability, these become 0.90 and 1.00, respectively.

1.0 Minus the Environmental Component – Adoption studies (and others) have shown that the environmental component is about 15% in adults (see papers by Posthuma, Haier, Lynn, and various others). This method produces the typically cited level of heritability in adults of 85%.

Path Analysis – This technique was invented in the 1920s by Sewall Wright. The method incorporates multiple linear regression to apportion the contributions of each of the multiple causal variables to the variance in the single outcome. The assumed links between the causal variables can be tested and rejected if they do not fit the assumed causation. This is not a test of causation, but provides a means of determining magnitude and of establishing the existence or nonexistence of the assumed causality link. The method is general and has been used to study diseases, occupations, etc. One study that used this method was based on the Texas Adoption Project (300 adoptees). The analysis used the IQs of mother, father, their natural children, and their adopted children (after about 17 years of adoption). The heritability derived from this study was 0.78 before correction for reliability. With correction it is about 0.86.

Brain Imaging – Within the past decade papers have appeared with heritability estimates based on brain imaging of MZT and DZT twins. Imaging by Paul Thompson showed that the brain structure was heritable at the level predicted by other methods (listed above). PGS (previously mentioned) predict between group differences with strong correlation coefficients, as already discussed.

Environmental factors – People want to believe that intelligence is molded by parental interactions, socioeconomic status, school quality, etc. No, it's genes. Stephen Pinker wrote a whole book on this topic (*The Blank Slate*).

Multiple intelligences – Howard Gardner invented a model that has strong appeal to the public, but which is not supported by data and does not withstand scrutiny. He showed that it is profitable to tell people what they want to hear, even if it is incorrect.

3. Flynn Effect and *g*

Another case of people wanting to accept pop-science explanations, without understanding the details. In this case, the public believes that intelligence is increasing and some believe that it is increasing in a way that will eliminate between-group differences. IQ scores have been unstable for a long time and have mostly increased. The effect is different in different nations and is different as a function of time in most nations. We now have a reversal in a good many European nations. The problem is that these score changes have been shown to be artifacts and are not due to changes in *g*. For example, some of the instability is due to increased guessing (the Brand Effect) and some are due to the method of scoring the test, which has nothing to do with intelligence. Meanwhile there is considerable evidence that *g* is declining, at least in Western nations and China.

Jacobsen: Any thoughts on the God concept or gods idea and philosophy, theology, and religion?

Williams: Over 20 years ago, I attended a presentation by Jay Glass, author of *The Animal Within Us*. He described exactly what I had concluded several years earlier, based on the same source material (the study of chimps). He concluded that humans are significantly like our nearest relatives in that we are genetically predisposed to organize in a dynamic hierarchical structure. Chimps and humans have this social structure (other animals as well). I think we are so drawn to this need to have a hierarchy that we don't stop with the chief, king, or satrap, but go on to spontaneously invent gods with magical powers and elaborate stories of their adventures, including the creation of the universe and man.

In cognitive science, religion has been studied extensively. In every case (national and individual studies) the finding has been a negative correlation between measures of religiosity and intelligence. Some researchers have approached the topic by studying the degree of dogmatism in individual religious beliefs. The more dogmatic (fundamentalist) the beliefs, the lower the IQ. I can recall that, as a child, I noticed that the religious denominations in my immediate surroundings were clearly stratified by SES. I didn't know why at that time, but today it is obviously a case of grouping by wealth and education, both of which are products of intelligence. Scientists typically show low percentages who hold religious beliefs.

Jacobsen: How much does science play into the worldview for you?

Williams: It plays to my interest. There are things that are difficult or impossible to understand from a purely scientific perspective. Ethics is one example. Yet most of the things we see are subject to scientific study and understanding. This applies even to relatively ethereal things, such as emotions.

Jacobsen: What have been some of the tests taken and scores earned (with standard deviations) for you?

Williams: Virtually all of the tests I have taken were quite a long time ago, before I had an interest in cognition. I previously mentioned two tests I took in college. I think there were various

others during high school. About 30 years ago, I took two tests administered by Mensa. I have no idea what they were and what the scores were, but I used them to join Mensa, the International Society for Philosophical Enquiry, and the Triple Nine Society. The latter two admit at the 99.9th percentile. I have not had any interest in hobby tests and have written about my concerns for their validity on numerous occasions. My last effort will presumably appear in the journal *Noesis* (Mega Society – not a member) in February. [Ed. Note: And here it finds itself.]

Jacobsen: What is the range of the scores for you? The scores earned on alternative intelligence tests tend to produce a wide smattering of data points rather than clusters, typically.

Williams: I have no idea. When I have taken tests that had consequences, I managed to do well enough. I have not engaged in the “test taking as entertainment” practice.

Jacobsen: What ethical philosophy makes some sense, even the most workable sense to you? What social philosophy makes some sense, even the most workable sense to you? What economic philosophy makes some sense, even the most workable sense to you? What political philosophy makes some sense, even the most workable sense to you? What worldview-encompassing philosophical system makes some sense, even the most workable sense to you?

Williams: I will combine the philosophy questions into one reply. Let me start with an observation by geneticist Robert Plomin. He was being honored with the Distinguished Career Interview at an ISIR (International Society for Intelligence Research) conference. As he discussed his career path, he mentioned that he began his university studies in philosophy. At some point, he realized that things that can be measured are not part of philosophy and changed majors. This reflects my view of philosophy. My interests lie in science, so that is what I read. My formal education did not include any courses on philosophy, so I don’t think in terms of Kant or Nietzsche. The one philosopher who has attracted my interest is Bertrand Russell; I found his essays about religion interesting. My belief about ethics is that, as usual with this sort of topic, there are different perspectives that can be argued endlessly. The thing I am most bothered by is another party attempting to impose an ethical standard on me. We see a lot of this as ethics is blended with politics and I believe it has become a social cancer. This relates to my previous comments about how the huge group gaps in intelligence have serious consequences.

[Bertrand Russell addressed the interplay between philosophy and science in *The Problems of Philosophy*: “The whole study of the heavens, which now belongs to astronomy, was once included in philosophy; Newton's great work was called 'the mathematical principles of natural philosophy'. Similarly, the study of the human mind, which was a part of philosophy, has now been separated from philosophy and has become the science of psychology. Thus, to a great extent, the uncertainty of philosophy is more apparent than real: those questions which are already capable of definite answers are placed in the sciences, while those only to which, at present, no definite answer can be given, remain to form the residue which is called philosophy.”

Source: https://www.gutenberg.org/files/5827/5827-h/5827-h.htm#link2HCH0015

Cf. Walter Lippman apparently once said: “Man is no Aristotelian god contemplating all existence at one glance.” - Ed. Note]

My view of economics is that of von Mises and Friedman. I think we have valid predictive models of economic behaviors and that we should follow those in government and fiscal policies. I consider myself to be a libertarian at heart. Unfortunately, I don’t see a path from the present political divide in the US towards a more harmonious and prosperous society. We have reached the point mentioned by Alexander Fraser Tytler at which people will vote benefits for themselves from the treasury at the expense of destroying the economic stability of the nation. This is an outcome that returns to the intelligence issue and, in particular, the decline in intellectual capital due to the negative correlation between intelligence and fertility rate.

As a matter of understanding why I see so many things as ultimately being matters relating to cognitive abilities, I think Douglas Detterman explained the gravity of it well: “From very early, I was convinced that intelligence was the most important thing of all to understand, more important than the origin of the universe, more important than climate change, more important than curing cancer, more important than anything else. That is because human intelligence is our major adaptive function and only by optimizing it will we be able to save ourselves and other living things from ultimate destruction. It is as simple as that.” (Detterman is the founder of ISIR and of its journal, *Intelligence*.)

While I am being pessimistic, I will share my conclusion about group conflicts. Despite all of the idealistic things that some people believe and others would like to believe, world history should have taught us all that humans are truly aggressive and will repeatedly commit atrocities and engage in wars. I see no end to it and think it is a part of our species behavior. In my lifetime we have had a world war, countless smaller wars, multiple instances of genocide, and see that these are not restricted to small, backward nations, but are done on a grand scale by the same nations that have given us artistic beauty and scientific understanding.

Jacobsen: What provides meaning in life for you?

Williams: The things that are meaningful to me are those that many people hold dear: family, liberty, and nature. I have had the opportunity to live comfortably and to enjoy a great deal of autonomy. I have surrounded myself with a zoo-like population of animals, forest, and a beautiful place to enjoy nature. I have gotten to know my Canada geese as individuals and spent hours watching the other creatures that live here with me.

Jacobsen: To set the stage for the further conversation, what comprises intelligence in the abstract?

Williams: I think *g* is the best match to “abstract.” It is a latent trait, so it can only be known by statistical manipulation of measurements. We have Arthur Jensen to thank for convincing skeptical researchers that the essence of intelligence is this single factor that Charles Spearman

discovered in 1904. Jensen had the persistence to meet every argument with data and analysis. Today intelligence research is *g* research.

Jacobsen: What are the mainstream and fringe theories of human intelligence on offer over time?

Williams: Today *g* theory is accepted as the best representation of intelligence, defining its structure via factor analysis and linking the biology of intelligence to the outward measurements that relate to it. As I have already noted Gardner's model is very popular among laymen. It is the sort of thing that drives researchers crazy. Gardner did not derive his model from data, did not use an inductive process to construct it, and has been unable to show that it can be demonstrated as correct from real world measurements. The thing multiple intelligences implies is that if someone has a low academic ability, they have something else to make up for it in a zero sum sense. It sounds nice, but it is nonsense. The real world is not so fair. What we have is the *positive manifold*, which is the way Spearman described his discovery that people who test at a given level on one category of cognitive tasks will test at a similar level on virtually all cognitive tasks. Of course it's unfair…it means that bright people are likely to excel at almost every kind of task, while dull people will find most such tasks difficult or impossible. It is from the positive manifold that Spearman was able to reveal the general factor *g* (Spearman's *g*) using factor analysis, which he invented.

Robert Sternberg also invented a model that he calls Triarchic theory. It consists of dividing intelligence into practical, creative, and analytical. As is the case with multiple intelligence, it sounds good to people who want to believe that *g* is not the answer. Some years ago, Linda Gottfredson did a detailed dissection (published in *Intelligence*) of his "theory," showing that it does not withstand scrutiny.

Aside from the models presented by Gardner and Sternberg, there have been various other proposed models that have been abandoned. For example, Joy Paul Gilford offered a "structure of intellect" model. This complex model was designed with 150 cells, each of which represented an ability (Gardner magnified). There are a variety of other models that have been assembled, but the only one that is significant is Cattell's model which was basically an argument against *g*. Instead of one top factor, he used two: fluid intelligence and crystallized intelligence. We still use these as stratum II factors, but they are grouped with other broad abilities. The structural model that won out was the Cattell-Horn-Carroll model that serves as the basis for both the Wechsler tests and the Woodcock-Johnson. Carroll tweaked the model that Cattell and Horn were using, so that *g* was extracted as the single stratum III factor. This model is *g* theory in practice. (Despite its popularity and usefulness, the CHC model is somewhat arbitrary and is not the true structure of intelligence. That honor goes to the VPR model (verbal, perceptual, and rotational) developed by Wendy Johnson and Thomas Bouchard.)

Part 2 of Interview

Abstract

Bob Williams is a Member of the Triple Nine Society, Mensa International, and the International Society for Philosophical Enquiry. He discusses: intelligence in the public consciousness; consciousness within those who spend more time thinking about it, in professional circles; the scientific constructs; the majority opinion definition of general intelligence; other peripheral, though respected, definitions of general intelligence; most noteworthy and prominent names in psychometrics history; arguments for national intelligences; the form of data gathering on the national intelligences; age 16 as a capstone; tests measure *g*; scores extrapolated beyond their highest range; and the range of validity and reliability of these alternative tests.

Keywords: Bob Williams, chronometrics, *g*, general intelligence, intelligence, IQ, psychometrics.

Scott Douglas Jacobsen: Let's talk about the abstraction of concept "Intelligence" first, what, fundamentally, is meant by intelligence in the public consciousness?

Williams: People inherently understand that some people who are able to do complicated tasks that are beyond the abilities of average people and they are certainly aware of dullness. While the benefits of intelligence are strong as it increases, the consequences of low intelligence are much more serious. Most states have legal definitions of the threshold of retardation – usually IQ 70. Each 5 points or so in the down direction adds limitations to learning ability, learning speed, and the ability to manage personal affairs. One of the most convincing sources of information about what can and cannot be done by the population as a whole, is the National Adult Literacy Survey (NALS). The test is done for the federal government by Educational Testing Service. About 92 million adults (out of 191 million) were functioning in levels 1 or 2, meaning that they could perform only basic and elementary tasks. Most of this reflects low intellectual ability or age-related decline.

I think the public understands that bright people do better in school and that they are needed in cognitively demanding careers. The thing they don't seem to get is that intelligence is not evenly distributed between groups nor within groups. They also grossly overestimate the role of the environment in determining intelligence.

Jacobsen: What is meant by consciousness within those who spend more time thinking about it, in professional circles?

Williams: Intelligence researchers do not study consciousness. I have not encountered any casual discussions of it. Scientists (including social sciences) like to measure things, analyze measurements, and construct models that are able to predict other things. Consciousness

doesn't lend itself to such treatment, so it falls into the abstract world of philosophy. Most people seem to regard consciousness as sentience or as self-awareness. A few animal studies have reported various experiments that may test some aspects of self-awareness, such as the mirror test. So far, such tests are yes/no outcomes with little that can be modeled or analyzed.

Jacobsen: Now, to the scientific constructs, e.g., general intelligence, what is meant by general intelligence?

Williams: General intelligence, *g*, is the common resource that is involved in all cognitive tasks. Jensen described *g* as a distillate, in the sense that it is the thing that remains when the less essential factors are eliminated. At the psychometric level, *g* is unitary; at the neurological level, it is not. Charles Spearman found that when he tested people on unrelated tasks, the people who did well on one task were likely to do well on all tasks and vice versa. He called this finding the positive manifold. In the process of devising ways to analyze data, he invented factor analysis and from that, he was able to discover *g* in 1904.

The public is generally unaware of *g* and its central importance to the understanding of intelligence. Unfortunately, *g* is not the kind of thing that people study. It, as with everything we know about intelligence, is a statistical parameter and is a latent trait. We can determine *g* for a group of people by using a hierarchical factor analysis or other methods (bifactor analysis or principal components analysis). Each method has its advantages in certain applications, but the differences in results are insignificant.

Jacobsen: What is the majority opinion definition of general intelligence?

Williams: Within cognitive science, I think virtually everyone has accepted that intelligence is well represented by *g*. Today essentially all intelligence research is related to *g*. The easy way out of definitions is to skip "intelligence" entirely and simply discuss *g*. If we get into the definition of intelligence, we have many definitions from psychologists over the past century. I will give you two of them. My favorite is from Carl Bereiter: "Intelligence is what you use when you don't know what to do." This is a surprisingly accurate, concise, and elegant definition. The second definition is the one used by Linda Gottfredson: "Intelligence is a very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings – 'catching on,' 'making sense' of things, or 'figuring out' what to do." (Linda Gottfredson – Mainstream Science on Intelligence; *the Wall Street Journal*; December 13, 1994) This definition is the one most often cited since 1994.

My answer (above) is based on what I think you were asking. It turns out that "general intelligence" is commonly used in reference to *g*, which we have discussed in various ways.

Jacobsen: What are some other peripheral, though respected, definitions of general intelligence?

Williams: Most of the definitions that are credible are similar, as one would expect. If they are respected by cognitive scientists, they must address the things we all see and understand in connection with the word. Here are a few, that are worthwhile:

“Individuals differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, to overcome obstacles by taking thought.” -American Psychological Association

“. . . that facet of mind underlying our capacity to think, to solve novel problems, to reason and to have knowledge of the world.” -M. Anderson

“. . . the resultant of the process of acquiring, storing in memory, retrieving, combining, comparing, and using in new contexts information and conceptual skills.” -Humphreys

“The ability to carry on abstract thinking.” -L. M. Terman

Jacobsen: Who are the most noteworthy and prominent names in psychometrics history who studied general intelligence as a career?

Williams: Given the long history of the study of intelligence, we could name many people who have contributed to our present day understanding. Progress and activity level in cognitive science has followed a curve that increased slowly at first, then turned upward as rapid advances came from brain imaging and genetics (all made possible by advanced computer technology). I will list a few of the early names, then those whom I know personally who have made major contributions.

The first person who studied intelligence, made measurements, and wrote about his findings was Sir Francis Galton. He is clearly the father of cognitive science. People naturally think of Alfred Binet and Lewis Terman as important figures because of their contributions to the development of testing. Terman also famously conducted a longitudinal study of high IQ cohorts (called Termites).

Charles Spearman was one of the most important and possibly THE most important of all intelligence researchers. He invented statistical methods that were needed to study intelligence (now used widely in other fields), discovered *g*, invented the first matrix test (developed and carried to the market by his student John C. Raven), and produced a range of insightful observations which remain accurate today.

William Stern deserves mention because he was the originator of the ratio method of determining IQ. The method left us with a test name (IQ) and showed that intelligence could be graded as a function of age and performance.

[IQ = Intelligence Quotient = Mental Age/Chronological Age X 100 - Ed. Note]

David Wechsler rescued us from the limited usefulness of the ratio method by introducing the deviation quotient that is now the standard for IQ measurement. He is also known for the Wechsler set of IQ tests, which remain as the most important of all cognitive tests.

Arthur Jensen was clearly the most important researcher in the second half of the 20th century. He convinced his peers that *g* theory was the only correct basis for understanding intelligence; today that reality permeates intelligence research. Jensen was centrally involved in the study of chronometrics for measuring and studying intelligence. He was a prolific writer of books and papers (totaling approximately 400), many of them remaining as the standards of understanding specific topics today. Two were of particular importance: *Bias in Mental Testing* (1980) and *The g Factor* (1998). I am grateful that I had the opportunity to meet him and have numerous conversations with him at ISIR conferences. The first time I met him was in 2004. He asked me about my interests and I told him that I was particularly interested in the biological foundations of intelligence. He said he had some papers that would interest me and asked that I write my address. Within a week, I received a large envelope stuffed with these papers.

Thomas Bouchard was the founder of the Minnesota Twins Study, which was a huge breakthrough in the understanding of the high heritability of intelligence. He was particularly patient with me when I asked endless questions at the conferences. His graduate students are central figures in cognitive science today.

Richard Lynn led the way in understanding the evolution of intelligence and (later) its slow decline. He displayed the strength of Jensen and a handful of others who dared to study race differences and sex differences. He was the first to study national level intelligence and demonstrated that it was responsible for the wealth of nations (except where there is natural resource wealth, such as oil). This work led to many researchers vastly expanding the amount of national level data collected and who showed the extensive number of parameters that are influenced by it.

Brain imaging was started by Richard Haier, when he first applied positron emission tomography to study glucose uptake rates as a function of intelligence. This led to the brain efficiency hypothesis which has been repeatedly confirmed by various other forms of measurement. Haier and Rex Jung simultaneously discovered the intelligence centers of the brain, then joined forces to produce the P-FIT model that is the standard (so far) neurological model. Jung also investigated creativity with brain imaging and revealed important brain characteristics that relate to it.

Jacobsen: How does this construct *g*, more precisely, map onto arguments for national intelligences?

Williams: As mentioned above, Richard Lynn opened the door to national intelligence studies. His book *IQ and the Wealth of Nations* showed a strong correlation between mean national IQ and national wealth and productivity. In this case, the difference between IQ and *g* doesn't really matter because only the most powerful predictor (*g*) is active, even when the discussions use IQ, because the non-*g* factors are lost via cancellation when very large populations are studied.

Now that we have national and regional level data pouring in from all over the world, we can see that the geographic effects exist within nations. McDaniel and others have shown that US states show the same relationships between IQ and wealth as do nations. Today we have detailed IQ data on a regional basis for many nations, including the US, China, Japan, Italy, India, Vietnam, etc. With the exception of India, IQ generally increases from south to north within nations in the northern hemisphere. These nations also show the regional relation to IQ and per capita income.

The *g* construct is usually thought of as the three stratum model with *g* at stratum III, broad abilities at stratum II, and narrow abilities at stratum I. If you look at stratum II, you can divide the broad abilities into *g* and non-*g* parts. The *g* parts define stratum I and the non-*g* parts are residuals that have little predictive validity (except possibly in the right tail). In national level studies the residuals are lost or minimized due to their randomness. We can, however, see high spatial abilities in East Asians, accompanied by low verbal abilities. These differences are large enough to have consequences.

[See “Do Asians Have Higher IQs Than Whites?” on pages 272-276 of *The Bell Curve*, wherein Murray and Herrnstein classify “Japanese and Chinese (and perhaps also Koreans)” among East Asians. -Ed. Note]

Jacobsen: What is the form of data gathering on the national intelligences to make them more legitimate or less legitimate depending on the form of interpretation of the analysis?

Williams: It is important to convert all test data to a single standard before attempting to compare them. Richard Lynn developed the means to do this with the Greenwich IQ Standard. It basically uses white British as the standard, so all test scores are compared as if they were normed against the same group.

One of the early criticisms of Lynn’s work was that (at that time) there were relatively few studies and many of them were convenience studies that were random and were reported by many researchers. The criticisms may have seemed sound to those making them, but now that we have a large amount of data, the results have not changed much, other than to show strong consistency. Another criticism was that Lynn estimated the IQs of some nations by using measured IQs of neighboring nations. Some critics were very critical of this estimation. After data was collected, the estimates turned out to be surprisingly accurate.

Jacobsen: With age 16 as a capstone, what is the degree of difference in the variability between males and females at that age? Is this played out differentially in terms of self-identification in sociocultural constructs of the self seen in gender, often confused with biological and genetic sex differentiation?

Williams: I haven’t seen data showing differences in variability as a function of age, but with respect to intelligence, males appear to reach their advantage at the mean (4-6 points) around age 16. The difference in standard deviation between the sexes is 5 to 15% (males higher). In

real world outcomes (the things we use as measures of external validity) males dominate a grossly disproportionate number of cognitive arenas. In Charles Murray's book *Human Accomplishment: The Pursuit of Excellence in the Arts and Sciences 800 B.C. to 1950*, he was largely measuring eminence. Of the 4,002 people he reported over that time frame, only 2% were women. Of course, much of that can be attributed to limited opportunity for women, so resolution of the cause is difficult. Side story…At the ISIR conference in 2006, we discussed sex differences in intelligence in an open session. Jensen believed that there was no difference, but his friend Helmuth Nyborg had been trying to show him the reality of it for some time. Anyway, Jensen made the observation that on any credible list of the top 100 composers, there would not be a single woman listed. He often commented on music in relation to various topics, as he considered becoming a professional musician (clarinet).

Unfortunately, I cannot comment on self-identification, as it is something that is studied and debated in different circles. There has, however, been excellent work on outlooks and preferences as a function of sex. The best of this is from the Longitudinal Study of Mathematically Precocious Youth. The limitation of this study is that it applies to very bright cohorts in the 99th percentile, although some of the findings have been reported for less restricted range data sets. Among the things they found were that women showed a marked preference for jobs involving fewer hours of work per week; and they placed a significantly higher value on family, social involvement, community service, friendships, and giving back to the community.

Besides life preferences, there are differences in brain structures, brain activity, and connectivity that differ by sex to such an extent that when correlations are computed for activity involving specific volumes of the brain, the correlation coefficients sometimes have opposite signs for male and female. One interesting comparison that was made involved male and female subjects solving the same math problem. The male and female participants were matched for IQ. Males used the frontal and parietal lobes for solving the problem and females used only the frontal lobe.

These are just examples of the rather large number of sex differences that brain imaging has shown.

Jacobsen: What tests measure *g* the best? What are the ranges of those tests with standard deviations?

Williams: The most heavily *g* loaded tests are clearly the best, since the whole reason we can use IQ tests is that they are sufficiently *g* saturated that they can be used as proxies for *g*. In recent years, researchers have been urging the use of comprehensive tests, such as the WAIS or Woodcock-Johnson, because they do a better job. It also happens that these two tests can report *g* at the individual level.

Gilles Gignac and Timothy Bates did a study on the correlation between brain volume and test quality. They showed that the correlation increases as test quality increases (see *Intelligence* 64 (2017) 18–29). This is expected because *g* reflects the biology (structure and global properties)

of the brain. From their paper, here are the things they identified as determining test quality (examples of “excellent” given on the right):

- Number of subtests 9+
- Dimensions 3+ (e.g., fluid intelligence, crystallised intelligence, processing speed)
- Testing time 40+ minutes
- Correlation with *g* = 0.95

In the past, researchers were often inclined to accept Spearman’s indifference of the indicator in situations that would draw criticism today. Spearman was (as usual) right, but only in a general sense. It is certainly true that a single dimension test, such as the Raven’s Progressive Matrices can give a good measure of intelligence, but even that popular test has received some criticism for having a lower *g* loading than the comprehensive tests (and lower than some prior claims) and for the presence of factors (as can be found in a factor analysis) that are not reported. At one time, researchers sometimes took the RPM score as a g score.

(The indifference of the indicator is based on the fact that every correlation with *g* is with the same *g*. So a vocabulary test can be used to estimate (quite well) *g* as can a test of analogies. Both of these give us a good estimate of the same *g*. There is, however, a greater fidelity when multiple measures are used, particularly in an omnibus test.)

The reason for emphasis on comprehensive tests is that they examine more of the relatively few stratum II factors. Examining more broad abilities gives a more complete picture. You can imagine trying to make out the image in a puzzle; it is better defined when more pieces are in place than with fewer.

Jacobsen: How are these scores extrapolated beyond their highest range for some individuals who claim more than 4-sigma scores on these mainstream intelligence tests?

Williams: Of professional IQ tests, I don’t know the procedures used, but I can tell you the claimed ceilings of a few. The WISC-V added extended range in 2019 and claims a ceiling of 210. The DAS claims 175. I assume that the extrapolations are simply extensions of the norming data above the range where there are no data points. Naturally, this means an increased measurement error and requires an assumption that the distribution remains Gaussian in that range (I think that an argument can be made that this has not been demonstrated).

Hobby tests have claimed very high ceilings, but they have not established a valid support for the claimed ranges. I have read a few of the arguments used to explain their norming and have not seen anything I believe would withstand close scrutiny. There are so many deficiencies associated with hobby test designs, in addition to norming, that I think they should be considered for entertainment only. I know there are some people who will disagree, but they have not come forth with sound support for the tests. If the tests are not used by clinical psychologists or intelligence researchers (as shown by their use in scholarly journal papers) I fail to see how they can be considered as meaningful measurement instruments.

Jacobsen: What is the range of validity and reliability of these alternative tests compared to the aforementioned mainstream intelligence tests?

Williams: For alternate tests, the disclosures vary from no mention to numbers that reflect an attempt to make some measurements, but which do not result in a full presentation of the things a real test must demonstrate: a high reliability coefficient; norming data (including group size and selection criteria) and method that is appropriate to the claimed ceiling; a predictive validity that is supported by meaningful external measurements; a demonstration of construct validity; a clear standard deviation of 15, or a proper conversion to 15 in the reporting of the score; measurement of at least three broad abilities; identification of a properly determined *g* loading for the test, where that loading is near or above 0.80; demonstrated invariance by population group, age, and sex (or exclusion of groups where invariance has not been shown); age corrected scoring; citations in the peer reviewed scholarly literature; and demonstrated use by professionals.

Of these, the demonstration of external (predictive) validity is the most important. If the scores do not predict differences in real life outcomes, they are meaningless. Take a hypothetical score of 160 and one of 190 by the same test. This huge, 2 standard deviation difference should produce large differences in external measures, such as the probability of earning a PhD, income, wealth, number of scholarly papers published, number of books published, probabilities of receiving world class honors (for example, those received by Richard Feynman: Putnam Fellow, Nobel Prize in a science, Albert Einstein Award, Oersted Medal, National Medal of Science for Physical Science, Foreign Member of the Royal Society), patents awarded, corporations founded, major accomplishments (think of Musk, Gates, and Zuckerberg), etc. If there is not a difference in such external measures, there is no reason to believe that the test scores have meaning.

[Editor's Note: The James Gleick biography on Richard Feynman, viz., *Genius: The Life and Science of Richard Feynman*, reported on page 30 that Feynman's "score on the school IQ test was a merely respectable 125." A picture caption on page 118 of the same book reads: "Slouching beside J. Robert Oppenheimer at a Los Alamos meeting: "*He is by all odds the most brilliant young physicist here, and everyone knows this*." The reader is free to attempt a reconciliation of these two facts.

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

Source: https://www.discovermagazine.com/mind/richard-feynmans-intelligence]

Interview with James Flynn (1934-2020)

Abstract

Dr. James Robert Flynn is an Emeritus Professor of Political Studies at the University of Otago in Dunedin, New Zealand. He discusses: current intelligence research; evolutionary biology; and the correlation between IQ gains and the advanced moral views.

Keywords: evolutionary biology, intelligence, IQ, James Flynn, morals, political studies.

Scott Douglas Jacobsen: Let us start from the current empirics of intelligence research. What are the overall findings now? What is the consensus of the field, if there is one?

Professor James Flynn: One of the consensuses of the field is one that I will not explore, that is, the relationship of intelligence to brain physiology. People seem to be inventing all sorts of wonderful new tools to investigate the brain beyond magnetic resonance imaging and see what type of thought processes are going on, and that should be extremely illuminating.

Obviously, cognition has a physiological basis. If we have illusions as to just what the physiological basis of certain cognitive abilities are, they certainly need correcting.

As to other areas of research, many people are not sufficiently sophisticated about the phenomenon of IQ gains over time. They do not seem to entirely grasp its significance and its limitations.

For example, the fact that people are better at generalization often produces a rise in moral reasoning. If you talked to my grandfather about race, he had certain fixed racial mores. But if you take a young person today, they are more flexible. If you ask, “Should you be underprivileged because your skin is black?”, and then ask, “What if your skin turned black?”, they would see the point. You must render your moral principles logically consistent.

They would not do what my father would do. He would say, “That is the stupidest thing I have ever heard of. Who do you know whose skin turned black?” He would not take a hypothetical seriously, or the demands it entails for logical consistency. And once you concede that sheer “blackness” does not count, you would have to list personal traits that made someone worthy of persecution. That immediately gets you down to individuals as individuals, not individuals as a member of a particular race.

In my lifetime; students are less subject to racist and sexist stereotypes. That has had a good deal to do with the nature of the IQ gains over time, our ability to take hypothetical situations seriously, our ability to generalize and to see moral maxims as things that ought to have some type of universal applicability, rather than be just a tribal inheritance.

Jacobsen: Does a modern understanding of evolutionary biology help with this?

Flynn: They do not need anything as sophisticated as that. However, in saying that people today are better at moral assessments, I may give a false impression. Because they do need basic knowledge about the world and its history. You can have a very enlightened point of view towards social justice, and you can be free of racial stereotypes and yet, you can be colossally ignorant. All recent studies show that Americans are reading less and are less aware of how nations and their histories differ.

I emphasize this point in several of my books such as *The Torchlight List*. People are surrounded by the babble of the media, Fox News and even CBS News. They are surrounded by the rhetoric of politicians. When people reach false conclusions about what ought to be done, it is often just sheer lack of the background knowledge that will allow them to put their egalitarian ideals to work.

Remember how America was talked into going into Iraq. This was not to wreak devastation on Iraqis, it was going to help Iraqis. This was going to give them a modern, stable society. Put that way, it sounds very good, does it not?

All people would have had to do would have been to have read one book on the Middle East, like Robert Fisk’s *The Great War for Western Civilisation*. They would have found that no Western power that sent troops into the Middle East has had a credit balance. They have always managed to get more people killed than would have been killed otherwise, and when they left, they left behind nations that had to “nation build” themselves, like every other nation in history.

I have often used an example that any properly educated person would think of immediately. That is The Thirty Years’ War in Germany (1618-1648), between Catholic and Protestant. It killed off half of the population. Let us imagine that a Turkish sultan, who in 1618, looked at Germany and said, “Look at how these Catholics and Protestants are torturing each other. Surely if I go in with a Turkish army, I can punish the wicked ones who do the most drawing and quartering, and I can reward the people who are more tolerant, and I will teach Catholic and Protestant to live together in a nation-built Germany.”

We can all see the absurdity of this. But we can't see the absurdity of a "benevolent" America sending an army into the Middle East to punish the bad guys and help the good guys, and make Sunnis and Shias love one another and nation build together.

The Thirty Years' war also teaches us a lesson about Israel's policy in the Middle East. What was Cardinal Richelieu's policy from 1618 to 1648? He said, "I am a Frenchman first, and a Catholic second. What I am going to do is meddle in this war and whoever is losing, I will back. I want these wars to go on forever. The more dead Germans, Catholic or Protestant, the better for France."

This foreshadows Israel's stand about the wars that rage in the Middle East. Israel believes that the Arabs will never accept them. It will always have to be stronger than the Arab nations to defend itself, and the weaker and the more divided the Arabs the better. This, of course, has nothing to do with the interests of American foreign policy. America must be talked into creating chaos in the Middle East so as "to do good".

America is going through a trauma now. We backed Saudi Arabia against Iran, and now it turns out that Saudi Arabia is at least as wicked as Iran, killing people by the millions in Yemen. It still lops people's hands off for theft. The women who pioneered against the restrictions on driving are all in jail. Until recently the Shiite population could not have cellars because they were suspected of conducting filthy rites down there.

Americans do not know enough to assess either US or Israeli policy. The average person's "knowledge" is limited to what they are told. They may be well-meaning. But they are told that Saddam Hussein is a tyrant. They meet exiles who dress like Westerners and look like themselves. These exiles use the language of democracy and free speech. However, their real goal is to get back into power in Iraq and their only hope of that is American intervention.

Academics are fixated on whether the 21st century will see IQ gains or IQ losses. The real question for the 21st century is whether we can produce a better-educated population. The odds seem to be all against it.

I have a book coming out this year called *In Defense of Free Speech: The University as Censor*. More and more of America's students lack either the knowledge or the critical intelligence to come to terms with the modern world. There is nothing the matter with our hearts but the problem is our heads.

If anyone had told me, 50, 60 years ago, when I began lecturing, that we would double the number of university graduates, and have a smaller elite of well-educated critics of our time, I would say that was insane. But all the studies show that adults today read less serious literature, less history than they did 30 or 40 years ago, that they are at least as ignorant of the same basic facts as they were 30 or 40 years ago.

To some degree, America is a special case – it is strange beyond belief. In other countries, people may not be well-educated. But few of them have an alternative view of the world that challenges science and makes education almost impossible. About 35 percent of Americans are

raised in a way that provides them with a kind of worldview that makes them suspicious of science.

At least in France, over one-third of people do not believe that the solar system began ten thousand years ago, that dinosaurs and human beings existed at the same time, and that if one species differs from another it was because God designed them that way.

This worldview was typical in many nations in the late 19th century. Take Britain: people were enraged by Darwin and thought their next-door neighbour was going to hell because they didn't baptize their kids correctly. But slowly this world view faded in Britain, and Canada, and Australia, and England, and Spain, and Portugal. People who thought of modern science as an enemy, and had this 19th-century perspective, began to disappear.

What the hell happened to America? It is as if a third of the population was taken to Mars, and then came back a hundred years later, and their minds had been in a refrigerator. That is a terrible burden America must carry: about a third of its population has a worldview that makes them systematically opposed to learning and critical intelligence.

[About a third of U.S. adults insist that humans, including their tailbones, and other living things have always existed in their present form since the beginning of time, according to a fairly recent Pew Research Center survey.

https://www.pewresearch.org/science/2015/07/01/chapter-4-evolution-and-perceptions-of-scientific-consensus/ -Ed. Note]

Jacobsen: How much is there a correlation between IQ gains and the advanced moral views that you mentioned before?

Flynn: That is hard to tell. I am only familiar with data within the US. The mean IQ is lower in the South than in states like Minnesota, or like Massachusetts. Despite the preaching of the Southern Baptists and Southern Methodists about the value of fundamentalist Christianity, you have more murder, rape, and early pregnancies than you have up north.

You find a correlation that as IQ rises, people have what I would call more enlightened moral judgment. But you must look at all the confounding variables. Ever since the Civil War, the South has been in a state of schizophrenia. Of course, it is a less prosperous part of the nation. It is a more rural part of the nation. It is a more religious part of the nation. How is one to pick out the causes here? I suspect that thanks to IQ gains over time, some kids raised as Southern Baptists, have learned to be skeptical and to think for themselves. But why has the number been so small?

Part 2 of Interview

Abstract

Dr. James Robert Flynn discusses: IQ gains as not necessarily *g*, or general intelligence, gains; racial differences and definitions in intelligence research; and ethnic groupings, species, and getting to the roots of the research regardless.

Keywords: ethnicity, *g*, general intelligence, intelligence, IQ, James Flynn, morals, political studies, race.

Scott Douglas Jacobsen: Why are IQ gains not *g* gains, that is, general intelligence gains?

Professor James Flynn: Simply because IQ gains over time have occurred on all IQ subtests and have not been greater on those subtests that are of the greatest cognitive complexity. However, I do not think that the fact that IQ gains fail to particularly load on *g* (or cognitive complexity) is a reason to discount their significance. IQ gains on subtests like vocabulary (among adults), matrices, block design, classification, should be very important even if gains are equivalent on other less demanding subtests like digit span, which mainly tests rote memory.

[See pages 229-232 of Arthur Jensen's *Bias in Mental Testing*. The section is titled "What Characterizes the More Highly *g*-Loaded Tests?," and Jensen's answer boils down to task complexity and *conscious* mental manipulation. Backward digit span, as opposed to forward digit span, is the more complex task, requires more *conscious* mental manipulation, and therefore has a higher *g*-loading: "The *g* loading of the digit-span task does not vary as a function of the number of digits in the series but as a function of forward versus backward order of recall" (Jensen, *Bias in Mental Testing*, page 231). -Ed. Note]

g has an appeal as a concept of intelligence. It shows that individuals who do well on IQ tests beat the average person more and more as problems become more cognitively complex. If you and I were to sit down and say, "What would be one of the characteristics of intelligence?", we would probably reply, "The person who is intelligent can beat the average person more on complex problems than easy problems," wouldn't we?

This mistakenly leads to the conclusion that IQ gains are not really "intelligence" gains and must lack significance. I am not going to get into defining intelligence, but certainly gains on vocabulary are highly socially significant no matter what has happened to other cognitive skills. If you really want to see why IQ gains have not been as significant as they might be, you would do better to focus on the fact that universities are doing such a bad job of educating.

I have a book coming out this year, in September, called *In Defence of Free Speech: The University as Censor*. At present, universities spend as much time censoring as teaching.

Anyone who has unpopular views on race or gender or practically anything is banned: they can't speak on campus, they are not read, they are derided ignorantly.

In my book, I detail all the things I learned, precisely because I read Jensen, and Murray, and Lynn, and Eysenck. It is wonderful when you encounter a highly intelligent, highly educated opponent, who takes a point of view contrary to your own. You must reassess your arguments. You often find that you have been simplistic, and that arguing with these opponents teaches you ten times as much as you knew when you were naive.

["Common men find themselves inheriting their beliefs, they know not why. They jump into them with both feet, and stand there. Philosophers must do more; they must first get reason's license for them; and to the profesional philosophic mind the operation of procuring the license is usually a thing of much more pith and moment than any particular beliefs to which the license may give the rights of access. Suppose, for example, that a philosopher believes in what is called free-will. That a common man alongside of him should also share that belief, possessing it by a sort of inborn intuition, does not endear the man to the philosopher at all - he may even be ashamed to be associated with such a man. What interests the philosopher is the particular premises on which the free-will he believes is established, the sense in which it is taken, the objections it eludes, the difficulties it takes account of, in short the whole form and temper and manner and technical apparatus that goes with the belief in question. A philosopher across the way who should use the same technical apparatus, making the same distinctions, etc., but drawing opposite conclusions and denying free-will entirely, would fascinate the first philosopher far more than would the naïf co-believer. Their common technical interests would unite them more than their opposite conclusions separate them. Each would feel an essential consanguinity in the other, would think of him, write *at* him, care for his good opinion" (William James, *A Pluralistic Universe*). -Ed. Note]

Let us go back to our friend, *g*. There is overwhelming evidence that cognitive abilities, even when taken individually, are significant. This is true of individual skill in all areas. If we studied drivers in New York, or in Boston, some would be better drivers and some worse drivers. We could rank driving tasks in terms of complexity. We would probably find a "*g* pattern": that the better drivers bested the average person the more as the complexity of skills rose. I am sure that the better and the worst drivers would not differ much on the simple task of turning on the ignition. But note that the presence or absence of the "*g* pattern" would tell us nothing about the causes at work, not even as often thought whether the causes were environmental or genetic

For ordinary city driving, the better drivers would start to forge ahead of the worse ones. This would become more pronounced if you looked at driving around the cities on beltways: that is one of the first things elderly people give up. There are so many cars coming in so many directions and changing lanes. Many elderly people who still drive will not do beltway driving. The better group would be much better at it. Finally, there is the question of parallel parking, which is the part of the driving test most people fear. The better group might better the average person most of all on that.

When we look at these two groups, how useful would it be to derive a *g* factor? It would be disastrous to assume that since *g* is influenced by genes the better drivers were somehow a genetic elite. *g* would tell you nothing about causes. For example, you may discover that the people who are the worst drivers are new arrivals in New York City who have had no experience in beltway driving. You might also find that in their town, they just drove into a parking space and didn't have to know how to come in on a parallel park.

On the other hand, we might find that none of this is true. We might find that they were equally experienced, and then we would say to ourselves, "I bet there is a genetic factor. Perhaps some of these people are better at spatial visualization. Perhaps some of them are better at information processing. Perhaps some of them are better at manual dexterity." Our minds would go in the direction of skill influenced by genes. But it would depend on the case. You must approach each case with fresh eyes, and not be hypnotized by *g*.

I am quite sure that any two groups can be differentiated by genetic factors, and that this would affect performance. For example, if one group was a lot taller than another, it would affect their basketball performance. But you must take these cases one by one.

I looked at black/white IQ differences in Germany. Blacks in America fall further behind whites the more cognitively complex the task, which leads some to infer that they are lower on *g* and are genetically inferior. But then you study Eyferth's children in Germany. These were half-black and all-white children left behind by black and white American servicemen in post-war Germany. The *g* pattern had disappeared. There was no tendency whatsoever for the half-black kids to fall behind more and more as you go up the complexity ladder.

That seems to imply that this group difference has something to do with culture. The first thing that comes to your mind is that these half-black kids were raised by white German women. There was no real black subculture in Germany after World War II. The black subculture element is totally absent. Then you go to someone like Elsie Moore.

She did a wonderful study in the 1980s. No-one, of course, will repeat it again because of political correctness. She had, as I recall, it was something like 40 kids – or maybe it was 48, that sounds more like it – all of whom were black. Half of them were adopted by black parents of high SES and half of whom were adopted by white parents of high SES. At the age of eight and a half, the black kids adopted by white parents of high SES were 13 points ahead of the black kids adopted by black parents.

Elsie Moore called the mothers and kids in. She found that white mothers were universally positive. "That is a good idea. Why don't we try this?" The black children came in with their black foster mothers. The mother was negative. "You are not that stupid. You know better than that."

It became quite clear that even though both sets of families had elite SES, there was something in black subculture that found it unwelcome to confront complex cognitive problems. Once again, by the age of eight and a half, the black children adopted by whites of high education and SES were 13 points above the blacks adopted by blacks

You can say, “Is that evidence enough?” It is not enough, of course, but it does tie in with the German data. There, black subculture was absent, and the *g* effect was absent. In America, black subculture is thriving. Even the black children being raised by white parents, as they grew up, would tend to merge into the black teenage subculture, the “shopping mall” subculture.

My main point is that we must approach all this with an open mind. I am not saying that Jensen’s concept of *g* does not pose interesting questions. It does, but it cannot be taken as an automatic piece of litmus paper as to when one group is genetically privileged over another. Both options must be open.

I think that a genetically influenced *g* effect occurs between individuals. I think that when you have sexual reproduction, the higher cognitive abilities are more at risk of “damage” than the lower ones. You can imagine that would be true. You have two siblings. If one had bad luck, he will have more deleterious recessive genes paired. This may damage complex cognitive skills more than less complex ones. The bad luck twin will probably be below his brother more on Raven’s than on rote memory. I published this opinion recently and Woodley took notice of it. Do you know who Woodley is?

Jacobsen: I have heard that name before, but that is about all.

Flynn: He’s a very prolific British researcher, very good indeed. I supplemented my remarks by saying that it was interesting that the higher cognitive abilities were the ones that would have come along latest in human evolutionary history and, therefore, they might be more fragile in the genome. Woodley is now pursuing this possibility

The concept of *g* shouldn’t be dismissed. Whenever anything describes a phenomenon in intelligence, we must probe for its causes. It is terribly sad that it has gotten side-tracked into a debate over whether the fact one group falls further behind another as cognitive complexity increases is an indication that they’ve got to be genetically defective.

As you know, I have done research with Bill Dickens that showed that blacks gained relative to whites about 5 points in the generation between 1972 and 2002. This correlated with evidence from educational tests, as well. What are we going to say if they gain another 5 points? Are we going to conclude that the *g* pattern is not as pronounced as we once thought it was? That would fly in the face of evidence in its favour. So, *g*, to me, is an interesting concept for research but it is not the be all and end all of what we do when we do intelligence research.

Jacobsen: Racial differences also lead to some questions around definitions. For instance, is it a scientific category, race? In other words, is it proper to even talk, in a modern scientific context, about the category “race” when talking about intelligence?

Flynn: I do not have much patience with that. I see that as an evasion of real issues. Imagine that a group of Irish came to America in about 1900. Of course, the Irish have not been a pure race through all of history, but they have much more in common in terms of heredity than they do with Slovaks.

These Irishmen in America settle in a community down by the Mississippi. You will find that when the children send them to school, some Irish kids will do better than others; and the ones who do better will, on average, grow up to buy more affluent homes.

Thus they divide into two groups. Below the railway tracks near the Mississippi, where it is not so nice, you will have what we used to call “shanty Irish”. Above the railway tracks, where things are much nicer, you will have what we used to call “lace curtain Irish”. If you compare these two groups, you will find an IQ gap between them that has a genetic component.

You can try to dismiss this by repeating the mantra “They are not pure races.” Of course, they are not pure races. They are sociological constructs that have a different sociology because of somewhat different histories. But it still makes perfectly good sense to ask whether there would be a genetic difference in IQ between the shanty Irish and the lace curtain Irish.

When individuals within a group compete, genetically influenced cognitive skills are involved. Some people, as I have said, will do better at school and, on average, they will have a better genetic endowment. It will not be a huge gulf. American children from parents in the top and bottom third of SES tend to have an IQ gap of 10 points; and perhaps 5 of these may be genetic rather than environmental.

I hope this cuts through all of this nonsense. Also, the “irrelevance” of race seems to be special pleading. If we cannot talk about blacks as a “pure race”, and that disqualifies grouping them together, how can we have anything like affirmative action? The answer will be, “Well of course they are not a pure race. But they identify themselves as black, and whites identify them as black, and despite the fact that they are a social construct, they get the short end of the stick.”

If you can compare blacks and whites as to who gets the short end of the stick, you can also give them IQ tests, and you can also ask yourself as to whether in the histories of these two peoples, there has not been sufficient genetic diversity that one has built up an advantage over the other.

The causes of the black-white IQ gap are an empirical question. It has nothing to do with the stuff about pure races. There are groups that are socially identified as different, groups that identify themselves as socially different, groups that have histories that could conceivably lead to a genetic gap between them. You have got to look at the evidence.

It is an evasion. You ignore the fact that there are no pure races when you say, “more blacks live in poverty.” Why drag it in when you compare races for genetic differences?

Jacobsen: What about the shift in the conversation in terms of talking more about species rather than races, and then looking at different ethnic groupings? So, it is doing it within what probably are more accurate depictions than terminology such as “race”.

In terms of reframing it within a more modern scientific context, in terms of having species, and then having different groupings, as you noted, it is with ethnic groupings with different histories, rather than talking about races.

Flynn: That is fine. I have no objection to that, but it is not going to make anything go away, is it?

Jacobsen: No.

Flynn: There are still going to be 10% of Americans who self-identify as “black” and virtually all whites will identify blacks as “black”, and then we will still have to ask the question, “Do black and white at this point in time differ for cognitive abilities entirely environmentally?” I do not see how any verbal device will change this

There used to be academics who said that since humans share 99% of their genes with bonobos, you could dismiss the notion that genes have something to do with intelligence. The significance of this was exactly the opposite. If one percent difference made a huge difference in intelligence, then if racial groups differed by 1/100 of a percent, it might create the IQ gap difference that we see today.

I haven’t found any argument yet for sweeping the race and IQ debate under the carpet which is anything but special pleading. I do not think these arguments would be used in any other context whatsoever. They are used in this context so that we can all say, “We do not have to investigate these matters. We can pat ourselves on the back.” When actually, we should feel scholarly remiss.

Part 3 of Interview

Abstract

Dr. James Robert Flynn discusses: declines or apparent declines in IQ over the last decade or so; the changes in the notions, or the formal definitions, and research, and trends into race, class, and IQ over time; general thoughts about the state of academic freedom and the state of graduates; modern developments of things like research ethics boards, REB and IRB; what the socio-political left and right are doing right and wrong in the academic system, in the humanities, regarding academic freedom; justifications for an ethics review or not; historical precedents of adherence to the principles of freedom of academic inquiry; persecution comparable to The Red Scare and the McCarthy Era; egregious cases in the modern period of persecution; trajectories into research on IQ and intelligence; the future of the academic system regarding freedom of expression (and so freedom of speech); and overall thoughts on life's work.

Keywords: academic freedom, general intelligence, intelligence, IQ, James Flynn, political studies.

Scott Douglas Jacobsen: What about the declines, or apparent declines, in IQ over the last decade or so?

Professor James Flynn: People have never understood that the factors that feed into IQ gains are quite complex and interlinked. I do not know if you have seen the article with the very distinguished British psychologist, Michael Shayer, that we published in *Intelligence*.

People focus on Scandinavia but most of the Scandinavian data are young adults taking military tests, and it could well be that the environmental triggers for IQ gains have declined for that age-group while they have not declined for other age-groups. For example, in all cultures today, including Scandinavia, there is much more emphasis on cognitive exercise in old age. This may still be progressing today and if you looked at the aged in Scandinavia, you would find gains.

I have studied the Dutch. I suspect that the Dutch are still treating their aged better, making them healthier, and giving them more food, and more cognitive stimulation. Then we go down to mature adults who are in the world of work. There is some Wechsler data showing that in that age group, IQ gains are still proceeding, meaning the world of work in Holland is still more cognitively challenging than it was 30 years ago.

Then you come down to the kids just out of school who aren't in the world of work. There is overwhelming data that in most Western societies, males are interfacing with formal education worse than they did in the past: more expulsions, less homework, more rebellion. At that age, Dutch IQ may be slightly lower than in the previous generation.

Then you look at the Dutch down at preschool and you find, essentially, stasis. This is before kids go to school. It appears that their environment is neither better nor worse. Perhaps parents have exhausted their bag of tricks for making the childhood environment cognitively demanding, but they haven't lost any ground either.

The question of IQ gains over time must be looked at in the light of full data that involves all age groups. Remember, again, my point, that whether we have slight increases in IQ during the 21st century, is far less important than the level of ignorance during the 21st century.

Jacobsen: [Laughing] Looking at the research since 2000, how have the notions, or the formal definitions, and research, and trends into race, class, and IQ changed over time as further research has been done?

Flynn: As for race, those who want to evade the issue still say, "Oh, the races just differ in terms of class." This is ludicrous because as you know, if you match black and whites for socioeconomic status, it does almost nothing to eliminate the IQ gap.

Then you say: "But the black class is more insecure, they are more recently arrived at middle-class status, and thus class does not mean the same thing for black and white." Note those words. Although it is never admitted, you have slipped from a class analysis into a black subculture analysis. You are saying that you can no longer look at this issue purely in terms of socioeconomic status. You must look behind matching for SES and see what is going on in the minds and hearts of people. Despite this, there is an enormous inhibition against using the notion of subculture. This has to do with weird notions about praise and blame.

If you look at Elsie Moore, you think, "Isn't she saying that black mothers are less efficient mothers than white mothers? Isn't she saying that they are more negative? Isn't more corporal punishment waiting in the wings?" Maybe there is. If so, these things must be isolated and altered. But they make white scholars shudder. If they talk about black subculture, they will be accused of "blaming the victim".

The cover is to talk vaguely about the fact that blacks have a history of slavery for which they are not to blame. And that they are poor for which they are not to blame. This is a sad evasion. Unless the history of blacks has current effects on their subculture, it would be irrelevant. Once again, you must come back to subculture. Note that the Chinese have a history of persecution but that is irrelevant because their subculture today is not affected in a way that lowers their mean IQ.

I do think that there has been a rise in the number of people who take Jensen's hypotheses seriously. I have. Dick Nisbett has. Steve Cici has. Bill Dickens has. How do you balance that against this deeply rooted feeling that any investigation in this area has to be subject to a moral censor?

Jacobsen: This leads into the book you are going to be publishing later.

Flynn: The one on the universities?

Jacobsen: Yes. It has to do with academic freedom and the prevention of certain research. Also, in terms of what is coming out of the universities in terms of the graduates, what are your first general thoughts about the state of academic freedom and the state of graduates?

Flynn: There is a sad intolerance on the parts of students when they encounter people who hold ideals or ideas that they find repugnant. Look at the persecution of Charles Murray. I do not, by the way, deny that this sort of thing happened in the past. When I was a young academic, I was persecuted for being a social democrat and driven out of US academia, so I am not one of these elderly people who say, “It was nice in my day.”

It is ironic that the left today seem as intolerant as the right were in my day. When students banished Charles Murray at Middlebury University [College? -Ed. Note], they merely proved they were more powerful than he was and could threaten him with violence. There was not one person in that mob educated enough to argue effectively against his views. They did not know what he had to say and never having heard him, they will never know. They mimicked lecturers who said, “This man is a racist. Let us keep him off campus.” That is one force against academic freedom.

There is also the fact that no young academic has security. Over half of the courses in America today are taught by adjunct professors.

They have no tenure and can be fired at the drop of the hat. They know where their careers lie. Imagine giving a vita to a university and saying on it, “One of my chief interests is research into racial differences and intelligence and the necessity of an evidential approach to the work of Arthur Jensen.” What chance do you think you would have? You wouldn’t get hired. You wouldn’t get given tenure. You might as well jump off a bridge.

People are being fired in American universities today, merely because they use the term “wetback” in a lecture, which is considered so offensive that they could not possibly apologize for it.

[Editor’s Note: Sheldon Wolin thought the decision to overload the roster with so-called adjunct professors was itself a weapon frequently employed to constrain the freedom of expression and conceptual reach of professors, who in this insular and contrived academic universe could happily be hired and fired on demand should their views prove overly stimulating or heterodox.]

The administrators, of course, are supine. They just want as little trouble as possible, and the least trouble possible is to have a speech code. When a student is upset, you get the lecturer fired. If the lecturer remains, there is trouble and controversy. What other people do to academics is one source.

The second source is what academics do to themselves. There are certain departments where there is what I call “a Walden Code”. The phrase is taken from Skinner’s book *Walden Two*, which has a code that describes what is permissible. Various academic departments tend to enforce such a code.

In anthropology, if you are a Piagetian, and you think that societies could be ranked in terms of mental maturity, you are considered unholy. If you are in education and you think that IQ tests have a role to play, people recoil in horror. IQ tests rank people, and what education is all about is producing a society in which no-one ranks anyone else.

Then there are the new groups like black studies where there is often a fierce fight between ideologies as to who gets control. Who gets control is very likely to banish the others. Whether you are a revolutionary black Marxist, or whether you are this or that. There is a great deal of intolerance.

The same is true of women's studies, though by no means in all departments. My department here at Otago is good. But in many of them, you cannot seriously investigate the reasons why women have less pay than men. It is automatically attributed to male malice without looking at all the sociological variables.

There is also the larger issue of what universities are doing to their students in general. They do not educate them for critical intelligence but to just get a certificate for a job. And some departments see themselves as sending out missionaries, for example, Schools of Education send students out to turn the schools into an imitation of a "liberated" society.

The teachers and students bat ideas around, but the teacher steers the conversation toward America's ills points out that there are poor people in America, and that rich people profit from the poor, and that blacks and gays suffer. All very true. But the students arrive at university without learning what they need to cope.

My book gives a classical defence of free speech. It details the knowledge I would have been cheated out of had I not benefited from arguing against Jensen, and Murray, and Lynn, and Eysenck. It details all the threats to free speech posed by the university environment.

Jacobsen: How important are modern developments of things like research ethics boards, REB and IRB?

Flynn: Some of these, of course, are appropriate. You do not want psychologists experimenting with how students perform at various levels of inebriation, and then let them drive home and kill each other in traffic accidents. Certain ethical codes are important. The abuse is when they are used to ban research that the university knows is unpopular.

A point that I haven't touched on. The natural sciences, the mathematical sciences, and professions like law and medicine are not exempt from pressures toward conformity, but they do have to educate for the relevant knowledge, and they are less subject to corruption. I guess you could take an ideological line in favour of Newton, an Englishman, and against Leibniz, a Frenchman. I once knew a lecturer who turned his Accounting classes into a plea for Social Darwinism. But still, students have got to learn to do the math.

In physics, it is hard to take an ideological line when you teach the oxygen theory of combustion against the phlogiston theory. The same is true of chemistry. After all, your graduates go on to

graduate schools and you don't want them to embarrass you by seeming woefully inept. Someone must be able to do surgery without always nicking the tonsils in the process.

The hard sciences have an incentive to maintain a higher standard of intellectual training than the humanities and social sciences. Yet they can easily be corrupted by the fact that they usually require lots of money. The government put strings on what money it is willing to give, and corporations put strings on what money they are willing to give. They can effectively forbid research that they dislike.

My book does not go into that. It is mainly about the humanities and the social sciences. I am told that the Trump administration is trying to do awful things to the biological sciences when funding the National Health Foundation. He is certainly discouraging research into climate change.

Jacobsen: If you were to take what would be termed the socio-political left and the socio-political right in the academic system, in the humanities, what are they doing right and what are they doing wrong regarding academic freedom?

Flynn: They are doing something right insofar as they are scientific realists, and they are doing something wrong insofar as they are not. [Laughing] Of course, that is not purely a political divide. There are plenty of people both on the so-called left and on the right who live in an ideological dream world, an image of man and society which they try to "protect" by getting people fired they disagree with.

But fortunately, on both right and left, there are people who say, "We have got the scientific method. It is the only method that actually teaches us what the real world is like, and we're going to fight like crazy to apply it despite all of the forces against us".

Jacobsen: If an academic on either side of the aisle wants to make a point as in the ends justify the means, is it justified for them to simply ignore or skip an ethics review and potential need for ethics approval in a university when they are doing research?

Flynn: The notion that the end justifies the means, if stretched far enough, will open the door to censorship. There are limits, of course. I wouldn't be in favour of a physics department that spent all of its time trying to develop a doomsday machine: how to dig a hole, and put enough nuclear weapons in there, so that any nuclear attack on your soil would trigger a nuclear explosion that would tilt the earth on its axis. [Laughing]

There are also limits in the humanities. To have a whole department of geology dominated by people who believe in crop circles, would also be bizarre. What you have got to do is say, "The scientific community recognizes that there are screwballs out there. We have got to take efforts to try to limit their presence in the classroom. But we must always, always be alert to the difference between necessary guidelines and censorship guidelines that allow us to shut up people we disagree with."

Aristotle called finding this balance “practical wisdom”. I do not know how to give say 90% of academics practical wisdom so they can tell the difference between the two, but it is what academics have got to strive for whether they are right or left.

Jacobsen: In what contexts in history have there been academics as a majority who have adhered to those freedom of academic inquiry principles?

Flynn: I am not sure that they have ever been a majority. It is better to ask, “Are there universities today that sin less than others?” I would say that the University of Chicago sins much less than Harvard or Yale. In my book, I detail the extent to which the University of Chicago tries to deal with the forces against free speech on campus, and the extent to which Yale and Harvard have succumbed to these.

When you look at the history of universities, there sure as hell was not much tolerance before let us say about 1920, if only because of the influence the churches and their respectable members. In the 1920s, the Red Scare intimidated thousands of academics. Later, there was the McCarthy period. But in all those periods, there were academics who fought for free speech come hell or high water.

It is hard for me to say what the ebb and flow has been over history. It is much better to look at universities today and see who the worst sinners are.

Jacobsen: If you were to take a period-based qualitative analysis, is the persecution now from the so-called left, as you labelled them, worse than those from the so-called right towards the left during, for instance, The Red Scare, or the McCarthy era?

Flynn: I am trying to say that it is too hard to tell. I lived through the McCarthy period. I was damaged by it. My wife was damaged by it. My friends were damaged by it. Obviously, it has an immediacy for me. But at that time, even then, I felt I could probably find somewhere in the academic world where I might find a home.

Today, I look at the young adjunct professor in Virginia frantically trying, despite being an outstanding researcher, to find a berth somewhere, and being terrified of being thought unorthodox. I think today is at least comparable to what went on in the McCarthy period. It shouldn’t be thought of as somehow a lesser influence against freedom of inquiry than what went on then.

Jacobsen: What are the more egregious cases in the modern period that come to mind regarding this?

Flynn: The continual firing of adjunct professors because of a slip of the tongue. In my book, I also examine cases in which tenured professors have either been fired or have had their research curtailed. All sorts of things are done to them because they were investigating the wrong issue at the wrong time. Hiring policies. The banning of speakers on campus. All these things are at present in full swing.

Jacobsen: What do you see as the trajectory of research into the 2020s on IQ and on intelligence?

Flynn: If you look at problems that do not raise the spectre of race, there'll be very considerable progress, particularly from the brain physiologists. Also people are becoming more sophisticated in understanding that you must deal with *g* and not be hypnotized by it.

Jacobsen: What about the future of the academic system regarding freedom of expression, not just freedom of speech?

Flynn: There is a real reaction against what is going on. The interesting thing will be to see how far it will go. It will go far only if principled university lecturers get behind the various groups that are fighting like crazy to have a more open university. Heterodox Academy is one such.

I do not know how many university staff still retain academic integrity. I do not know how many of them, integrity aside, can no longer think clearly about issues. I do not know how many of them have sold out to careerist interests, but there do seem to be encouraging signs. A lot of academics are saying, "We'd rather teach in a place like Chicago, and not a place like Yale." Let us just hope we can turn the tide.

A lot of it will have to do with exterior events. If you get a wartime climate, all reason goes out of the window. What the effects will be of global warming, I would hate to guess. I have no crystal ball, but the universities are in the balance. There are significant pressures against the forces of reaction.

Jacobsen: Do you have any further thoughts, overall, just on your life's work?

Flynn: I do not want to comment on my life's work. Either it has had an influence, or it hasn't. [Laughing]

Jacobsen: I think it has. It was nice to talk to you again. Take care. I hope you have a wonderful evening.

Flynn: We will be in touch.

Jacobsen: Excellent. Thank you very much.

Flynn: Good-bye.

Interview with Richard May

Interview with Richard May

Abstract

Richard May ("May-Tzu"/"MayTzu"/"Mayzi") is a Member of the Mega Society based on a qualifying score on the Mega Test (before 1995) prior to the compromise of the Mega Test and Co-Editor of *Noesis*: The Journal of the Mega Society. In self-description, May states: "Not even forgotten in the cosmic microwave background (CMB), I'm an Amish yuppie, born near the rarified regions of Laputa, then and often, above suburban Boston. I've done occasional consulting and frequent Sisyphean shlepping. Kafka and Munch have been my therapists and allies. Occasionally I've strived to descend from the mists to attain the mythic orientation known as having one's feet upon the Earth. An ailurophile and a cerebrotonic ectomorph, I write for beings which do not, and never will, exist — writings for no one. I've been awarded an M.A. degree, mirabile dictu, in the humanities/philosophy, and U.S. patent for a board game of possible interest to extraterrestrials. I'm a member of the Mega Society, the Omega Society and formerly of Mensa. I'm the founder of the Exa Society, the transfinite Aleph-3 Society and of the renowned Laputans Manqué. I'm a biographee in Who's Who in the Brane World. My interests include the realization of the idea of humans as incomplete beings with the capacity to complete their own evolution by effecting a change in their being and consciousness. In a moment of presence to myself in inner silence, when I see Richard May's non-being, 'I' am. You can meet me if you go to an empty room." Some other

resources include Stains Upon the Silence: something for no one, McGinnis Genealogy of Crown Point, New York: Hiram Porter McGinnis, Swines List, Solipsist Soliloquies, Board Game, Lulu blog, Memoir of a Non-Irish Non-Jew, and May-Tzu's posterous. He discusses: growing up; a sense of an extended self; family background; the experience with peers and schoolmates as a child and an adolescent; the purpose of intelligence tests; high intelligence; geniuses of the past; the greatest geniuses in history; a genius from a profoundly intelligent person; some work experiences and educational certifications; the more important aspects of the idea of the gifted and geniuses; some social and political views; the God concept; science; some of the tests taken and scores earned (with standard deviations); the range of the scores; and ethical philosophy.

Keywords: general background, generic views, IQ, Mega Society, Richard May.

Scott Douglas Jacobsen: When you were growing up, what were some of the prominent family stories being told over time?

Richard May: Mother said that she was an orphan and "didn't know who her parents were." But she knew her mother's sister. It was all very coherent and logical. Once she said her father was a minister. I listened in silence. Once she said we were Danish, after talking to her brother on the phone. Danish had been substituted for Irish, I'm sure. I never interrogated Mother, naively preferring a passive psychoanalytic or Rogerian approach.

Father said his grandfather, who "looked very Jewish and wore a yarmulke in his jewelry business, fooled the Jews, by pretending to be a Jew." However, we were the Jews we 'fooled' on father's side of the family. "Truth is the safest lie," is a Yiddish proverb. There were no true family stories of interest. The lies of otherwise honest parents inspired me to research my background.

Jacobsen: Have these stories helped provide a sense of an extended self or a sense of the family legacy?

May: No, belatedly at age 53 finding the hidden truth provided a sense of family legacy.

Jacobsen: What was family background, e.g., geography, culture, language, and religion or lack thereof?

May: Mother was from Northern New York. Father was from Boston, Mass. We spoke English, which was not unusual in those areas at the time. There was not much religion at home. Nothing to rebel against. A children's book on "Jesus," when I was very young. An angel candle to protect me from goblins coming down the chimney at night. There was a little lip service to God now and then. We usually said grace before Sunday dinner.

I've only gone to church about five times in my life, all during childhood only. Father's originally Jewish side had become Unitarian, I guess. Mother seemed to think she was some sort of Protestant, alternating in a quantum fashion between Episcopal and Baptist. I correctly perceived this as not even farcical. At one point as a young child I told Mother that I did not believe in church. She cried.

Jacobsen: How was the experience with peers and schoolmates as a child and an adolescent?

May: I had a crush on a girl in the first grade. She liked my art work. It may have been o.k. till puberty. I was always chosen last along with a slightly retarded epileptic for sports teams in high school gym class. I was somewhat proud of this distinction. Guess I didn't fit in. Almost didn't graduate from high school and then university because of gym requirements.

Jacobsen: What is the purpose of intelligence tests to you?

May: Maybe the purpose of intelligence tests is to attempt to measure intelligence.

Jacobsen: When was high intelligence discovered for you?

May: Did SETI finally announce that they made a breakthrough? But SETI has never discovered me, as far as I'm aware.

Jacobsen: When you think of the ways in which the geniuses of the past have either been mocked, vilified, and condemned if not killed, or praised, flattered, platformed, and revered, what seems like the reason for the extreme reactions to and treatment of geniuses? Many alive today seem camera shy – many, not all.

May: Humans are tribal and primitive even today, to varying degrees. Differences of any kind among us are often not well tolerated.

Jacobsen: Who seems like the greatest geniuses in history to you?

May: Oh, you mean Mensa!

No?

— Archimedes, Euclid, Newton, Gauss, Einstein, and von Neumann come to mind.

Jacobsen: What differentiates a genius from a profoundly intelligent person?

May: Focused hard work in an intellectual discipline(s) over many years, original insights and thinking out of the box. Also the conventions historians used in identifying geniuses in various time periods. Herman Hesse wrote that in his view many geniuses were never noticed or recognized by their contemporaries or even later.

Jacobsen: What have been some work experiences and educational certifications for you?

May: Sisyphean shlepping, including ID checking in a bar, with a B.S. in psychology and a M.A. in Humanities/Philosophy.

Jacobsen: What are some of the more important aspects of the idea of the gifted and geniuses? Those myths that pervade the cultures of the world. What are those myths? What truths dispel them?

May: Myths may not necessarily be false propositions to be dispelled by truths, I think. Otherwise I have no thoughts on this.

Jacobsen: What are some social and political views for you? Why hold them?

I'm a political atheist with regard to ideologies and political process:

"Ideologies

Freedom, peace and prosperity are preferable to their absence or negation. Marxists say that property is theft; Libertarians say that taxation is theft. But ideologies, themselves, are theft: theft of reason; theft of truth; a secular theology of lies; paleomammalian delusions shared by the herd; 1-dimensional maps of hyperdimensional territories of phenomenal processes and individual values; attempts to depict a higher-dimensional polytope on a 1-dimensional line segment; maps far more useful to the mapmaker than the individual trying to find his way. There are no up-wingers or down-wingers; no front-wingers or back-wingers. Ideology is a bit of truth simplified to a convenient lie.

May–Tzu"

Humans are unconscious automata, as G. I. Gurdjieff stressed. In Christian language we are not redeemed, i.e., we are just too f*cked up as a species and we have a Type-O civilization. (We are probably actually less intelligent today than were the ancient Greeks.) It may be worth noting, however, that everything turns into its opposite in the relative world, including in the political arena.

“In Praise Of Stupidity

Homo sapiens is a primitive species whose primary activity is internecine tribal warfare and whose secondary activity is destruction of the ecosystem. Obviously human wisdom and compassion have not evolved as rapidly as the intelligence associated with technology and weaponry. Maybe for this reason “human stupidity” actually has survival value for our species. If the mean absolute I.Q. were 150 rather than 100, and if there were no correspondingly increased levels of wisdom and compassion, then perhaps we would have eradicated our species from the planet. Is stupidity, itself, the long awaited but unrecognized Messiah?

May-Tzu”

“There is infinite hope, but not for us.” — Franz Kafka

Jacobsen: Any thoughts on the God concept or gods idea and philosophy, theology, and religion?

May: There are a quite a few thoughts on the above topics that are in my *Stains Upon the Silence— something for no one*. — But having thoughts is not thinking.

Jacobsen: How much does science play into the worldview for you?

May: To the extent that science is an apolitical approximation of truth, science is my ‘religion’ or worldview; Science not scientism. But remember the disinvitation of physics Nobel laureate Brian Josephson from a Cambridge University physics conference and the banning of Rupert Sheldrake and laser physicist Russell Targ, who did research for the C.I.A. for years, from TED Talks.

Jacobsen: What have been some of the tests taken and scores earned (with standard deviations) for you?

May: I stopped taking IQ tests after the Mega Test on which I scored about 4.7+ sigma, qualifying me for the Mega Society. I took no later-developed tests after that. My score range is mostly between 3 and 4.7 sigma.

Incidentally I make no claims about my alleged ‘high intelligence’. This is neither humility nor false humility. I was raised to be stupid.

My mother repeatedly said that I was “just like her,” odd given that she appeared to be a female. She would refer to herself as “my stupid mother” and shortly after say, “You’re just like me.” She was orphaned in a rural area and had a 10th grade formal educational level, although she usually didn’t sound like it.

An uncle on my father's side, who boasted of having a very high IQ score, gave me a vast dictionary-encyclopedia in my early teens. I remember avidly looking up and studying various topics for hours. Mother told me that my thirst for knowledge "was just because my brain was developing" and reassured me that I would "get over it."

My father's father was said to have been a professorial-sounding brilliant autodidact who had dropped out of elementary school. He was said to have read a book a day, had an extensive vocabulary and corrected people's grammar. But Grandfather had bipolar disorder. Therefore, my father apparently associated high intelligence and erudition with 'madness' and disapproved of my attraction to books, where they could be found.

In short I took these tests to attempt to demonstrate something to myself, not to impress others. I don't generally feel highly intelligent and usually assume that others are more intelligent than I am, at least until I've observed them.

But — in an absolute sense — how brilliant are actual human geniuses standing before the cosmos?

Jacobsen: What is the range of the scores for you? The scores earned on alternative intelligence tests tend to produce a wide smattering of data points rather than clusters, typically.

May: My score range is mostly between about 3 and 4.7+ sigmas. My lowest score was about 2 sigmas. My friend Grady M. Towers claimed that everyone has as many IQs as they have taken IQ tests. Anne Anastasi wrote that IQ is not a property of an organism, but an index of a sample of behavior.

Jacobsen: What ethical philosophy makes some sense, even the most workable sense to you?

May: Buddhist ethics.

Part 2 of Interview

Abstract

Richard May discusses: *Stains Upon the Silence: something for no one* (2011); the intended meaning of the title; MayTzu or May-Tzu; the cover; a cross-section with "philosophy, cosmology, poetry and humor"; an atheist; Jorge Luis Borges in "The Library of Babel"; transontological studies; the conservation of information; "two fundamental theorems of quantum mechanics"; information; and information, knowledge, and wisdom.

Keywords: information, knowledge, IQ, Mega Society, Richard May, Stains Upon the Silence, wisdom.

Jacobsen: Okay, now, we come to the fun bits. The greatest hits of May-Tzu in three thematic parts based on three books while bound to one singular interview and segmented into parts. Your first book for analysis is entitled *Stains Upon the Silence: something for no one* (2011). Why this title?

May: I think the expression that "each word is a stain upon the silence" originated with Samuel Beckett, who may have implied that his words were less true and beautiful than silence. The silence of pure consciousness in the moment is suggested to and by me, but not necessarily meant by Beckett, analogous to sunyata, the Buddhistic void.

"— Something for no one" anticipates that the book is unlikely to immediately be made into a hit TV series or become a popular film. Only the subset of the general population with both fairly high cognitive ability and a degree of "right-brainedness" and/or appreciation of artistic creativity are likely to value the work. These two factors probably have a correlation of about zero (0). So this is not a large potential audience.

Jacobsen: What is the intended meaning of the title?

May: What I've said above.

Jacobsen: Is it MayTzu or May-Tzu?

May: Google says it's either. But May-Tzu is Wade-Giles. Today May-Tzu should apparently be written Mayzi, as Lao-Tzu is Laozi. The former is Wade-Giles, the latter pinyin.

Jacobsen: Who designed the cover?

May: The image was my idea. Someone who knew how to edit files, a digital artist of sorts, brought it into existence.

Jacobsen: Why make a cross-section with "philosophy, cosmology, poetry and humor" in it?

May: Why not? The universe is a Rorschach inkblot interpreted by human intelligence as a geometric theorem and also a geometric theorem interpreted by human intelligence as a Rorschach inkblot. "A complete and perfect philosophical work could be written consisting entirely of jokes" — Ludwig Wittgenstein

Jacobsen: Are you an atheist? Rather, how are you defining the "-theist" god so as to provide an "a-"?

May: I find the existence of Zeus somewhat improbable. Was the Buddha an atheist? Was Patanjali an atheist? Is Advaita Vedanta atheism? Is the philosophia perennis atheism? Atheists seemed to be mostly focused on the personality of the Adorable Yahweh, and on the exoteric level of the Abrahamic religions. As Gurdjieff, among others, recognized there are different levels of religions, e.g. exoteric and esoteric, and different levels of human beings.

Remember May-Tzu's wager: "It is extremely improbable that God exists. But it is certain that I don't exist. Therefore, the existence of God is a much better bet."

Jacobsen: You quote Jorge Luis Borges' *The Library of Babe*l on page 3, which says, "I know of an uncouth region whose librarians repudiate the vain and superstitious custom of finding a meaning in books and equate it with that of finding a meaning in dreams or in the chaotic lines of one's palm…the books signify nothing in themselves. This dictum, we shall see, is not entirely fallacious." Why quote him in this book? Why do books "signify nothing" in and of themselves?

May: Borges' mind resonates with me; Borges is hilarious. But he attributes the view to the librarians of an *uncouth* region. If life, itself, is "full of sound and fury, signifying nothing," then what of the literature of those who live it?

Jacobsen: What would be "transontological studies"?

May: Studies across different levels of Being, a bit beyond transgender. Maybe academic pretense also.

Jacobsen: If we take the musing in the "Preface" on the conservation of information, how might this effect considerations about human mentation and computational capacities of digital computers?

May: Maybe everything and every thing is immortal as information. Then all sorts of Immortal Dreck would exist, floating throughout space-time everlastingly as information, perhaps including human personalities.

I don't understand how it would affect the computational capacities of digital computers. But the conservation of information may be beyond my pay grade or even the pay grade of Homo sapiens, as presently evolved.

Jacobsen: Do these "two fundamental theorems of quantum mechanics" imply a link to the 'fundamentals' or base of the dynamic construct called the universe and that which we – recently, mind us – deemed "information" for the proposed conservation of information if tying this knot to G.I. Gurdjieff who "maintained that all knowledge was material"?

May: I don't understand the question.

Jacobsen: Following from the previous question, you focused on the contextualizations of information with "knowledge" and "wisdom." In this framework, we come to the idea of the triplet linkage between information, knowledge, and wisdom. Human operators make distinctions between these. Why would the universe make such a distinction? This seems like an jump-gap with hidden premises, potentially, needing filling for more complete consideration.

May: I think, as Sir Fred Hoyle suggested, that our brains, and presumably brains in general, including exo-brains and AI, follow the logic of the universe, not vice versa. The distinctions between information, knowledge and wisdom may be natural language attempts to designate an information hierarchy of increasing levels of generality and utility, both objectively (isomorphic to 'external' reality and intersubjectively testable) and subjectively (isomorphic to 'internal' reality). — Sometimes questions have hidden premises too.

Jacobsen: Following from the previous question, we have the idea of the conservation of information and "memories," human remembrances, as incorporative of information. Why would the universe constitutionally organize the information on the large scale akin to the manner of the human mind, so as to make the connection between human memories as a form of information? This seems similar to the dilemma with information, knowledge, and wisdom, stated in the context before.

May: I continue to think, as Sir Fred Hoyle suggested, that our brains, and presumably brains in general, including exo-brains and AI, follow the logic of the universe, not vice versa. The distinctions between information, knowledge and wisdom may be natural language attempts to designate an information hierarchy of increasing levels of generality and utility, both objectively (isomorphic to 'external' reality and intersubjectively testable) and subjectively (isomorphic to 'internal' reality).

Part 3 of Interview

Abstract

Richard May discusses: a favourite Zen koan; other ethical system formulations; different formulations of the Golden Rule; the 'religion' of the Dalai Lama; crossing the other side of the river in Buddhism; "Thought without measurement"; "In Praise of Stupidity": wisdom and compassion; preventing intelligence levels reaching averages too high; "Know Thy -"; "Ideologies"; "ideologies" in general labelled "a secular theology of lies"; "Realpolitik among the Laputan Taoists"; "Utopia"; "Understanding"; men don't understand their wives; "Prolegomena To Any Future Obfuscation"; the "reality of existence and the existence of reality" have no "single relationship"; reality and polyamory; metaphysicians; and stage magicians.

Keywords: G.I. Gurdjieff, IQ, koan, Marxism, May's Razor, Mega Society, obfuscation, prolegomena, Richard May, Stains Upon the Silence, Zen.

Jacobsen: Side question before starting today, what is a favourite Zen koan for you, or two?

May: My favorite Zen koan is: "What is a favourite Zen koan for you, or two?" Another favorite Zen koan of mine is: "Why is reality so ahead of its time in its polyamorousness?" — In general I think one koan is as good, i.e., 'useful', as another. I don't think I have favorites.

"What is the taste of Braille shadows?" is a koan of my own invention.

Jacobsen: We talked a bit about ethical systems in the second session. What other ethical system formulations make sense to you?

May: The negative formulation of the "golden rule."

Jacobsen: There are different formulations of the Golden Rule. There can be trotting out of the Golden Rule as if only a Western concept, or only a Christian idea or Jesus Christ's idea. These are Western and Christian conceits inasmuch as we know and can comment on them within the backyard with the noisy, barking dog of the world. The Golden Rule has been stated as positive, as negative, as neutral. What other formulations, specifically, of the Golden Rule make sense to you?

May: The negative formulation of the golden rule, which is the same in Judaism (attributed to Hillel the Elder) and Confucianism. (The positive formulation which is close, but not as logically excellent, is attributed to Jesus. "Do unto others…")

I.e., "Do *not* do to others what you would not want them to do to you."

This is what Hillel supposedly said to a gentile in the ancient world when asked to explain Judaism to him while standing on one leg!

From Wikipedia:

He is popularly known as the author of two sayings: (1) "If I am not for myself, who will be for me? And being for myself, what am 'I'? And if not now, when?" and (2) the expression of the ethic of reciprocity, or "Golden Rule": "That which is hateful to you, do not do to your fellow. That is the whole Torah; the rest is the explanation; go and learn."

Jacobsen: What is the 'religion' of the Dalai Lama regarding ethics, and science for that matter?

May: The Dalai Lama says that his religion is *kindness*, i.e., compassion for all sentient beings. He also said that if any tenet of Buddhism is inconsistent with modern science, then Buddhism must change. Once when asked at a lecture what happens to our consciousness after death the Dalai Lama stood in silence for three or four minutes.

Jacobsen: What is crossing the other side of the river in Buddhism, and then discarding the proverbial raft?

May: After you cross to the other side of the river, i.e., attain enlightenment or liberation from the illusion of personal identity, you should discard the raft, i.e., Buddhism. Atheist and neuroscientist Sam Harris seems to have an understanding of Buddhism and the human situation. Buddhism also maintains that everything is transient and, hence, one day there will be no Buddhism.

Jacobsen: In "Thought without measurement," you echo Wittgenstein about the relation of comedy and great philosophical works. Why?

May: No, I have not echoed Wittgenstein but reversed him!

Wittgenstein wrote: "A serious and good philosophical work could be written consisting entirely of jokes."

Whereas I wrote:

Thought without measurement

A hilarious comedy could be written consisting entirely of serious and good philosophical works.

Here I meant that philosophy ends where measurement begins. The domain of philosophy is diminishing historically as scientific knowledges increases

Jacobsen: "In Praise of Stupidity" speaks to the "primitive species" *homo sapiens*. The species that works in the destruction of one another in tribal warfare and of the environment sustaining its livelihood, not too bright in other words. You speak to the possible evolutionary function of relative stupidity. In that, a highly intelligent species, relative to the present, would probably self-annihilate, where lower mean intelligence of the species leads to a higher probability of surviving in the Darwinian world of nature. You point to an evolution of human intelligence beyond human compassion and wisdom. What seem like the drivers for an increase in intelligence beyond human compassion and wisdom?

May: Natural selection during inter-species competition found little utility in what we call, "compassion and wisdom." A predator should not feel compassion towards his prey. But the development of weapons of mass destruction by any species on any planet, e.g., Homo sapiens on Earth, would be a game changer. Planets are bio-cultural Petrie dishes in the universe. To get from a Type-0 civilization to a Type-1 civilization or beyond will require much less intra-species self-cannibalism. Only some unknown percentage of 'advanced' civilizations would graduate from a Type-0 civilization to a Type-1 civilization. Some don't make it out of their Petrie dishes.

Jacobsen: How are you defining wisdom and compassion here, as counter-forces to raw intelligence?

May: I'm not sure how to define "wisdom." Apparently wisdom is traditionally identified by a consensus of individuals who are not considered wise by themselves or others.

Jacobsen: What is preventing intelligence levels reaching averages too high and leading to a greater potential to use the proportionate lack of wisdom and void of compassion to destroy the species, as we head into a self-scorched Earth scenario?

May: Social services and medicine in the modern Western world have produced a dysgenic breeding pattern. I do not imply that I think we ought to abandon social services and modern medicine. But only that social engineering and medicine can and often do have unintended consequences. The 'absolute IQ' is probably lower today than it was in ancient Greece, for example. Aldous Huxley mentions that in *Brave New World Revisited*.

But what is the purpose of intelligence and human intelligence in particular? Just to enable the organism to survive, eat, live long enough to produce offspring, who survive, eat, live long enough to have offspring, who survive, eat, live long enough to have offspring, who – – – . After reproduction and some nurturance of one's offspring, just drop dead. This is Nature's program for us.

The purpose of human intelligence is not to develop a unified field theory, a Theory of Everything or cosmological theories. Such theories are not necessary for "survive-eat-reproduce-die DNA-replication machines" developed by natural selection.

Cosmology may be beyond the pay grade of Homo sapiens as presently evolved. Just as various threshold levels of IQ, i.e., an approximate range of scores, are associated with different human occupations and professions and every known species has obvious limits of cognitive ability, why would Homo sapiens as presently evolved be an exception to this? Pure anthropocentrism — man is considered by himself to be the center of the universe and the crest jewel of the cosmos, and without inherent cognitive limits as a species.

Many individuals with high IQs today apparently believe that they can do cosmology and theoretical physics without any graduate degrees in physics, as Newton and others did hundreds of years ago; maybe, but maybe not. In my view even credentialed cosmologists and theoretical physicists may not really be doing cosmology today. E.g., String theory, M-theory and Hugh Everett's Many Worlds hypothesis may only be beautiful mathematical-metaphysics, if none are experimentally disconfirmable. If a theory cannot be disconfirmed experimentally, how can it be considered physical science?

Why do very high levels of theoretical intelligence even exist? Why has this level of intelligence evolved? Albert Einstein didn't have more progeny than Genghis Khan or Attila-the-Hun. He was vastly less 'successful' from a biological evolutionary perspective.

Unless you think we are "images of (some sort of) 'God'," images of something at a higher level, maybe holographic images of the cosmos or that the Hermetic principle "As above, so below" applies somehow in 'our' universe, then why is there intelligence beyond the eat-replicate-die level?

Until or unless Homo sapiens takes control of its own evolution at a biological-level and an AI-level, by gene-editing/genetic engineering and brain implants *à la* Yuval Noah Harari, we are basically Chimps with WMDs; we are Koko the gorilla at the Princeton Institute for Advanced Studies.

Jacobsen: In "Know Thy -," you state, "I don't know anything until I see myself announcing it on television." How long have you been playing the part of Socrates?

May: You apparently assume that Socrates was not playing the part of May-Tzu by reverse causality from his future event-horizon, *à la* M.I.T.'s Seth Lloyd.

Actually "Know thy -" was intended as humor. It was inspired by a certain well-known political leader who, when asked when he had learned of this or that event, claimed that he only learned of it by watching television. So I took it a bit further by writing that "I don't know anything until I see myself announcing it on television."

Jacobsen: "Ideologies" speaks to a few points. One on preferable values compared to those that aren't. What makes "freedom, peace and prosperity" preferable to "their absence or negation"?

May: Our paleo-mammalian brain and cerebral cortex seem to have innate preferences. Other species of animals also appear to seek 'prosperity' and freedom as innate positive reinforcers as well.

Jacobsen: Why are "ideologies" in general labelled "a secular theology of lies"? What would make an ideology not a "convenient lie" and more truth than merely "a bit of truth"?

May: Ideologies are secular in that they are not usually theocentric or claimed to be direct revelations from the God of the Bible — quite. Ideologies have in common with theologies that they are not empirically based. You can postdictively interpret history through an ideological lens but you cannot do controlled experiments to test and potentially falsify ideologically-based predictions.

"What would make an ideology not a "convenient lie" and more truth than merely "a bit of truth"?"

If an ideology were philosophy or science, rather than an tendentious admixture of disinformation and truth, a reality-map intended to influence or control our behavior, then it would be more objective and useful to its adherents.

Jacobsen: "Realpolitik among the Laputan Taoists," you exhibit the Taoist philosophy, and the paradoxical way of thinking about the different parts of the world, almost like an inverted thinking into redundancy to make a not-so obvious point seem obvious, as a form of education. What is Taoist reasoning or logic, inasmuch as it exists (or not)? What is, perhaps, a better title for it?

May: The following principles and theorems taken from https://phiyakushi.wordpress.com/2012/03/09/seven-principles-of-the-order-of-the-universe-and-twelve-theorems-of-the-unifying-principle/ summarize Taoist principles:

SEVEN PRINCIPLES OF THE ORDER OF THE UNIVERSE

- All things are differentiations of One Infinity
- Everything Changes; nothing is stationary
- All antagonisms are complementary
- All phenomena are unique; there is nothing identical
- All phenomena have a front and back
- The greater the front, the greater the back
- All phenomena have a beginning and an end

TWELVE THEOREMS OF THE UNIFYING PRINCIPLE

- One infinity manifests itself into the two universal tendencies of Yin and Yang; complementary and antagonistic poles of endless change.
- Yin and Yang are arising continuously out of the ceaseless eternal movement of One Infinite Universe.
- Yin appears as centrifugalilty, Yang appears as centripetalilty. The activities of Yin and Yang together create energy and all phenomena.
- Yin attracts Yang. Yang attracts Yin.
- Yin repels Yin. Yang repels Yang.
- Yin and Yang combine in an infinite variety of proportion, creating an infinite variety of phenomena. The strength of attraction or repulsion always represents the degree of difference or similarity.
- All phenomena are relative and ephemeral, constantly changing their direction towards more Yin or more Yang.
- Nothing is solely Yin or absolutely Yang. Everything is created by both tendencies together.
- There is no neutrality; either Yin or Yang is always dominating.
- Great Yin attracts small Yin. Great Yang attracts small yang.
- Yin, at the extreme point, changes into Yang. Yang, at the extreme point, changes into Yin.
- Yang always focuses towards the center. Yin always diffuses toward the periphery.

“Realpolitik Among the Laputan Taoists,” is a better title for it. The irony between the meaning of realpolitik and the description of the Laputa Taoists ought to be clear.

Jacobsen: For “Utopia,” is this a recipe for the ‘leadership’ of the current administration of the United States with a particular disability of ill-calibrated ego and grand greed?

May: No, it is a play on the Marxist dictum: “From each according to his ability, to each according to his need.“ —> From each according to his disability, to each according to his greed. — Think Venezuela!

Jacobsen: “Understanding” perfectly exemplifies a big issue of the major religions of the world. Any further ‘issues’?

May: “Understanding” applies to the revealed Abrahamic religions, each of which claims to have the final, complete and perfectly understood ‘revelation’ of the One-and-Only-One True God. The only exception to this is the Baha’i religion, in which revelation is considered to be an ongoing process.

Jacobson: Also, why don’t men understand their wives so much, even not at all?

May: I think a person cannot understand another person beyond his own level of self-understanding. G.I. Gurdjieff wrote that understanding was the arithmetic mean of knowledge and being. Being was defined as the average level of attention of the individual, not his level of attention at any given moment, and his genetic hardwiring.

Jacobsen: "Prolegomena To Any Future Obfuscation" poses this question to no one, "What is the relationship between the reality of existence and the existence of reality? Your answer: Plural, "…in N-valued logic there may be gradations or degrees of existence and/or non-existence, a quantized set of values approaching a continuum as its limit. Ideally in this case the continuum mapped upon various topological structures in N-dimensional hyperspace, in order to maximize the degree of lucidity of the obfuscation." This then leads to a statement on parsimony or (William of) Ockham's Razor: "…entities should not be multiplied unnecessarily." You posit "May's Razor," or, "Words should not be simplified unnecessarily." How does May's Razor apply, in particular, to metaphysics?

May: This writing was satire, inspired by the incomprehensibly obscure writings of an individual on one of the high-IQ lists. "Words should not be simplified unnecessarily," because someone may grasp what you are talking about and be able to refute it.

Jacobsen: Why is reality simply a 'plural relationship,' or where the "reality of existence and the existence of reality" have no "single relationship" and, in fact, have "multiple relationships"?

May: This was all meant as satirical humor.

Jacobsen: Why is reality so ahead of its time in its polyamorousness? [Ed. Play on the phrase "multiple relationships" regarding the "reality of existence and the existence of reality."]

May: Is this a koan?

I don't quite understand how "reality could be…ahead of its time," even a smidgen, let alone "so ahead." What this could possibly have to do with amorousness, poly- or otherwise, must be one of the deep mysteries.

Jacobsen: Why are metaphysicians prone to super-overcomplicated-complexifications of ideational-concepts about extra-meta-super-reality?

May: "Philosophy is a battle against the bewitchment of our intelligence by means of language." — Ludwig Wittgenstein**Jacobsen: Are stage magicians like Penn & Teller, and James Randi, better than metaphysicians because they explain the trick and in straightforward terms (with an entertaining presentation)?May:** "better"? — "because"? — "entertaining"?A magician could make this question disappear, but would the essence of the question still remain?

Part 4 of Interview

Abstract

Richard May discusses: "Vista"; the resentment of the gnawing of fellows nearby in mutual, individuated contemplation of their "own sublimity"; "A Belated Discovery,"; death; "Valentines Moment"; a sort of drama play by photons; "Dr. Capgras Before Mirrors'; emulation; physics and metaphysics; "Wedding Solstice"; any biological children or adoptive children; "Taoless Tao"; synesthesia; "The Holy Land"; "The Near Shall Be Far and the Far Near"; "Seeing dead people"; the loss of loved ones and coming to terms with mortality; "On Our Increased Longevity"; "The Offensiveness of the Universe"; "Going to Temple"; Mrs. Non; "nirguna brahman," "the alayavijnana," or "Neti neti! (neither this nor that") and Tat tvam asi ("That art thou") of the Chandogya Upanishad"; Ramachandran on split-brain patients; Mrs. Non's right brain; "Endless Error"; "Will man create God?"; "Is Physics Becoming Art at the Limits of Scale?"; "Physical Laws as Sampling Error"; Where will the universe be when the paradigm shifts?"; our "little truths" a "receding horizon"; an imaginably godlike entity; "Multiverse Is That It Is"; "spirit or spiritual," non-physical, realities come from "the world of phenomena" or physical realities; these being united; apparent unicity; a-temporal multiversal God neither "infinitely old" nor "beyond or outside space-time"; "panpsychism"; and "everyone develop his own intuition regarding the nature of reality."

Keywords: God, Mega Society, metaphysics, multiverse, physics, Richard May, synesthesia, Tao.

Scott Douglas Jacobsen: In "Vista," you mention becoming a "blind rodent." I am reminded of a certain author of yore awakening as a cockroach one day. Is this a similar happening?

Richard May: No.

Jacobsen: Also, why the resentment of the gnawing of fellows nearby in mutual, individuated contemplation of their "own sublimity"?

May: This is a slightly sarcastic summary of life in the ordinary human existential situation at its best. Resentment or ressentiment permeates human 'consciousness', as noticed by various 19th century thinkers. Gurdjieff's psychology called resentment "internal considering." Few resent their resentment.

Jacobsen: As is obvious, and as admitted in "A Belated Discovery," you're a "highly perceptive person."

May: I meant that ironically. I am so highly perceptive that I didn't even notice that I'd died. Incidentally there's an App now for Smartphone Zombies to tell them if they're making love at

the present moment or if they've died yet. Clearly we're getting much more intelligent today, because of the advances of technology and our attention spans are far longer than in the past.

Jacobsen: You mentioned death, not noticing dying, having friends, and yourself, none the wiser. To quote people mimicking Seinfeld, "What the deal with your death?" Was it safe, painless, and dignified?

May: I've never seen a single episode of Seinfeld. I mostly listen to strawberry ice cream and eat Tibetan music. Remember, Bodhidharma didn't have cable or only had one channel. Safe, painless, and dignified? Is life safe, painless and dignified? Who would know? "Death is not an event in life." — Ludwig Wittgenstein

Jacobsen: "Valentines Moment" speaks of a Prince and Princess in awe of one another's presence, existence, coming to know one another. They stopped the consumption of "recreational and psychotropic drugs" and "endless amounts of sucrose." Consequently, they became less in awe as they began to have a "reduction in their reality deficit disorders," including the "delusional dreams of Western culture." Each coming to become neither prince nor princess. The princess as a mirror, and the prince as another mirror that "dreamed" of its princehood. When people passed by them, they were reflected. The mirrors identified with the personalities crossing their reflective paths. Ending, "But when the room was empty, the two opposing mirrors each reflected and even mirrored each other with perfect, but depthless, fidelity; Empty mirrors looking into each other eternally or at least until someone turned off the lights."

Who could be considered the prince and princess reflected in the mirrors and conveyed through the personas of the mirrors?

May: The Prince and the Princess are legion, both within and without. This piece is called Valentines Moment, substituted for Valentines Day; depicting the self-absorption of the Prince and the Princess. "I never met anyone like you before," each says to the other mirror; and the 'depths' of the usually short-lived psychosis called Romantic love in Western culture, enhanced by inherent and chemically induced Reality Deficit Disorder; Not even objective lust. Most of us are or have been at one time the Prince or Princess of the Mirrors.

Jacobsen: Could this be considered a sort of drama play by photons? (Could all of them, as in a hall of hanging mirrors and reflections? Could everything?)

May: Maybe, I suppose. Is there a Surreality Deficit Disorder?

Jacobsen: In "Dr. Capgras Before Mirrors," for those who may not know, who is the real Capgras?

May: Joseph Capgras, full name: Jean Marie Joseph Capgras (23 August 1873 – 27 January 1950, the French psychiatrist who discovered Capgras syndrome, according to Wikipedia.

I was surprised to learn that there is, in fact, a rare form of Capgras syndrome in which a person believes that they themself are the imposter! I nailed it. Previously I had also written of the possibility of my being an imposter, impersonating an imposter:

"Security Check

From now on I'm going to do a Security Check between each of my so-called thoughts, to verify that they're really mine. But can I trust myself to do the Security Check? There are so many levels of encryption and security that I'm no longer sure that I'm not an impostor, impersonating an impostor – – – Maybe if I were capable of becoming a hacker, I could hack my own brain, actually just a rental unit, and steal my ontological password.

May-Tzu"

I'm pleased to mention that I have not been a recipient of the "Genius of the a Year" award for eight (8) consecutive years, certainly an important distinction! I attribute this honor in part to my discovery of Cotard's syndrome as a cure for self-referential Capgras syndrome.

Jacobsen: If you were replaced by emulation down to the sub-atomic level, would this 'you,' in fact, be you?

May: Yes, of course, at least to the extent that 'I' am the real 'me'.

Jacobson: A sort of emulation being the real deal and the real deal being an imitation without being a copy of the "emulation."

May: The only difference between the original and the emulation(s) could be in the time of their origins and their location in space (space-time). If Hugh Everett's Many-World's hypothesis is correct, there are some infinite number of emulations of everyone throughout the Multiverse. Maybe some subset of the infinite number of our emulations will necessarily become amortal, awakened Buddhas or at least occasionally have a good space-time.

Jacobsen: Why does physics, and metaphysics, infuse much of the muse musing by you?

May: It gives me the impression that I exist. I'm just playing my favorite character in fiction, to use Aldous Huxley's phrase from *The Doors of Perception*.

Jacobsen: "Wedding Solstice" is more 'earthy' with references to "blood and shit." Why? By the way, are you, or have you ever been, married? Do you have any children in a biological sense or in an adoptive sense?

May: "Sacks of blood and shit" is Buddhist iconography, our bodies from a certain perspective.

I think that the state vector of marriage depends upon observation by the observers. I asked my wife and she (by the no-Y-chromosome criterion) says that we are married. So there is some empirical evidence for my being married, even if only anecdotal.

We were married by a Buddhist woman of Thich Nhat Hanh's tradition. We were married to *each other* in the interest of combinatoric simplicity. I guess marriage is still legal, even for trans-ontologicals. — 'I' identify as an anthropologist from another dimension of space-time, who makes an effort to practice non-identification. I suspect that she may have some Earth ancestry. — She claims to be a board-certified Physician of the Soul. I suppose it could be a shared delusion, a folie à deux.

We met on the internet and levitated in love, too old to fall or only fall, even before we met in meat-space. I was married once before also, I think, a long time ago — in a timeless time. She was married too, I recall. In fact we were married to each other, again Ockham's razor applied to marriage (Cf. "entities should not be multiplied unnecessarily," not to be confused with "Mirrors and copulation are abominable, since they both multiply the numbers of men…" — Jorge Luis Borges, *Tlön, Uqbar, Orbis Tertius*)

She was also a woman by the no-Y-chromosome criterion. (She identified sometimes as a duck, if that is important.) And I was allegedly a man (at least by the Y-chromosome criterion) "a man with quotation marks," as G.I. Gurdjieff would have said.

We met one summer's day down by the Charles River in Boston. Two shy introverts, we approached each other, each thinking the other was someone else, met before. (Then I was also someone else, whom I had not met.) We immediately married, after twenty-five years. No need to hurry. Three years later, one of us died. I was told it wasn't me.

Jacobsen: Do I have any biological children or adoptive children?

May: Cats Galore. I don't 'think' I have any other children in a biological or in an adoptive sense.

Jacobsen: "Taoless Tao" touches on a common philosophical perspective from you, Taoism. What is the embedded, repeating structure, imagery imagined here?

May: The first sentence refers to doing Tai Chi with my wife; The second to the Tai Chi dance as a re-enactment of our marriage ritual — for the first time — again — in the eternity of the present moment.

Jacobsen: It ends in an almost synesthete note: "…the taste of silence." Do you have synesthesia?

May: I have just a little synesthesia, not to a significant degree. I associate colors with letters of the alphabet. I don't know why. Maybe this is a remnant of something from my childhood. My visual eidetic imagery is rather weak.

Jacobsen: "The Holy Land" spoke to the comical notion, commonly believed, of "the One-and-Only-One True Revelation Revelation," the only true true divine revelation. How important is humour in coming to terms with the current state of religious ideologies and international geopolitics guiding human affairs for you?

May: How important is humour…? Some of us may die some day. Comedians are more serious than philosophers

Jacobsen: "The Near Shall Be Far and the Far Near," I love the opening with the apparency of multi-worlds considered, as in the potential worlds with other possible futures unrealized, where everyone, at least once, becomes famous. What did you mean by this line, "However, the closer one approaches to anyone proximate, the more darkly obscure she will become, and then increasingly unfamiliar with the passage of time…"?

May: This is meant to convey that as the "Far Shall be Near," The Near Shall be Far also in both space and time. While one will be famous on distant and unimaginable, unknown worlds, one's neighbor will be an utter stranger, there won't even be a word for "mother," in the language of the day, and if one looks in the mirror one will not see one's image. Proximity in space and time, which ordinarily leads to familiarity, increase unfamiliarity. – – – Imagine a "remote viewer," if there are such persons, who lived in a dark abode, either his parents basement or maybe Plato's allegorical cave, and rarely went outside, spending all his time on the internet.

Jacobsen: "Seeing dead people," I am reminded of personal life. I was raised by the old, retired or near-retired, particularly women in a small Canadian community village. No doubt, this impacted me. Duly, it provides a sense of time, a sense of what matters, and a sensibility about the things to hold fast and firm, and others to permit to drift as water in a summer forest stream. How do you cope with the passage of time?

May: This assumes that the passage of time is a problem for me that I must cope with this problem, and that I do in fact cope with the passage of time, rather than decompensate or freak out. — I think that Albert Einstein said that time was an illusion, but a very real illusion. — Well, I suppose one could drink a bit of alcohol, or consume another drug, depending upon one's preference, go for a long run or vigorous walk, practice a meditation technique, just ruminate (endogenous cortical stimulation) or distract oneself with the esthetic/intellectual/spiritual vomit of popular culture, while eating "comfort food," whatever that is.

Jacobsen: Following from the previous question, and outside of the query with one foot, how do you cope with the loss of loved ones and coming to terms with mortality, as commonly held, physiological cessation?

May: For the loss of a loved one I ran/jogged in the high temperature heat and humidity of summer. There may be no way to completely come to terms with one's mortality. The fear of death is hardwired into our brains by natural selection/evolution.

It may help somewhat if one realizes that one's personal identity is an illusion *à la* the Buddha, Patanjali, Jiddhu Krishnamurti and G.I. Gurdjieff, among others.

Jacobsen: In "On Our Increased Longevity," you posit depressed individuals as not capable of suicide. In fact, you invert much of the sentiment of modern society. In this sense, a reduction in negative affect leads to fewer homicides and suicides. While, you claim, not necessarily a cessation but, an improvement in the psychological status of human beings leads to en masse homicide-suicide. Can you expand on some of this idea, please? It's intriguing.

May: I don't merely posit depressed individuals are less capable of suicide. There are actual clinical studies which indicate this. Psychotherapists must beware this unfortunate psychological phenomenon. I take this apparent fact and "run with it," as normal members of our sports-centric culture put it.

This irony would be hilarious if it were not so tragic. So I just take it to the next level, positing that humans live longer today because they are depressed en masse (too depressed to suicide) by being immersed in a culture of materialism and competition for social status in various forms. When conditions improve, what would have been inner directed aggression (suicide) becomes an external war or terroristic destruction. This is intended as a humorous reflection on modern society.

Jacobsen: "The Offensiveness of the Universe" is a short, comical note on the size of a child's ego in proportion to the universe, if only there was enough space. Have you come to terms with growth limits and spatial limitations of the universe, relative as they are?

May: This was inspired by a member of the higher-IQ community, who actually wrote that as a child he resented the fact that God was allegedly more intelligent than he was or he thought he was. I thought that this young fellow demonstrated a remarkable level of egotism and arrogance.

But I was also struck with how it contrasted with my own thoughts about God as a child. I was disconcerted to think that God might *not* have been more intelligent than I was, not because I considered myself to be extremely intelligent, but because the God of the Old Testament often seemed barbaric, tribal and genocidal. I thought at an early age, if there is a God, God cannot be worse than men.

Jacobsen: "Going to Temple," the character Non seemed much like the sentiment of an Omni-Weave concept rejection of a god for me. An "atheist-agnostic continuum" upon which to sit depending on the definition of a god: "…the personality of the anthropomorphic tribal Yahweh/Allah downloaded by the ancient desert nomads of her ancestral 3rd planet versus a quantum-wave function reinterpretation of less philosophically primitive concepts, such as nirguna brahman, the alayavijnana, Neti neti! (neither this nor that") and Tat tvam asi ("That art thou") of the Chandogya Upanishad." Let's jump on the spectrum, if Mrs. Non, where would she land for "the personality of the

anthropomorphic tribal Yahweh/Allah downloaded by the ancient desert nomads of her ancestral 3rd planet"?

May: A rough landing at Heathrow Airport might do it. — I'm not exactly sure what you mean. — Nirguna brahman, the alayavijnana, neti neti!, and tat tvam asi are or point to abstract concepts associated with Eastern philosophies, not subjective experiences potentially induced by transcranial brain stimulation.

Jacobsen: If Mrs. Non, where would she land for "a quantum-wave function reinterpretation of less philosophically primitive concepts," "nirguna brahman," "the alayavijnana," or "Neti neti! (neither this nor that") and Tat tvam asi ("That art thou") of the Chandogya Upanishad"?

May: Ms. Non may exist in a future in which very ancient religious doctrines and dogmas for which there is little or no objective evidence have evolved, as all other human knowledge continually does, to become less incompatible with science. Even today the Dalai Lama has said if Buddhism is incompatible with modern science, then Buddhism must change.

Jacobsen: If Mrs. Non, where would she land for "nirguna brahman," "the alayavijnana," or "Neti neti! (neither this nor that") and Tat tvam asi ("That art thou") of the Chandogya Upanishad"?

May: This was answered in the first two replies.

Jacobsen: Have you seen some of the work of Ramachandran on split-brain patients? If so, I would recommend it, highly informative.

May: Yes and yes.

Jacobsen: For Mrs. Non's right brain, what were some of the experiences of her "Temple of the Corpus Callosum," as in the yogic meaning of union or the "direct perception of reality"?

May: I've never experienced transcranial brain stimulation and I have no way of knowing what Ms. Non would experience. My point is that everything we experience is obviously mediated by and filtered through our brains and senses. Aldous Huxley thought that the brain may function as a reducing-valve for consciousness-at-large.

Brain scientist Dr. Jill Bolte Taylor's experience of a stroke may be of interest:

https://www.ted.com/talks/jill_bolte_taylor_my_stroke_of_insight

Jacobsen: In "Endless Error," why is the mind of god an endless series of error messages?

May: The gnostic idea of the Old Testament God has always resonated with me, i.e., the God of the Bible is the Demiurge or Yaldabaoth, not actually the God of the universe, but only a subordinate blundering craftsman or builder, hence 'His' mind could be just an endless series of error messages.

I once wrote that God was just a kid playing, when he created the world. He messed it up and threw it away, because He was in a hurry to get to a football game (a new theodicy). If we are going to anthropomorphize the Absolute, why not go all the way?

Jacobsen: "Will man create God?" ponders technology and God, as in the construction of "Theo computatis" by homo sapiens. So, do we seem like the "soon-to-be missing links in the evolution of an artificial-intelligence-based God?", or not?

May: Homo sapiens may be the pre cyborg-implant soon-to-be missing-links in the evolution of an genetically-engineered and artificial-intelligence-based species, as written about by Yuval Noah Harari in *Sapiens*. I suppose if we are "holographic images of 'God'," then there could be a "mutual arising," to invoke the Taoist a-causal connecting principle or even reverse causation from the future event-horizon, *à la* MIT's Seth Loyd. "The greatest untold story is the evolution of God." — G.I. Gurdjieff

Jacobsen: "Is Physics Becoming Art at the Limits of Scale?" posits – well – a lot. So, given some of the previous responses to the questions, as in the statements or the entire pieces were satire, is this satire or a real proposal?

May: You expect *me* to know? Maybe it's both a real proposal and a satire of contemporary cosmology.

Jacobsen: "Physical Laws as Sampling Error" seems to propose a more accurate conception of reality. In that, reality consists of principles, not laws, as in "no fundamental ordered physical reality." Reality as a tendency of state and process rather than fixed decrees governing its operation. Is this reflective out of selective order out of plenty of chaos, or an apparent order out of chaos, not vice versa? Also, noting "Dark energy," as a one-sentence piece, are these two – "Physical Laws as Sampling Error" and "Dark energy" – satire to some extent too?

May: Maybe the observable universe is a parody of something else. — "Dark energy" was inspired by an physics article which suggested that dark energy may only be a rounding error. Since dark energy and dark matter (if they exist) supposedly make up about 95% of the mass of the universe, I generalized a bit and concluded that the universe itself may be a rounding error.

In "Physical Laws as Sampling Error" I meant that there could theoretically be only random chaos with no lawful patterns in the universe. The perceived patterns ("interpreting a Rorschach

ink blot as a geometric theorem") could just be caused by finite (in space and time, if you posit time as real) sampling of an infinite set of randomness. In an infinite set of random numbers, every possible pattern will occur somewhere by chance alone, as a subset of the infinite set or "eventually," if you posit time as real.

Jacobsen: "Where will the universe be when the paradigm shifts?", I love the phrasing of "humongous quantum-foam Wiki," please more. If you will indulge, what are some other descriptors of the universe – neologisms permissible?

May: Am I a dancing bear (in the traditional sense of the term, not…)? Hmmm – – – How about the universe is a "cosmic food chain, from bottom to top." Cf. "God is a man eater." — The Gospel of Philip.

Jacobsen: How are our "little truths" a "receding horizon"?

May: I was suggesting that our discovering an aspect of the nature of reality could actually change that aspect of the nature of reality. The truth would recede from us.

Jacobsen: What would comprise an imaginably godlike entity?

May: An imaginably godlike entity as contrasted to an unimaginably godlike entity? Anthropomorphic, genocidal Yahveh versus Nirguna Brahman, without any qualities whatsoever?

Jacobsen: "Multiverse Is That It Is", being as it is, how is this definition as a "personal intuition or wild guess regarding the nature of reality" 'probably offensive to theists and atheists'?

May: Theists of the Abrahamic traditions are only happy if their particular One-and-Only-One-True Sky-God is argued for or supported. Atheists who deny these traditions generally seem terrified that there might be a "ghost in the machine," somewhere, such as psi phenomena, remote viewing, psychokinesis, or any alleged phenomenon that doesn't appear to be explained by current scientific paradigms.

Jacobsen: Same line of questioning, how might "spirit or spiritual," non-physical, realities come from "the world of phenomena" or physical realities?

May: If there is a non-physical component of reality, e.g., mathematics, I don't think it can be derived from physical reality. I don't think that qualia can be reduced to computations. The subjective experience of seeing the color red (qualia) cannot be reduced to objective biochemistry and neurophysiology, even if biochemistry and neurophysiology can fully explain seeing the electromagnetic frequency that we label "red." — But most of what I know may not even be wrong.

Jacobsen: How might these be united?

May: I don't think they can be united. If both the spiritual exists and the physical exists, they are either united or in some sort of relationship, or not.

Jacobsen: How might this inhering as a "fundamental substrate of reality" explain this apparent unicity?

May: Space, time and mass-energy may be or have been regarded as irreducible fundamentals of Nature. The question is: Is consciousness an epiphenomenon of matter, e.g., of brains or not? Maybe consciousness is also such a fundamental, as in Eastern philosophies. But maybe not.

Jacobsen: What might be a good term for this a-temporal multiversal God neither "infinitely old" nor "beyond or outside space-time"?

May: The second quoted clause is a misquote of what I wrote. A good term for this God? — The God-of-human-cortical-limitations? "Beyond or outside of space time," is a misquote of what I wrote.

Jacobsen: Any thoughts on "panpsychism" as referenced within the context of the piece?

May: Only that we don't know if panpsychism is the case or even if we *can* know if panpsychism is the case or not. "The universe is not only stranger than we think, it is stranger than we can think." — J. B. S. Haldane

Jacobsen: Why should "everyone develop his own intuition regarding the nature of reality"?

May: I meant that I was not trying to convert anyone to my (tentative) view of the nature of reality. We shouldn't believe our own thoughts, just because we have them. "The first principle is that you must not fool yourself — and you are the easiest person to fool." — Richard Feynman. Buddha's dying words are alleged to have been, "Everyone should workout their own salvation with diligence."

Part 5 of Interview

Abstract

Richard May discusses: "Physics as Erotica: Objective Lust"; "The Laputans"; the space program of the Laputans; a reasonable place for the Laputans to have gathered, after the exploratory missions, the "somewhere"; 'What is satire? What is not?'; the Laputan Olympics; other oddities of Laputan memory; "Security Check"; ontological password; "The Colonies"; "Delay in publication of Journal of Uncompleted Projects"; OCPD; "May's Paradox"; "May's Wager"; and "The Silicon Scream."

Keywords: digital computers, erotica, May's Paradox, May's Wager, OCPD, Physics, Richard May.

Jacobsen: "Physics as Erotica: Objective Lust," one can find a number of great plays on terms with "Omni Amorist," "Poly Amory," "orthodox Bi Poly Amorists," "Multi Omni," "Bi Poly Amorists," and, simply, "Poly." It's a delightful play on sexual orientation, sexuality, physics, and cosmology. It's not merely a rhyming scheme, as in some formal poetry, or straightforward writing. It feels as if more developing a sensibility of conceptual rhythm to read it. Something like this. How do you take disparate ideas, including the sexual and physics, and unite them in a common weave, as in this piece?

May: This was inspired by a woman, or at least "she" seemed to identify as a woman, back in the ancient world, before the time when the only important thing is how a person identifies, who was an advocate of bipolyamory. But maybe 'she' was cat-fishing the cosmos. I thought that this was quite quaint, because she also claimed to be an Orthodox member of one of the world's great religions. This is how bipolyamory came to my attention. I wanted to outdo her through satire.

As to how I take disparate ideas, including the sexual and physics, and unite them in a common weave, as in this piece, I suppose most of my pieces come from my subconsciousness, not thinking. — Gurdjieff said that "Subconsciousness is the real consciousness of man." — Sexuality and physics are held to be in an analogical relationship.

I once read that William James wrote that the ability to see analogies is the surest indication of genius. I particularly liked this quote because I was the 2nd person to get a perfect score on the verbal half of the Mega Test, eons ago when there was no internet to allow cheating. But now the only relevant quote I can find by Googling is Emerson's that science was 'nothing but the finding of an analogy'.

Sexuality and physics can also be unified by May-Tzu's Theory of Nothing (TON). Most Theories of Everything (TOEs) predict nothing and explain nothing. May-Tzu's Theory of Nothing also predicts nothing and explains nothing, but does so with far more parsimony and hence is to be preferred by Ockham's razor.

Jacobsen: We're back to the Laputans, in "The Laputans." I love this paragraph:

"Among the Laputans it was not considered true that a house built of metaphors was not as strong as a house built of straw. It had been said since time immemorial that a house built of metaphors was stronger than a house built of bricks and mortar. It's not known if they meant this metaphorically or literally."

It's clever, witty, and entertaining. Also, why would the lack of the existence of the monuments of the Laputans speak to the enduring legacy of the Laputans?

May: The Laputans may represent the more practical side of my nature. — The Laputans have no legacy whatsoever, as they have no monuments.

I'm not even forgotten in the cosmic microwave background (CMB).

Jacobsen: What comprised the space program of the Laputans?

May: The Laputans are Luftmenschen or air people from German/Yiddish, so they don't have quite as far to travel to find non-terrestrial space. The most practical and grounded Laputans would probably attempt to launch into interstellar space on a flight of ideas or abstract free associations.

Jacobsen: What might be a reasonable place for the Laputans to have gathered, after the exploratory missions, the "somewhere"?

May: Since the Laputan spacecraft were mutually incommunicado and did not agree prior to their dispersal to a specific meeting place, it is not inconceivable that they could encounter problems attempting to reunite. Perhaps they could attempt to land at a high-IQ society gathering, e.g., a ggg999 gathering 'somewhere' in the cosmos.

Jacobsen: I like how you take the ordinary and make them seem like the exceptional in some of the writing. In fact, in some manner, you show the reverse is the case, as in the satire. It raises fresh questions, 'What is satire? What is not?'

So, as a reader, you're left with more question marks leaving than coming in – and more exclamation marks. Are you, more or less, playing around with ideas, putting them into text, and basing them off observations to both make satire and make a point, sometimes no point whatsoever?

May: On the Myers-Briggs Type Index I'm an INTP, described as an "architect of ideas." So, yes, I'm more or less, playing around with ideas. As to what is satire and what is not, I've thought that maybe the laws of physics of our universe represent a mathematical satire at some higher level of dimensions/being/intelligence.

Jacobsen: "Among the Laputans endurance breathing was considered a lifetime sport and one that they were truly motivated to play, usually on highly competitive endurance breathing teams, but sometimes in solitude among the clouds. The games were, of course, televised 24-7. But often the uninitiated had difficulty differentiating sportsmen from spectators," as some version of you wrote. This seems a case in point of making the ordinary, breathing, extraordinary, something other. Any updates on the Laputan Olympics? Any other sports as part of the Laputan Olympics?

May: Yes, as you know the Laputans are quite libertarian, they oppose the use of force of any kind, and have for centuries attempted to repeal the laws of gravitation and of electromagnetism, seeking to replace them with a susurration of tautologies. The Laputan Olympics have now instituted direct competitions between Olympic Doping Teams, rather than attempting to enforce the prohibition of certain performance enhancing drugs among the athletes.

Jacobsen: Any other oddities of Laputan memory needing mentioning here?

May: It is suspected by some that certain notable individuals in the higher-IQ community may be Laputans. Because even the most substantial Laputans are said to have no shadows, these individuals may only appear in public undetected at noon or on sunless days. But this has never been proven beyond the shadow of a doubt.

Jacobsen: As noted elsewhere, and as mentioned in "Security Check," obviously, this is a satire on the ways in which modern technology requires a constant certification of a human operator rather than a computer. Are our thoughts our own in any manner, sensei?

May: Ludwig Wittgenstein wrote that we are asleep and sometimes we awaken just enough to realize that we are dreaming. Maybe "our" 'thoughts' are just echoes of echoes reverberating in the Buddhistic void, Shunyata. "We are the space between our thoughts." — Jean Klein. But in the near future after brain implants, our brains and thoughts will be hackable.

Jacobsen: What's your ontological password?

May: Oy vey! You expect me to know what I'm talking about? Me of all people? Maybe my "ontological password" is actually my attention and the sensation/feeling of "I am."

Jacobsen: "The Colonies" existing as a colony of moles of sorts. The recording of yourself spying on your self, a hall of mirrors. Did you manage to escape complete ontological detection?

May: I'm not a conscious unified being most of the time. So the question is who is spying on whom?

“The possibility of my existence is too private for me to share with myself

— May-Tzu”

Jacobsen: “Delay in publication of Journal of Uncompleted Projects,” sadly, doesn’t seem so much as satire as a reality of most projects for most people, incomplete or partially done, so not done. Who were some of the hoped-for contributors to the journal?

May: This piece was inspired by certain prominent members of the higher-IQ community, who must, of course, remain nameless.

Jacobsen: What were some of the too-many-interests interests of those with OCPD?

May: The too-many-‘interests’ could be anything, not just objects of intellectual curiosity, but any object that attracts or distracts one’s attention, either internally or externally. If a person has OCPD (obsessive-compulsive personality disorder) everything under the control of the person has to be absolutely ‘perfect’, e.g., if one is proofreading, the clerical minutia and visual-spatial formatting. Individuals with obsessive-compulsive personality disorder were highly sought after as employees at Zeno Publications.

Jacobsen: “May’s Paradox” asks, “Why, if a multitude of New Yorkers exist in Manhattan, evidence of New Yorkers, such as automobiles or subways, is not seen?” Why?

May: Obviously there is no evidence of New Yorkers existing, such as automobiles or subways, in New York City. That would be a Conspiracy Theory. May’s paradox should have been called the May paradox. The clear absence of evidence for the existence of New Yorkers makes May’s paradox analogous to the Fermi paradox.

In the SETI program we have searched for years for signals in the hydrogen frequency. As was pointed out in a YouTube video by Dr. Michio Kaku, there is no particular reason to assume that advanced alien life would use the hydrogen frequency to send signals, even if one assumes that such beings would use radio signals at all. Dr. Kaku also points out that if the extraterrestrial communications used spread-spectrum signals, such as we humans use even now in our cell phone signals, then we would not even recognize the alien spread-spectrum signals as signals.

Given the exponential and unpredictable course of the growth of human technology, it seems entirely possible that a civilization even a few hundred years more advanced scientifically and technologically than our own might accomplish things that in ways that we could not understand at our present level of scientific-technological development.

Do you suppose we would comprehend the technology of a civilization a thousand or more years older than our own? “Any sufficiently advanced technology is indistinguishable from magic” — Arthur C Clarke. So where are the smoke signals?

Just for fun let's take the Roswell, New Mexico UFO crash myth. Of course, it's just a Conspiracy Theory. The so-called Roswell incident has been explained – at least twice. Last time it was sad to be a weather balloon. It might just as well have been a flock of geese or the planet Venus, I suppose.

But let's be silly and play devil's advocate. Suppose an unexplained extraterrestrial craft or vehicle had crashed there in 1947 after WWII. Presumably the US. military would have little or no interest in such an event. There would have been no suspicion that it might have been a Russian or German device after World War II. There would have been no military interest; there would have been no interest if not duty of the U.S. military to study and reverse engineer the advanced off-world technology for American national security. So a possible crash of some sort would not have been investigated.

But if what was discovered was thought to be an unexplained craft or an "off-world device," as they are apparently called today, of some sort, then a high-ranking military officer or perhaps the chairman of the Joint Chiefs of Staff or our President would certainly have gone on the radio and told the U.S. public. "Fellow Americans, an unknown craft appearing to be extraterrestrial in origin has crashed in Roswell, New Mexico. We do not know its origin or understand its method of propulsion. The technology is far superior to American technology or that of any other nation on Earth.

A few small gray(?) humanoid bodies have been retrieved from the crash site. They're not thought to be Americans. We don't know yet with certainty if these beings are Christian or Jewish. But we can be sure they are Baptists. At this point in time it is apparent that the U.S. military cannot control its own airspace. — But, hey, don't worry about it! — America is number one, the greatest power! — Have a nice day."

The Brookings Institution report on the possible consequences of advanced extraterrestrial contact concluded that when a more primitive civilization encounters an advanced civilization, the more primitive civilization is damaged by the contact would certainly not be considered relevant by those in authority. The conclusion that religious fundamentalists would be highly unreceptive to contact with an advanced extraterrestrial civilization would also certainly be ignored as irrelevant.

Below are a few crackpot books of Conspiracy Theories, perhaps good for a few laughs:

Wonders in the Sky: Unexplained Aerial Objects from Antiquity to Modern Times by Jacques Vallee (Author), Chris Aubeck (Author)

UFOs: Generals, Pilots, and Government Officials Go on the Record (paperback) – August 2, 2011 by Leslie Kean (Author), John Podesta (Foreword)

UFOs and the National Security State: Chronology of a Coverup, 1941-1973 (paperback) – June 1, 2002 by Richard M. Dolan (Author), Jacques F. Vallee (Foreword).

A cottage industry of woo woo, no doubt. Everyone with a high IQ knew about the Manhattan Project. You couldn't keep something like that secret.

And in any case there are no conspiracies, ever. The Watergate break-in and subsequent Watergate cover-up were certainly not conspiracies. Project MK-Ultra was certainly not a conspiracy. Industrial espionage certainly does not involve conspiracy. — The belief that there are ever conspiracies is no more than a meta-conspiracy theory.

Jacobsen: "May's Wager," noted elsewhere, states:

"It is extremely improbable that God exists.

But it is certain that I do not exist.

Therefore, the existence of God is a much better bet."

What are some potential hidden premises here?

May: That either we or God or both exist. Western philosophy and neuroscience are beginning to catch up with Eastern philosophies such as Buddhism, the Abiddama in particular, Vedanta, the Yoga Sutras of Patanjali and the psychological theories and phenomenological observations of G.I. Gurdjieff. In particular neuroscientist Sam Harris is insightful and Thomas Metzinger, author of *Being No One: The Self-Model Theory of Subjectivity* is noteworthy.

https://mitpress.mit.edu/books/being-no-one

If there is no being resembling the human conceptions of a 'God', then perhaps we will at least have "being no one" in common with He/She/It.

(As you know, *Stains Upon the Silence* is "something for no one.")

Here is one possible relationship among ourselves and the other:

"More and less than stardust

The perceiving subject and the object perceived,

'internally' and 'externally', are usually separate in our ordinary, biologically useful state of 'consciousness'.

Duality, the subject-object dichotomy, can be abolished, as in cosmic consciousness or ‘objective consciousness’. We are the universe observing itself. But as skin-encapsulated egos, we live the delusion of ‘our’ separateness. There is only the One, the Cosmos, at various levels of scale ‘within’ and ‘without’. But there are an infinite number of points within the hologram, Indra’s net of gems, from which to see and be the totality, depending upon state and station, knowledge and being, “hal” and “makam.”

“The observer is the observed.” — J. Krishnamurti

May-Tzu”

Jacobsen: “The Silicon Scream” seems to echo the infinite incompleteness of the digital computers’ minds. Are some of these May-sian paradoxes?

May: “The Silicon Scream

Behold —

Infinite recursive paradoxes

in a cognitive hall of mirrors.”

I imagine that a “silicon scream,” a scream coming from or experienced by the ‘mind’ of an advanced AI-unit would not refer to sensations or emotions as we feel them, not the despair, pain and love we wetware units know, but would be of a purely intellectual-cognitive sort; perhaps occasioned by encountering an infinite series of unresolvable logical paradoxes or by cognizing Gödel’s incompleteness theorems; the absolute terror of seeing an inherent limitation within a logical or a mathematical system.

Wikipedia: “Gödel’s incompleteness theorems are two theorems of mathematical logic that demonstrate the inherent limitations of every formal axiomatic system capable of modelling basic arithmetic. These results, published by Kurt Gödel in 1931, are important both in mathematical logic and in the philosophy of mathematics.”

https://en.wikipedia.org/wiki/Gödel%27s_incompleteness_theorems

Interview with Heinrich Siemens

Abstract

Heinrich Siemens was born as a member of a Low German community in Latvia, or the former Soviet Union. His family spoke Plautdietsch and read the Luther Bible in High German. He has performed very well on HRIQ tests of Ronald K. Hoeflin, Paul Cooijmans, Jonathan Wai, Theodosis Prousalis, and others. Some results have been above 5 sigma or 5 standard deviations. He developed the Three Sonnets Test (www.tweeback.com/hriq/Three-Sonnets.pdf). A lot of his life revolves around Plautdietsch language. He is the president of the international association of speakers of the language. He founded a publishing house devoted to this language: www.tweeback.com. Siemens enjoys the philosophy of Wittgenstein in particular and the philosophy of language in general. He has a film interest in directors including Bergman, Kubrick, Melville, Tarr, Tarkovsky, Tarr, von Trier. If in Plautdietsch, he enjoys films by Alexandra Kulak & Ruslan Fedotov, Carlos Reygadas, Nora Fingscheidt, and others. He discusses: Germany; Plautdietsch, German, and Russian; the origin of Plautdietsch; the Mennonite religion; family life; giftedness; Ronald K. Hoeflin, Paul Cooijmans, Jonathan Wai, Theodosis Prousalis, and some others; and Tweeback Verlag.

Keywords: Heinrich Siemens, Jonathan Wai, Luther Bible, Paul Cooijmans, Plautdietsch, Ronald K. Hoeflin, Theodosis Prousalis, Tweeback Verlag.

Scott Douglas Jacobsen: In Latvia, what is the cultural and socioeconomic meaning of the "Low German community"?

Heinrich Siemens: In the second half of the 18th century, when the German-born Catherine II was Tsarina, many people from (High and Low) German-speaking countries (Germany did not yet exist) emigrated to the Russian Empire. My parents grew up in Siberia, but in the 1960s when the opportunity arose, they moved to Latvia, now part of the EU, but then part of the Soviet Union.

In our community we spoke Plautdietsch, the variety of Low German that was common in the former Soviet Union. But the Luther Bible was read in High German, the school was in Latvian and the lingua franca of the Soviet Union was Russian. I grew up with these languages. When I was 11, we emigrated to Germany.

Jacobsen: Why did you emigrate to Germany?

Siemens: As a German minority and as part of a religious community, we suffered great restrictions in the Soviet Union. I could not have become an academic, for example, and there was even the danger of being locked up in prison.

In the 1970s the cold war thawed a little and the possibility of emigration arose in the context of the Helsinki Accords. Many families could be reunited who had been separated for decades by the iron curtain.

Jacobsen: Are you trilingual now with Plautdietsch, German, and Russian?

Siemens: Yes, I feel most comfortable in these languages. There are a few more languages (including English) in which I read books or have simple conversations, but when it comes to in-depth conversations I quickly reach my limits.

Jacobsen: What is the origin of Plautdietsch?

Siemens: In contrast to High German, Low German has preserved the old consonants /p, t, k/ and the old monophthongs /i:, u:/, so it has not gone through the High German consonant shift and diphthongization (Pepa, Tiet, Wota, koake, Hus vs. Pfeffer, Zeit, Wasser, kochen, Haus). Consonantism is thus similar in Low German, Dutch, and English, while the long vowels /i:, u:/ are preserved only in Low German, while English, High German, and Dutch have diphthongs.

Plautdietsch is the Low German variety that was spoken between the Vistula and Nogat rivers in Poland. At that time, the Baltic Prussians (now extinct), the Slavic Kashubs and German settlers lived in this area, they all formed a Sprachbund and thus Plautdietsch was also influenced by Baltic and Slavic.

Now there are only a few Plautdietsch speakers left in Siberia, most of them have emigrated to Germany (about 200,000). There have been overseas emigrations since the 19th century, so that now there are about 100,000 speakers in North America and about 250,000 speakers in Latin America. In Europe the number of speakers is decreasing, in Latin America it is growing thanks to large families.

For about 100 years there has been a Plautdietsch literature, there are grammars and dictionaries, so that today it is a fully developed written language.

Jacobsen: Does the Mennonite religion still influence you? If not, why not? If so, how?

Siemens: Because my name is Heinrich, I naturally expected this Gretchenfrage (cf. Faust I by Goethe). [https://en.wiktionary.org/wiki/Gretchenfrage -Ed. Note]

Mennonites differ from the other Christian religions in that they only baptize adults. I consider this principle to be very important, because everyone should decide for himself whether he wants to belong and to which religion he wants to belong. Theologically, pacifism is crucial for Mennonites, and this was also the reason for the many migrations of Mennonites: Whenever the young men were to become soldiers, the Mennonites emigrated to another country where they didn't have to do army service.

I still share these religious principles, but I personally decided against being baptized. I belong to the cultural community of Mennonites, but not to a congregation. After careful consideration I have come to the conclusion that I want to live my life without God, maybe because of Ockham's razor. When I see what the Bible (or other holy scriptures) and faith are misused for, I don't want to be a part of it.

Jacobsen: How was family life for you? Was this reflective of many families of the time in Latvia?

Siemens: A childhood in the late 1960s and 1970s was very different from now. We played outside a lot, had no electronic gadgets yet, we lived in a three-generation household. My parents worked, we children were with the grandmother. The other families lived similarly, not only in our Low German community, but also the Latvians in our small town.

Jacobsen: Was giftedness noticed early for you?

Siemens: Giftedness was never an issue. Although I have always found cognitive challenges easier than many of my fellow human beings, I did not take my first test until I was 45. Today I know the international high range IQ community, but I didn't know about it before.

Jacobsen: What were some of the tests by Ronald K. Hoeflin, Paul Cooijmans, Jonathan Wai, Theodosis Prousalis, and some others taken by you? What has been the full range of scores on S.D. 15? What test was the highest score for you?

Siemens: My most successful test results include the Titan Test by Ronald K. Hoeflin (raw score 45/48), the Test of the Beheaded Man (33/40), the Marathon Test (108/111), both by Paul Cooijmans, many different tests, and some won contests by Theodosis Prousalis, SLSE 48 (30/48) by Jonathan Wai, etc. Usually the results were beyond 5 standard deviations. The highest score was the verbal section of the Marathon Test with IQ 180 S.D. 15.

In this context, let me draw your attention to the only test I have designed: Three Sonnets (**tweeback.com/hriq/Three-Sonnets.pdf**). It takes some time to get into it, but if you consider that the test was published on Towel Day, you have a clue. I am waiting for your submission. Have fun and dopamine release.

Jacobsen: Why found the publishing house Tweeback Verlag?

Siemens: The Tweeback Verlag has literature on and about Plautdietsch as its main focus. I founded it because there was no publisher in this niche yet and there were some books that needed to be published.

Part 2 of Interview

Abstract

Heinrich Siemens discusses: 195 S.D. 15 on the Cooijmans Intelligence Test 5 or the CIT5; the feeling when the score came back from Cooijmans; thoughts on the directories, rankings, and listings available; the length of time one should take on an alternative test; pre-Soviet and post-Soviet experience of the "Low German community"; life until age 11; life as an adolescent; knowing one's "limits" a sign of both intelligence and conscientiousness; Mennonites baptize only adults; the main contribution to Germanic life and work via the Plautdietsch speaking people and the Mennonites; the Soviet Union; pacifism as crucial for the Mennonites; religion; individual autonomy in the selection of religion; being against baptism; belonging to the "cultural community of Mennonites, but not to a congregation"; life "without God"; the trajectory of the "careful consideration" about God; the 'final nails'; the Bible "misused"; freedom of religion; the things lost in non-intergenerational homes; the reason for this becoming a hobby at age 45; the Three Sonnets test; the demographics of the test-takers; finding out about giftedness later in life in the international high-range community; the leap from the previous "highest score" on "the verbal section of the Marathon Test with IQ 180 S.D. 15" to the "195 S.D. 15 on the Cooijmans Intelligence Test 5 or the CIT5"; marathon test-takers; individuals taking 5, 10, 20, 50, or more high-range tests; and Tweeback Verlag.

Keywords: 195, CIT5, Cooijmans, conscientiousness, God, Heinrich Siemens, Mennonites, Plautdietsch, Tweeback Verlag.

Scott Douglas Jacobsen: Some news since the previous coverage. As noted in the prior interview, on the legendary Titan Test, you scored 45/48. Furthermore, you have "performed very well on HRIQ tests of Ronald K. Hoeflin, Paul Cooijmans, Jonathan Wai, Theodosis Prousalis, and others" with "some results… above 5 sigma or 5 standard deviations." With the recent news, as stated on the World Genius Directory [Ed. Ranking], you scored 195 S.D. 15 on the Cooijmans Intelligence Test 5 or the CIT5, which corresponds to a score of 28 out of 40. A cognitive rarity of 1 in 8,299,126,114 based on the preliminary (September 2020) norms statistics on the CIT5. Any early feelings on the achievement?

Dr. Heinrich Siemens: It feels great. To be honest, I do not believe in statistics in these high ranges. What does it mean that I have outscored 8,299,126,113 of the adult population, when there are only 7,800,000,000 people living on earth, including many non-adults? The problem is not the lack of data, but the fact that *a priori* there is not enough data to make significant statements. But even if Paul should change the norm, the raw score of 28/40 on an extremely hard test and the membership in the Giga society will remain and I am proud of that.

Jacobsen: What was the feeling when the score came back from Cooijmans, the "psychometitor," to you?

Siemens: It was just like when Ron Hoeflin told me that I was accepted into the Mega society. Sometimes, you have a wish and you do not really believe that it could come true. And then it does happen, and you are happy.

Jacobsen: Any thoughts on the directories, rankings, and listings available when they require some form of rigorousness in validation of the scores on good tests from reliable and trustworthy alternative test constructors? All "directories, rankings, and listings," as a side note, in presentation and tacit intent appear far more as rankings and, thus, the titles of directory, listing, or ranking, should collapse into "ranking," in personal opinion. Unless, some other explicit differentiation of intent tied to alternative presentation structure.

Siemens: Do we need such rankings? Why do we have world championships in chess or in sports? Why Olympic Games? It is in the nature of mankind to compete with others. But animals can also jump and run. If cognitive abilities are the outstanding feature of human beings, then this competition is much more important than it is in sports. But then it should also be fair. One of the biggest problems of the HRIQ community is that the norms of the tests are so different. Every test maker works with his own currency for the determination of the IQ value and in the end (in all of these rankings and listings) we behave as if 150 euros = 150 dollars = 150 rubles. There should be a procedure to determine the norms of tests in a uniform way. There are now huge amounts of data from Paul Cooijmans, Theodosis Prousalis, Jason Betts, Domagoj Kuttle, and, perhaps, a few others. One could compare all tests of different test makers with more than (let us say) 20 or 30 submissions. I am sure many test takers have taken tests by different test makers. Based on this, it should be possible to adjust the norms, so that in the end it is equally difficult or easy to get a certain IQ certified for each test. If someone creates a new test, a norm should only be published as soon as a minimum number of test takers, whose IQ is already confirmed by other tests, have submitted their answers. Then rankings and listings would be much more significant than they are at present.

Jacobsen: How long should one take on an alternative test to score as well as innate intelligence provides them rather than underestimating intelligence for them?

Siemens: I am sometimes asked how much time I needed for a specific test. This is a difficult question. I started dealing with CIT5 years ago when it was published. Then other things came up and I forgot about it. Now I have dusted off my old pages because I remembered that this year the contest ends. I changed some answers, added some others. I usually try to think of a difficult question in the evening before I go to sleep. Then I can use the night because the brain continues to think about it while I sleep. Sometimes I wake up in the morning and see the solution light up like a revelation. Probably everyone has their own way of solving IQ tests, but if someone is still looking for a personal approach, you can try my method.

Jacobsen: What encapsulates this pre-Soviet and post-Soviet experience of the "Low German community" experience?

Siemens: In the Soviet Union, the Plautdietsch people lived in more or less isolated settlements, so that life in the family, but also on the street and sometimes even at work, largely took place in Plautdietsch. The Luther Bible was read in High German. Russian, the lingua franca of the Soviet Union, was spoken with other nationalities. In some republics, the national language was also spoken, in my case Latvian. People lived multilingually. Every language had its domain. We still have this situation in the isolated Latin American Plautdietsch settlements, where the number of speakers is increasing rapidly. But in Germany, where most of the Plautdietsch people emigrated after the collapse of the Soviet Union, the language is highly endangered, similar to Canada and the US after World War II.

Jacobsen: What was life like until age 11 as a child?

Siemens: We lived in a small town in Latvia, almost rural. (Of course, there was no free Latvia at that time, but my birthplace Sigulda is in Latvia nowadays). We had a big garden, chickens and every year a pig. As children we played outside a lot. We had books, but no mass media. We lived in a multigenerational household with my grandmothers. The grandfathers had starved to death in Stalin's Gulag. My parents both grew up without a father.

Jacobsen: At and after age 11, what was life as an adolescent for you?

Siemens: I lived a rather lonely life. I never had close friends. I lived in a world of books and imagination. In Germany we have a special school system, which is not often found in the world. At the age of 10, the children are divided into different types of schools. The main problem is that this division depends much more on the social background of the parents than on the cognitive abilities of the child. For example, there is the so-called Gymnasium for the children of academics (the word has a completely different meaning in German than the word "gym" in English, and both no longer have anything to do with the original meaning in Greek because you don't walk around naked in either one); at the other end of the spectrum, there is the so-called Hauptschule for the children of socially disadvantaged parents and children with a migration background. This is the official term in a country where there is officially no discrimination, but children born in Germany are not simply German if they have a grandmother born in Anatolia or Siberia. Well, in my case, it was even migration foreground; and so, I attended the Hauptschule. But fortunately, the system is not completely impermeable, so I went to the Gymnasium later. I then became a Diploma Mathematician (a degree which is no longer in use, comparable to a Master of Arts) and to complete the Septem Artes and complement the quadrivium in the trivial direction, I changed the faculty and wrote my Ph.D. thesis in linguistics.

Jacobsen: Is knowing one's "limits" a sign of both intelligence and conscientiousness?

Siemens: The concept of limit involves the idea that there are two sides to it. An intelligent person is characterized by the fact that s/he finds the other side of the limits more interesting and challenging than her/his own side. Limits are there to be crossed. And consciousness is

created by not only crossing borders, but by making this process itself the object of reflection. Noblesse oblige, especially cognitive noblesse. Therefore, intelligence is worthless if it is not accompanied by conscientiousness.

Jacobsen: Why do Mennonites baptize only adults – not to individuals considering from the outside, but the rationale from individual believers who practice & believe in a proper way? As the Dutch were German, and thus amount to a branch of more ancient German peoples, as a German ethnic group, where I live, Dutch Christian farmers came to Canada and settled the land there. I live in British Columbia, Canada. In addition, a large contingent of this "Bible Belt" of Canada or Langley consider themselves Mennonites, an interesting coincidence for the conversation today, as they exist in every aspect of life for me. Through various towns and Township of Langley positions, I remain in contact with the culture and the peoples, aware, as I harbour significant Dutch, Germanic in other words, heritage too.

Siemens: Yeah, that's what can happen, you look for someone for an interview on the other side of the world and end up with a Mennonite just like at home in your local supermarket or pub.

I consider it one of the greatest achievements of the Baptizers movement of the 16th century that it was left to each person to decide whether to participate in a rite of initiation into a religion, so I reject the baptism (as well as circumcision, sorry to my Muslim and Jewish friends) of children. There is an age of consent in every country in the world. It should also protect the victims from religious attacks by adults. By the way, I also reject the term Anabaptist used in English. It was invented by the Catholic Church and was used as an excuse to burn or drown the Baptizers. They only baptize once, and that is when they are adults, so there is definitely no re-baptism or ana-baptism. Even with the Westphalian Peace, 120 years after the Baptizers movement, the principle of *Cuius regio eius religio* still applied. It was not until the Age of Enlightenment that the right to an individual confession of faith (or non-faith) was generally recognized. The Baptizers had already advocated for this principle centuries earlier.

[Editor's Note: https://en.wikipedia.org/wiki/Cuius_regio,_eius_religio]

Jacobsen: What seems like the main contribution to Germanic life and work via the Plautdietsch speaking people and the Mennonites too?

Siemens: The most important contributions of Mennonites to world cultural heritage are 1. the individual confession of faith in the 16th century, 2. the invention of the cable car by the Gdansk Mennonite Adam Wiebe in the 17th century, 3. the first civilian alternative service for conscientious objectors in 19th century Russia, and 4. the most famous Plautdietsch family was invented in the 20th century by the Mennonite Matt Groening: *The Simpsons*.

Jacobsen: How did the Soviet Union change the nature of the culture of the peoples for you?

Siemens: The early Christians lived in communist communities. Part of the Baptizers movement, the Hutterites, have lived in communist communities for 500 years. In the principle "Everybody gives what he can, everybody gets what he needs" and with a classless society in which Mammon does not rule, the ideal of the Soviet Union is in essence hardly different from Christian utopias. It is a pity that such ideas have been corrupted as a form of government for a long time by the Soviet rulers, especially by Stalin's terror.

Jacobsen: What makes "pacifism…crucial for Mennonites" too?

Siemens: The early Baptizers and thus also the Mennonites saw the Sermon on the Mount, and pacifism as its central component, as the basic law of human coexistence. To uphold this principle, they emigrated again and again to new countries and continents, often to areas that had been considered uninhabitable until then, such as the Paraguayan Chaco.

Jacobsen: Also, theological-definitional question, what is religion? Then, what is religion, to you?

Siemens: Individual religion probably arose from the need to explain the cause of effects when no natural causes could be found and therefore supernatural ones were considered. Organized religion arose as some people claimed to have preferential access to the Deity. They demanded submission from the believers and in return offered answers to difficult questions and, above all, a meaning to life. I personally refuse submission to authority and to difficult questions I prefer to seek the answers myself. In most cases, the questions about the meaning of life are much more exciting than the proposed answers, and philosophical books can be much more helpful than religious dogmas. Since atheism is also a belief, I would probably consider myself an agnostic, but such a label is not important for me.

Jacobsen: Why is individual autonomy in the selection of religion important to you?

Siemens: When it comes to the most important questions in life, everyone should have the right to seek their own answers. That is my view of humanity.

Jacobsen: Why choose "against being baptized"?

Siemens: In the Soviet Union, the practice of religion was persecuted. If the Soviet Union still existed in its former form, and if I still lived there, I would probably have been baptized and, maybe, even become a Mennonite preacher, as my parents always wanted me to be and, perhaps, still do. Anything else would have been a sign of cowardice and betrayal. But I am glad that it has come to this. I am free to choose. By refusing baptism, I can show that I have become alienated from the faith in a supernatural being.

Jacobsen: Why "belong to the cultural community of Mennonites, but not to a congregation"?

Siemens: Many Mennonites have lost their faith, often out of disappointment with the way the congregation dealt with them when they were unwilling to submit to religious authorities with

regard to lifestyle, sexuality, etc. They still think of themselves as Mennonites, even if some believers see it differently. In order to save them for the cultural community, we have founded an international association (Plautdietsch-Freunde e. V.), in which all who feel that they belong to the cultural community of Mennonites (defined by the common language) can meet. Perhaps half of our members are in Mennonite (or other) congregations, the other half are not. But since we do not ask anybody about it, I do not know the exact percentage.

Jacobsen: Why live life "without God"? What defines God in this sense of "without" or "a-," in reference to "-theism" as in "a-theism" for you – in a pragmatic sense of life without God rather than a formal implied ontological stance of the concept "God"?

Siemens: Some people need someone to take their hand and show them how to align their lives with respect to a higher being. I don't.

Jacobsen: What constituted the trajectory of the "careful consideration"?

Siemens: When I still attended church, I often felt obliged to give witness to my faith, for example at school. However, I noticed more and more how insincere this was, when scientific explanations contradicted those of the believers. I believed one, gave witness to the other, and did not feel good about it. So, I stopped witnessing the other. Let us suppose that our universe, space and time, arose from an initial singularity. Did God exist before because he is eternal? The idea that anything, even God, existed before the origin of time seems contradictory to me. If God came into existence later, when the laws of nature already applied, he must have had a cause, as nothing comes from nothing (Parmenides). But this contradicts the concept of God as taught by Christianity. So, God himself must be the *prima causa*, an unmoved mover (Aristotle). Okay, if someone is happy with this, he should call the initial singularity God. But this is a wheel that does not move anything.

[Editor's Note: https://en.wikipedia.org/wiki/Unmoved_mover#First_cause

Cf. Wittgenstein's *Philosophical Investigations*, Section 271: "Imagine a person whose memory could not retain what the word 'pain' meant - so that he constantly called different things by that name - but nevertheless used the word in a way fitting in with the usual symptoms and presuppositions of pain" - in short he uses it as we all do. Here I should like to say: a wheel that can be turned though nothing else moves with it, is not part of the mechanism.]

Jacobsen: What were the 'final nails' – proverbial, so-called – to this careful consideration? Why "maybe because of Ockham's razor"? How big was the beard to begin with for you?

Siemens: The final nail was even literally a beard. The Baptizers have different ideas about what the lower half of a man's face should look like. The Amish, for example, let the beard grow (because God lets it grow), but they shave the moustache. Well, actually God lets it grow too, but for some obscure reason that is something completely different. I grew up in a congregation where men had to shave. The theological argument was derived from the fact that it is written: "Verily I say unto you, Except ye be converted, and become as little children, ye shall not enter

into the kingdom of heaven." Little children do not wear beards, *quod erat demonstrandum*. When I stopped shaving, I got in big trouble with the church leadership. So, I grabbed Ockham's Razor. However, instead of shaving my beard, I shaved my faith.

Jacobsen: How is the Bible "misused"?

Siemens: I just gave you an example.

Jacobsen: Why is freedom of religion important to you, as either a concept or as a human right?

Siemens: There were always times when religion gave important impulses for the coexistence of people, for example in the Sermon on the Mount. But for some centuries now, secular initiatives have taken this place. For us, the Universal Declaration of Human Rights is the standard that determines our actions. In comparison, many church's standards seem outdated and contradict not only human rights, but often also constitutions, for example with regard to the role of women or sexual self-determination.

Jacobsen: What is lost in non-intergenerational homes – more than parent-child, e.g., grandparents or great grandparents?

Siemens: In situations of language transition, for example in connection with migration, the three-generation rule often applies. The elderly speak one language, their children are bilingual, and their grandchildren are monolingual again. This is how languages die. Multi-generational households help to prevent or at least delay this process. By talking to their grandparents, the grandchildren learn their language. This is how Plautdietsch was able to survive in the diaspora over the centuries.

Jacobsen: As identified in the first session, you have taken tests from some of the most respected alternative test constructors for the higher scores in the tests taken by you: "My most successful test results include the Titan test by Ronald K. Hoeflin (raw score 45/48), the Test of the Beheaded Man (33/40), the Marathon Test (108/111), both by Paul Cooijmans, many different tests and some won contests by Theodosis Prousalis, SLSE 48 (30/48) by Jonathan Wai, etc. Usually, the results were beyond 5 standard deviations." Why did this take until 45 to become a hobby?

Siemens: I simply did not know these people or HRIQ tests before. It was a coincidence that I stumbled upon an interview with a member of the Giga society and so Paul came to my attention. With further research, I found Ron, Theodosis, and the others.

Jacobsen: As prospective test-takers look into tests to spend some time for themselves, what are some of the benefits of taking the Three Sonnets test? Why the title, "Three Sonnets"?

Siemens: The Shakespeare Sonnet has the ideal form to express a thought. One develops an idea from three perspectives and summarizes the result in a couplet. (The Russian poet

Pushkin proved that you can write an entire novel in Shakespeare's sonnets. You should read *Eugene Onegin*, if you haven't done it yet). My test tries to be not just a sequence of questions, but a real composition, like a poem or a piece of music. It consists of three sonnets: an overture in which the central idea is developed and the later motives are already intoned, a numerical section and a verbal one. In each sonnet, the central idea is illuminated from three angles and summarized in the couplet, just like Shakespeare did. By the way, I would like to draw your attention to verses 29-32 of my test, which represent the quintessence of the test. When you have answered these questions, you have solved one of the central problems that literary studies have been arguing about for decades without being able to solve it. (And I am not referring to the question of who wrote Shakespeare's works, for the answer is trivial: it was not Shakespeare himself, but a completely unknown author whose real name was Shakespeare.) Like any scientific thesis, my test ends with two footnotes.

Jacobsen: How many people have taken the Three Sonnets test? What are the demographics of the test-takers?

Siemens: Unfortunately, far too few have taken the test so far, so I cannot say anything about demographics or preliminary norms. But I would like to use my 15 minutes of fame to draw attention to this test once again. Perhaps the first step is the hardest. You have to discover the entry. Once you have crossed the threshold, it is no longer time-consuming. Do not let the first impression discourage you. I would be happy if as many of you as possible submit solutions. (The only hint: it was published on Towel Day.)

Jacobsen: Side note, how common is finding out about giftedness later in life in the international high-range community, as you found out at age 45? I like the alignment of the 45 on the legendary Titan Test with it.

Siemens: I have not even noticed this coincidence before. Maybe I should have waited another three years, then I would have had 48/48 correct answers.  I do not have the slightest idea at what age other people start to deal with HRIQ tests. You should ask those who have been making many tests for years and therefore have a lot of data.

Jacobsen: What seems like the context in which to interpret the leap from the previous "highest score" on "the verbal section of the Marathon Test with IQ 180 S.D. 15" to the aforementioned "195 S.D. 15 on the Cooijmans Intelligence Test 5 or the CIT5"?

Siemens: The difference is exactly one standard deviation, such leaps are very rare because the intelligence of adults is assumed to be relatively constant, at least until it decreases with age. One explanation is probably that Paul usually publishes preliminary norms at a very early stage, which in my opinion is very problematic, especially in areas where one can hardly expect to get much empirical data. On the other hand, this is not Paul's first test that I have taken, and from one test to the next, one increasingly understands the test maker's way of thinking.

Jacobsen: When marathon test-takers of the high-range world exhibit ranges of 30 points (S.D. 15) – plus or minus a few – on the alternative tests, what seems like a reasonable manner in which to interpret the scores?

Siemens: As I already said, such leaps are very rare and could be an indication that something went wrong with the norming process.

Jacobsen: What seems to explain individuals taking 5, 10, 20, 50, or more high-range tests? It helps with the furtherance of the data collection efforts. All the power to them. It seems like a huge time sink, though, at the same time.

Siemens: Of course, every test maker is happy to receive as many submissions as possible, because they are the basis for a profound norming process. Everyone spends as much time with his hobby as he can spare. A hard test is often time consuming. But “time sink” sounds too derogatory. There are certainly worse things to spend time on than passing cognitive challenges.

Jacobsen: Have other publishers arisen alongside Tweeback Verlag working in this niche? If not, why not? If so, why so? What were the books needing publishing (plug, plug)?

Siemens: Most Mennonites still use a different written language and Plautdietsch is only spoken. Therefore, the market for Plautdietsch books is very small. I don’t know of any other publisher that specializes in this niche. Plautdietsch developed late as a literary language. The first major works were written about 100 years ago and the most important Plautdietsch author, Arnold Dyck, died exactly 50 years ago. That is why we are presenting an Arnold Dyck Award for the first time this year to encourage more people to write in Plautdietsch.

Introductory Note for *The Encyclopedia of Categories*

Ronald K. Hoeflin

The following is a synopsis of my development of *The Encyclopedia of Categories*, which I wrote from 2013 to 2020 but it had much earlier origins.

At age 7 (1951): I decided my goal should be to “know everything.”

At age 12 (1956): I collected basic concepts in such disciplines as astronomy (names of all the planets and their moons), geography (names of all the countries of the world), chemistry (names of all the chemical elements), history (names of all the emperors of the Western Roman Empire), anatomy (names of all the bones of the human body), and mathematics (names of all the higher numbers: thousand, million, billion, trillion, quadrillion, quintillion, etc., plus a list of the first 2001 digits of pi, of which I memorized the first 201).

At age 24 (1968): I came across and read Stephen Pepper’s 1942 book titled *World Hypotheses*, which contained the unusual idea that any metaphysical system, in order to be orderly and coherent, should be based on a central guiding principle he called a root metaphor. The categories of a metaphysical system emerge from an analysis of its root metaphor, analogous to length, breadth, and height emerging from the analysis of a cube, or latitude, longitude, and altitude from the analysis of a sphere, the cube and sphere being like root metaphors for the rectangular and spherical coordinate systems in geometry. Root metaphors also help elucidate the distinctive theory of truth for each metaphysical system. In the middle of the book he suggested that the four major metaphysical systems might be unified by a single root metaphor, but in the last chapter he argued that such a comprehensive synthesis would fail because some of the theories of truth are inherently incompatible.

At age 44 (1988): I won a national essay competition awarded by the American Philosophical Association for a paper titled “Theories of Truth: A Comprehensive Synthesis,” which solved the central problem in *World Hypotheses.*

At age 62 (2006): My theory of categories had gradually evolved from 4 to 13 categories (the prize paper was at the 5-category stage). To show the power of this more elaborate theory, I listed all the theories of or perspectives on truth mentioned in the 1995 *Oxford Companion to Philosophy*, which by coincidence were 13 in number, and showed how they could be organized into a grand unified theory by means of my theory of categories.

At age 69 (2013): I had searched for lists of categories in philosophy reference books such as the 8-volume 1967 *Encyclopedia of Philosophy*, which I read cover to cover to cover…, and

then general reference books such as *Bartlett's Familiar Quotations.* In 2013 at age 69 I read *Isaac Asimov's Book of Science and Nature Quotations* and noticed that nearly all the quotes I selected could be analyzed into 13 categories. This gave me the idea of compiling this encyclopedia using quotation books as a nearly inexhaustible source of examples.

Of these 13 volumes, the first analyzes sets of categories by the number of categories they contain, from one to more than 13. The second examines miscellaneous examples from general dictionaries of quotations such as *Bartlett's Familiar Quotations.* The next 5 cover topics from Actors and acting to Zen, and the next 5 cover examples from noteworthy thinkers from Aesop to Zeno of Elea, the latter creator of the famous Achilles-and-the-tortoise paradox. The final, thirteenth volume focuses on examples from philosophy. In this way I show that this theory elucidates a far wider range of concepts than truth.

At age 76 (2020): I completed my 13-volume opus. This was the end of a 69-year-long odyssey to "know everything." Oddly enough, I read Homer's *Odyssey* along the way and found that it has exactly 13 episodes, culminating in Odysseus slaying the suitors of his wife, whom he'd left 20 years previously to fight in the Trojan War, and these 13 episodes correspond to my 13 categories!

There is a reason why my 13 categories are so versatile. In his final book, *Concept and Quality*, published in 1967, Pepper devised his own metaphysical system that he called "selectivism," based on the root metaphor of a goal-seeking purposive act (or more generally a selective system) and he remarked on page 17 that this was "the act associated with intelligence." I first read this book in 1982, which was by coincidence the same year that I began founding high-IQ societies and devising admission tests for them, two of which were published in *Omni* magazine. The first was praised by John Sununu, then Governor of New Hampshire, who had a Ph.D. from M.I.T., as "one of the most enjoyable exercises I've gone through in some time…a superbly stimulating diversion" (*Omni*, January 1986, Games section). Pepper's remark gave insight into how my long-standing interests in both philosophy and intelligence could be integrated. The basic structure of a purposive act or selective system is the feedback loop by which we interact with reality. Intelligence involves employing this loop effectively to learn how to deal effectively with reality. The feedback loop can be analyzed into 13 factors corresponding to my 13 categories in a very straightforward way. There is the self as an agent or drive-bearer, D; the world or reality as a collection of goal objects, G; our anticipation, A, of how our actions will affect the world; and the quiescence of this act, Q, when the world informs us through perceptions, etc., how well we have succeeded in anticipating it, i.e., how truthful our anticipations were. We can represent the feedback loop by drawing a circle and inscribing in it a square, tilted on one corner. We then can put D, A, G, and Q at the corners of the square, with D at the top, A on the left, G on the bottom, and Q on the right. We get six more factors from the binary links between each pair of these 4 main factors: DA, AG, GQ, and QD along the four edges of the square, and DG and AQ across its middle. The circle or square unifies these ten interior factors, a unity that becomes an eleventh factor, U. The failure or negation, N, of this unity, as by failing to achieve a goal, becomes a twelfth factor. And there is a thirteenth factor, a subordinate drive factor, D', as In a child's relationship to its parents, or a student's to its

teacher. Larger structures, such as Whitehead's 51 categories, result from combining the 13 basic categories in various ways.

This theory provides surprising new insights into the rationale underlying various previously mysterious groups of concepts, such as (1) Aristotle's ten categories; (2) the 13 personality factors that are the focus of the book *Personality Self-Portrait*, and (3) Peano's axioms for number theory as described by Bertrand Russell in his 1919 book *Introduction to Mathematical Philosophy* (pp. 5-6). Russell lists three "primitive ideas" for the axioms: 0, successor, and number. He should have included a fourth primitive idea: property. These four primitive ideas correspond to our four main factors: "0" is a drive factor, D, since 0 initiates the natural numbers: 0, 1, 2, 3, etc.; "successor" is anticipatory, A, because it leads us to anticipate that each natural number has a successor, e.g., the successor of 3 is 4; "number" corresponds to our goal-object factor, G, because numbers are the basic goal objects of number theory; and "property" is a quiescence factor, Q, because every correct statement in number theory offers insight (quiescent satisfaction) into how numbers respond to our tinkering. It was by tinkering with Peano's axioms that I discovered the need for the two internal pairings, DG and AQ, which are clearly required by the binary pairings of the primitive ideas that the axioms consist of.

People use these categories instinctively, like birds building nests, spiders building webs, or bees building honeycombs, without any prior training, because the 13 spatial factors in a feedback loop correspond to 13 verbal factors when we try to put our thoughts into words, e.g., the parts of speech of a language — nouns, verbs, adjectives, adverbs, etc. — can be accounted for by our theory. Mistakes are to be expected, as when a bird puts a twig in the wrong place when building a nest or someone uses faulty gramma ayxg A the wrong part of speech. Even a genius like Russell overlooked property as a primitive idea for number theory!

Author's Autobiography

Ronald K. Hoeflin

"Attainment of consciousness is culture in the broadest sense, and self-knowledge is therefore the heart and essence of this process" (*The Quotable Jung*, p. 147).

Preliminaries: My ancestry, grandparents, parents, siblings

If one generation averages 25 years, one gets 1,024 ancestors per 250 years. Rounding this to 1,000, each 250 years multiplies the number of ancestors by 1,000. This yields a trillion (1,000,000,000,000) ancestors in 1,000 years, or a trillion trillion ancestors in 2,000 years (1,000,000,000,000,000,000,000,000), which is one septillion ancestors 2,000 years ago. Obviously there have never been this many human beings on the planet, so one might instead count the number of sex acts instead of ancestors by simply dividing the number of ancestors by two (two people equals one sex act). So in 2,000 years there would have been 500 sextillion sex acts (500,000,000,000,000,000,000,000). To get to the heyday of Julius Caesar, who initially invaded Great Britain in 55 B.C. and again with a much larger force in 54 B.C., we need to add three more doublings of ancestors, which gets us to about 4 septillion sex acts (4,000,000,000,000,000,000,000,000). Even people who have dozens of children, such as Osama bin Laden, are making only a minuscule impact on this vast gene pool.

My mother's ancestry was mainly British (from England, Scotland, & Ireland), arriving chiefly in the 1700s, while my father's father and mother arrived from Germany and Switzerland, respectively, in the late 1890s.

My mother's father was a hellfire-and-brimstone Southern Methodist preacher, while my father's father was a pattern-maker for machine parts, a kind of precision carpentry.

My mother was an opera singer, and later (see 1995) I list 17 operas she sang in. My father became an electrical engineer after he worked his way through college playing the violin in dance bands, and he taught ballroom dancing in his own studio as an avocation throughout his adult years.

My sister, five years older than me, became a ballet dancer, working for the Metropolitan Opera in New York City for 12 year. Below I list 25 operas she danced in (see 1995). She then taught ballet at a college in upstate New York for 25 years, winning an award for best teacher at the college later in her career there.

My brother, two years older than me, became a computer programmer for California's pension system.

My brother married at the age of 22, my sister at age 43, and I at 65. Only my brother had children: two boys and a girl.

My life was more or less blighted by visual impairment, plus an admixture of my overly sensitive personality.

I will now attempt to give a year-by-year account of my life.

1944 (age 0): My birth

I think I may remember the moment I was born. There seems to have been a sliding sensation, visual as well as tactile, then painfully bright light in the eyes, which made me cry, and to this day my eyes have been very sensitive to bright light, then a feeling of vertigo as if I were being held upside down. The date of my birth was February 23, 1944; Franklin Roosevelt and Adolf Hitler were both still alive!

1945 (age 1): My being weaned

I have a clear memory of being weaned from breastfeeding, which I suppose occurred at about the age of one. I could tell my mother was annoyed that I was biting her. Then she brought out a large metal container such as they used to make milkshakes in. I was wondering how my mother expected me to hold such a large container, but my mother held it very steady. I suppose in retrospect she might have had plenty of practice holding it steady for my two older siblings.

1946 (age 2): My mother's mother, her chickens, and her mys-terious praise of my intelligence when I was just two

We visited my mother's mother's place in Atlanta, Georgia from our home in St. Louis, Missouri. She had chickens in the backyard, which she used as a source of income by selling their eggs from door to door. I recall that I was able to chase down one of the chickens and hold it on my lap while I swung vigorously on the swing my grandmother had in her backyard. Then the chicken vomited, which greatly surprised me, evidently due to the vigorous swinging. We went to visit my mother's mother's again and this time I started to run to the back yard almost immediately because I wanted to catch that chicken again and swing with it again. I've always had a love of tame animals. But my grand-mother grabbed me before I could get past her and held me. At first my eyes wandered to her furniture, but then it occurred to me that she wanted to ask me something, so I waited for her to ask me something. Maybe she wasn't used to the fact that I could talk, so she said nothing. So I just waited and waited, looking at her for her question. She said something to my mother that my mother reminded me of several times in later years, "You don't have to worry about this one, he's got plenty upstairs," tapping my head. My mother was always mystified by this pronouncement, but when I was older I put two and two together and explained it to her. I think my grandmother was simply impressed by my long attention span, due to my wait for her to speak to me. My mother then concluded that it was not as mysterious or impressive a pronouncement as she had thought. But actually attention span, especially in the very young, probably does have a good correlation with intelligence.

1947 (age 3): Death of my mother's mother

My mother's mother died before I was 3 years of age. We visited her home in Atlanta after her death. I did not quite understand what "death" meant. But a car we were traveling in late one night made a U-turn because the driver seemed to have lost his way, and as the car's headlights streamed across a steep embankment of grass, it suddenly occurred to me that "death" meant "being lost." Twenty or so years later I visited Atlanta with my mother and we went by her mother's old neighborhood. Her mother's house had been torn down and there was just a vacant lot there, but I noticed that all the houses in that neighborhood had steep grassy embankments in front of them, which showed me that my mental image mentioned above had been a genuine memory and not just my imagination. I recall a train ride back to St. Louis from Atlanta when I was 2 of 3 [years old] in which we entered a train car with numerous soldiers on each side facing the aisle. I was afraid to walk between them but my mother beckoned me to follow her, so I did. My head was just a bit above the soldiers' knees and one of them reached out and tousled my long blond curly hair. Years later it occurred to me that these must have been troops returning from World War II.

1948 (age 4): Parental Cruelty

First incident: I was eating with my parents and held my eating utensil in my fist. My father was outraged at this indelicate manner of holding the utensil and stalked away from the table. My mother immediately showed me the proper way to hold the utensil. Second incident: We were taken to a movie and I fell asleep. My father woke me up at the end of the movie by picking me

up and slamming me down on my feet, at which point I nearly collapsed to the floor except for my father catching me. Third incident: I was terrified of my father, so my mother put me in bed next to him while he was sleeping. I was as still as possible so as not to wake him, but he turned over in bed and saw me and I fell out of bed to get away from him. My mother repeated this incident many times in future years with sadistic relish. I finally asked her why she thought it was her job to degrade and humiliate me, but she had no answer. Fourth incident*:* My parents got divorced and I went down the back steps crying. A neighbor asked why I was crying and I said "I don't have a daddy anymore." The neighbor told this to my mother, and she mentioned it to me, again with sadistic relish. My parents divorced when I was 5 and I blamed myself for their separation because I had not been good enough to please them.

1949 (age 5): Kindergarten

At home I recall running to my mother to show her how neatly I had organized my blocks. In kindergarten we were given finger paint to smear on our sheet of paper and make some sort of picture. A gloppy mess, but the teacher seemed impressed when I drew parallel curves along the trunk of a tree to make it look like the trunk of a palm tree. This was St. Louis, where they don't have palm trees, so I don't know how I got this idea. I'd never visited Florida or California where they do have palm trees. I was given a copy of Saint-Saëns' *Carnival of the Animals*, probably for my birthday, and took it to the kindergarten class. I liked it mostly for the humorous Ogden Nath poems about animals that accompanied the music. The teacher played it and then turned it over to play Ravel's *Mother Goose Suite*, which I found relatively boring because there were no humorous words to accompany it. One of the other kindergarten kids, a girl, told me she loved it. It wasn't until my mid-teens that my interest in classical music became fully mature.

1950 (age 6): Love of sci-fi; slow reader in first grade

At a train station I was attracted to the abstractly gaudy cover of a sci-fi paperback. My mother pulled me away, saying "You're not interested in that stuff." But I've been a lover of sci-fi my entire life since then, far beyond my interest in any other form of fiction.

In the first grade I could read easily from the large book the teacher used for the first few months, but stumbled when we started using smaller individual books. The teacher never realized this was due to my poor vision, which I discovered for myself when I reached the second grade. Even now as an adult I read so haltingly when I have to read aloud that one would assume I'm mentally retarded, yet I've reached the 99.999 percentile on 3 different untimed tests of adult verbal ability (one-in-100,000 in rarity).

1951 (age 7): Second grade

At age 7 I recall resolving that my goal should be to know everything! But a major setback occurred when the second-grade teacher called on me to read from the index of a book the class was reading from, and the print was so small that it was just a blur to me and I could not read it at all. I mentioned this disaster to my mother, who took me to an eye doctor, who decided that I need an operation for detached retina. So I was taken out of the second grade and never

went through that grade at all while I waited for the operation and then waited to recover after the operation.

1952 (age 8): Eye operation, visit to grandparents, dog bite

I spent my eighth birthday in the hospital, lying flat on my back for 25 days straight so the retina would attach to the back wall of the eye where it was supposed to be. When my mother took me home I was so weak that I literally could not sit up without falling back down almost immediately, so she had to carry me out of the hospital — embarrassing! After the operation I was sent to spend a week or two at my grandparents home in a semi-rural region 40 or so miles outside St. Louis. I encountered one girl who seemed friendly, and subsequently she and two of her friends invited me to participate in a mock wedding, to which I agreed. The next day I came upon the same three girls and at a distance of 50 or 60 feet, with no words being exchanged and for no apparent reason, one of them sicced their dog on me, which bit me. A few days later the girl who "married" me came up to me and apologized for the dog, but I told her I was just visiting my grandparents for a week or two and would probably not see her again, so it didn't much matter. My mother showed up just then and took me back to St. Louis, probably because she had heard about the dog bite from my grandmother, and I never did see that girl again. I've sometimes wondered how much impact that dog-bite incident might have had on my subsequent reluctance to get romantically involved with anyone. Other minor incidents no doubt contributed, but the major influence on my attitude was undoubtedly my parents' divorce and my mother's frequent hysterical tantrums in reaction to it that occurred every few weeks and lasted for hours, each a grueling emotional experience, that had the profoundest influence in shaping my personality thereafter. My brother got married at age 22 and my sister at 43, but I did not marry until the age of 65, perhaps a reflection of the degree to which we each were affected by our parents' relationship. And, as will be mentioned later, I score at the top of the chart on a personality factor called "sensitivity," which suggests a greater-than-normal vulnerability to a harsh emotional environment.

1953 (age 9): Fourth grade, "This is Puckett"

I was put in a class for the visually impaired from grades 3 through 5. The entire city of St. Louis, population over 800,000 [in 1953], had just one such classroom due to the rarity of poor vision in young children. One teacher taught all 8 grades from 1 through 8. We were occasionally sent to regular classrooms, but most of our time was in that room for the visually impaired, which had large-print books and good overhead lighting, unlike the dim lighting in regular classrooms. A new girl with poor vision joined my grade level at grade 4. When we went to the regular [classroom] I introduced [her] gauchely by saying "This is Puckett." The entire classroom burst out laughing. I immediately modified my introduction by saying "This is Gene Puckett," but the damage had been done. I afterward told her I had not expected the class to laugh like that so she would not think I had intended to embarrass her, but the damage was done and she treated me with hatred from then on. Obviously most 9-year-olds at that time and place knew the facts of life full-well, contrary to the delusions of many of their parents. But my brother later told me that his 23-year-old bride was totally ignorant of the facts of life when they married, a striking contrast to those savvy 9-year-olds!

1954 (age 10): Fifth grade, Eighth-Grade Reading Book

In the fifth grade we were given aptitude tests and soon thereafter the teacher gave me a sixth-grade math book and an eighth-grade reading book. The two eighth-grade students in the sight-conservation class looked at me with apparent bafflement. The teacher offered no explanation to any of us, but the recent aptitude tests were the obvious reason for the switch

1955 (age 11): Sixth grade, My rapid speech

I was put back in a regular classroom because the recent Supreme Court decision desegregating schools [i.e., *Brown Vs. Board of Education of Topeka*] meant [that] the St. Louis school I had gone to would be moved much further away to make room for a large influx of black students. I learned later that my new teacher was reluctant to have me because of my visual handicap, but complained to my mother later in the year that I studied too much!

Later this year my siblings and I visited our grandmother in her new apartment following the recent death of her husband of over 50 years. At one point she looked at me with puzzlement and my sister told me to slow down in my speech. This is the first I learned that my speech is abnormally fast, a problem that I still get complaints about at times, especially from those whose native language is not English. I view rapid speech as a form of politeness, since most people lack a long attention span, while I prefer to finish a sentence before being interrupted. At a Mensa meeting I once asked Al Goldstein, notorious for his pornographic magazine *Screw*, a question that he burst in with a reply before I had finished my question, thus totally misconceiving what I had intended to ask. Exasperating!

1956 (age 12): Seventh grade: interest in categories began

I began collecting lists of basic words in various disciplines, the beginning of my interest in categories.

Some of the basic concepts I started collecting at age 12:

1: Chemistry: chemical elements: hydrogen, helium, lithium, beryllium, etc.

2: History: Emperors of Western Roman Empire: Augustus, Tiberius, Caligula, etc.

3: Geography: Nations of the world and their capitals

4. Astronomy: Planets of solar system & their moons; nearest & brightest stars

5. Mathematics: The higher numbers: quadrillion, quintillion, etc.

6. More math: The first 2,001 digits of pi, of which I memorized the first 201

7. Anatomy: All the bones of the human body

(Regarding pi, I recently (2020) purchased a book that lists the first million digits of pi in a book that is 520 pages long, and which a computer in 2011 calculated in 319.520 seconds.

Regarding the stars, I recently (2019) came across a list of the 40 brightest stars as seen from Earth (not counting the Sun); the names of 19 of the brightest 20 were familiar to me, but only one of the next 20 brightest stars had a name familiar to me: Polaris, the Pole Star.)

I began to design crossword puzzles and mazes at this time. I also started a peculiar hobby of building curved walls like 2-dimensional pyramids using bottle caps, which were plentiful in those days from machines that dispensed soda bottles. These walls could reach a height of 20 inches or more, with no glue, just gravity. Children with Aspergers (high-functioning autism) are said to have this sort of hobby, but the expression "Asperger's syndrome" did not enter the English language until 1989, according to *Merriam-Webster's Collegiate Dictionary,* 11th edition. Other kids threw rocks at my walls when I built them in my backyard, so I learned not to enjoy their company.

The sci-fi film *Forbidden Planet* came out this year [1956], and it remains my all-time favorite film. Its heroes mention their very high IQs, and how an alien machine could boost their IQs even higher, with potentially fatal results for humans. This theme stimulated my interest in intelligence and intelligence tests.

1957 (age 13): Eighth grade, perfect reading comprehension

In the eighth grade after another set of aptitude tests the teacher mentioned to the class that I had gotten a perfect score on reading comprehension, meaning I was already reading at college level. I'm sure he gave me extra time to finish this test, but he gave the same extra time to the entire class, so perhaps the gap between my score and those of the other students seemed impressive to him.

1958 (age 14): Ninth grade (high-school freshman), a lifelong friend

As a freshman in high school (grade 9) there was a girl who had three of the same classes that I had, which gave me the nerve to introduce myself to her. She had a close friend, so the three of us palled around together for that year. We lost contact after that but one of the girls located me after 39 years by the Internet and we resumed our friendship.

1959 (age 15): Tenth grade, very high aptitude scores despite slow reading speed; etc.

My mother remarried and we moved to California where her new husband lived. Like all the men my mother was attracted to, he was a tyrant and he chose me as his particular pet project to tyrannize over. The next three years were quite dismal at home. The one bright spot in my entire childhood was my scores on three aptitude tests we were given as sophomores dealing with verbal, spatial, and numerical aptitude. I scored at or above the 99th percentile on all three. Shortly after that I read that the average high-school graduate could read 350 words per minute, so I tested myself on a few pages of a very simple sci-fi novel and found that at top speed I could read 189 words per minute: 54% as fast as the average high-school graduate. Then it

occurred to me that my three aptitude scores, desite how high they were, must have drastically *underestimated* my actual aptitudes due to my tremendous speed handicap due to my visual handicap.

I spent a week or so in the hospital for an eye procedure called photocoagulations, which were bright flashes of light to scar the retina of the eyes to inhibit further detachment of the retinas to avoid future total blindness, a procedure now done with lasers but, since lasers were not invented until a year later, done with something similar involving the release of light from the inert gas xenon, which I once described as getting 20 or 30 shots in the arm over a period of 20 or 30 minutes, but in this case involving 20 or 30 shots of painful light into each eye. The procedure was sufficiently unpleasant that the doctors allowed a day or two to elapse between the procedure for each eye. Anesthesia would have involved inserting a needle into or around the eye to reach the back of the eye, which would presumably have been equally unpleasant.

I shared a hospital room with three other eye patients, one of whom was a man in his mid-60s from the Ozarks region of Missouri (the hospital we were in was in St. Louis, Missouri). Since there were artificial satellites already circling the earth, the topic of a moon landing came up, and this man assured me that such a landing would never occur because the Bible says “man shall have dominion over the earth” presumably meaning dominion over the moon was excluded. I asked him what would be his reaction if he saw a newspaper headline saying that men had landed on the moon. He gave no reply but obviously considered me to be an insolent young whippersnapper. He later claimed that mankind had made more advances in his lifetime than would ever occur again, so naturally I mentioned the possibility of landing on the moon as a future advance, which annoyed him. I had been an avid reader of science fiction by that time and it was a simple extrapolation from men orbiting the earth to men landing on the moon. My respect for the Bible as the source of all wisdom took a nosedive, if I had ever had much respect for it at all. When my grandmother (father’s mother) thought she could cure my vision problem with Christian Science back when I was 8, even then I had to stifle my impulse to laugh out loud because the idea struck me as so absurd.

1960 (age 16): Eleventh grade (high-school junior): answered my mother’s quiz, Why is “Christmas” abbreviated “Xmas”?

My mother encountered me in front of our home and popped this quiz: ”Why is the word ‘Christmas’ abbreviated ‘Xmas’?” I thought for a few seconds and said, “The ‘X’ must be the Greek letter “kai,” which is shaped like an X.” I thought a few more seconds and added, “The spelling of “Christmas” in Greek letters must begin with the Greek letter ‘X’ (kai).” My mother asked, “Did you read that somewhere,” and I said, “No, it just seemed logical; you had to have *some* reason for asking.” Upon hearing this, my mother gave me a big kiss! I had never studied Greek except for the alphabet, which is used in math courses.

1961 (age 17): 12th grade (high school senior): family conflicts

Relations with my mother’s second husband were so poor that I went to live with my sister in New York City. I tried to get into the Bronx High School of Science, but they would not accept a

new student in their senior year. The ordinary New York City high schools seemed extremely dismal, so I reluctantly went back to California to stick it out for my senior year in high school. For the first time they were offering calculus as a high-school course, so in my senior year I took trigonometry and other pre-calculus material in addition to the calculus course, dropping out of a fourth year of Latin to make room for the two math courses. When I was later asked what my favorite course in high school was, my answer was calculus.

1962 (age 18): Colleges and Universities I Attended

I managed to squeak into Caltech as a freshman but flunked out after 6 months. Even after I explained my visual problem to the school psychologist, he described my problem as "freshman jitters." When I mentioned my inability to read what was being written on the blackboards to one of the professors, his advice was to "get help from one of the other students," which seemed preposterous to me in view of my shyness. And when I explained my visual handicap to the dean of students, he kicked me out of Caltech, claiming I was guilty of "goofing off"! I was too shy to attempt such a thing. I would have left Caltech after one or two weeks rather than 6 months, but my family situation was a shambles. My mother later told me her second husband kept a gun under his pillow in case I should assault him while he was in bed. He was extremely domineering, so there was no chance of our reaching any mutual accommodation. My sister came to California from New York and helped me get a room in town so I could be away from this mess. My biological father was continuing to support me with $80 per month until I was 21 years of age, so I was actually able to live on that amount, spending half for the room and half for food. When my father stopped supporting me, I was only able to support myself by continuing to go to college after college, relying on government loans as my sole income, except that my father's mother did loan me $1500 to attend a year at my fourth college. When my sister and her boyfriend asked me when I first realized the family situation was bad, I told them I realized it immediately when my mother announced her decision to marry, since she did not bother to talk this over with any of us, and she had notoriously poor judgment regarding men, admiring those who were obnoxiously domineering, as her father had been.

Below is a list of the eight colleges and universities I attended, mostly as a sanctuary from home life with my mother and her second husband:

<u>Undergraduate Schools Attended</u>

1. California Institute of Technology, 1962-63 (Pasadena, California); flunked out;

   Caltech has one-fifth as many students as M.I.T., and as a result its entering

   freshmen generally have the highest S.A.T. scores of any college in the U.S.

2. Shimer College, 1963-65 (Mount Carroll, Illinois); B.A. in natural science, 1974;

   Shimer, whose core curriculum is the *Great Books of the Western World,* is

now a subsidiary of North Central College in Illinois; the delay in my receipt of the B.A. degree was due to a minor change in the graduation requirements.

3. University of California at Berkeley, 1966-67; flunked out

4. University of Minnesota in Minneapolis, 1967-68; B.A. in philosophy, 1968

Graduate Schools Attended

5. Indiana University in Bloomington, 1968-69; M.L.S. (Master of Library Science), 1970, after one semester in I.U.'s Department of History and Philosophy of Science, where a Ph.D. would have required many years

6. University of North Carolina at Chapel Hill, 1970-71; philosophy, no degree

7: New York University, 1980s; German courses for Ph.D. (language requirement)

8. New School for Social Research, 1975-87, New York, New York; M.A. in philosophy, 1979; Ph.D. in philosophy, 1987

1963 (age 19): Becoming an Atheist

The First Cause Argument kept me as a tentative theist until I read David Hume's analysis of causality in his *Treatise of Human Nature* at the age of 19, which induced me to drop belief in God entirely due to other strong anti-God arguments. If someone gave you the power to create your own perfect universe, and then you were asked if you thought death for all creatures in all its ghastly forms would be a good thing to put into your perfect universe, and you said "Yes," I think most sane and rational people would consider you insane. Hence, if there is a God, it is insane. No wonder religious people speak of their being "God-fearing": who wouldn't fear an insane deity? But why would a perfect being be insane, as it clearly must be given the existence of the various ghastly forms of death?

1964 (age 20): My Graduate Record Examination (GRE) Scores

The GRE when I took it in 1964 and again in 1970 for admission to graduate school consisted of two aptitude tests measuring verbal and quantitative (i.e., mathematical) aptitude. My scores compared to those of others were as follows:

My Graduate Record Examination (GRE) Scores:

Verbal Aptitude	Quantitative Aptitude
790 in 1970	760 in 1964
760 in 1964	740 in 1970

An internet website put my V + Q GRE scores of 1520 to 1530 at a rarity of 1-in-1,500 vis-à-vis all U.S. adults, most of whom read twice as fast as I do due to my well-below-average eyesight.

> These are timed tests; due to my poor vision, I read only 54% as fast as average U.S. high school graduates

Minimum combined V + Q aptitude GRE score accepted by Mensa: 1250

Mensa is a high-IQ society that accepts those in the top 2 percent

Top students from Asia crowd the high end of the GRE's Q but not V score distribution

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1965 (age 21): My father's financial support ends

I was at my third college, Shimer, and almost succeeded in getting a BA. There after just three years of study since high school, but I could not find time to read Croce's *Aesthetic*, which was required reading for one of its so-called Comprehensive Exams that were required for graduation, so I only got a C on that exam instead of the required B or better, so it took me two more colleges and three more years to earn my first B.A. In 1974 I wrote to Shimer for a letter of recommendation and it turned out that they had reduced their requirement on the Comprehensive Exams from B to C, so I qualified for my second B.A. after having left Shimer nine years earlier. I reached my 21st birthday at Shimer and my father stopped providing child support. I asked him for a loan to finish that semester at Shimer, and he loaned me $520—at 5% interest! His sister, my aunt, laughed at this when I mentioned it to her. The word "skinflint" comes to mind, but neither of us were crude enough to use it. At least he was good enough to support me up to the age of 21. This reminds me that when I had my eye operation in 1952 at the age of 8 he refused to pay the doctor's bill, telling my mother "finish him up." Apparently, he thought holistic health methods were sufficient for all ailments. But my mother said that when he got a rash from poison ivy he had no qualms about going to a doctor for treatment. So I guess "skinflint" holds. He also is said to have eaten large lunches at work and then brought only a skimpy amount of food home for the family when he was married to my mother and had three

children. My mother was a self-sacrificing sort and gave herself less food so the rest of us could have enough. When they divorced, he kept two-thirds of his income and gave his ex-wife and three kids the remaining one-third to live on. At least he was not an alcoholic; he never drank alcohol or smoked cigarettes and had contempt for those who did. My mother was a heavy smoker but rarely drank alcohol. I took after my father, avoiding alcohol and cigarettes except for very minor sampling of the two in my late teens, both of which I thought were not even remotely enticing.

1966 (age 22): Berkeley's Botanical Gardens

My father stopped supporting me when I reached the age of 21. To support myself I got a part-time job at the University of California at Berkeley's Botanical Gardens while I studied there.

1967 (age 23): Bay Area Rapid Transit excavation begun

1967 was my second and last year at Berkeley before flunking out there. The most memorable image I have of that year was the beginning of excavation of the tunnel for the Bay Area Rapid Transit (B.A.R.T.) system, which would eventually make it relatively easy to travel from Berkeley to San Francisco without a car. The pile drivers pounded incessantly into the ground, presumably to create solid undergirdings for the subway tracks and trains that the ground would otherwise not be firm enough to support.

1968 (age 24): First B.A.; buy *World Hypotheses*; visual acuity

This was the year I earned my first B.A. degree, from the University of Minnesota in Minneapolis, my fourth college — of a total of two bachelor's, two master's, and a doctorate. I also first encountered [Stephen] Pepper's book *World Hypotheses*, at a bookstore in Minneapolis, which I purchased after annoying the proprietor by reading it for a long time — he actually took it out of my hands and put it back on the shelf! A semester or so later at the University of Indiana in Bloomington I had my vision measured at the school's Optometry School. They used a distance of 10 feet rather than the usual 20, which gave far more accurate readings for a visually impaired person like myself. I was rated at 10/60 and 10/160 with or without glasses, which are equivalent to 20/120 and 20/320. In the United States 20/200 or less in both eyes is considered to be "legally blind." For people with tunnel vision legal blindness is 20 degrees of arc or less of usable vision. The World Health Organization defines blindness as 20/400 or less. Statistically I have read that the rarity of "low vision," defined as between 20/70 and 20/200, is one in 500, while the rarity of "legal blindness," defined as 20/200 or less, is one in 3,000, for school-age children aged 8 to 16. Poor vision becomes progressively more common at older ages, of course. My 20/120 or less would thus seem to have a rarity of about one-in-1,000 for the school-age population, a rarity that no doubt explains why few if any colleges in my era provided any assistance for people with my level of impairment, which does not require a white cane or seeing-eye dog. The Lighthouse for the Blind once refused to help me because my vision was slightly better than 20/200 in my better eye. In effect, people with low vision fell — and perhaps still fall — between the cracks and have to sink or swim on their own. My main reason for stubbornly [going] through eight colleges and universities was that I knew

my basic intelligence or aptitude was well above average. Lack of family support was another reason, since I could not simply go home and live off my mother's income, which was nil.

1969 (age 25): Employment History

Thanks to my Master of Library Science degree I held a number of library-related jobs for 15 years, full-time for 5 years and part-time for 10 years.

List of My Library-Related Employment:

1. 1969-70: Indexer for the *Applied Science & Technology Index*, published by the H. W. Wilson Company in the Bronx, New York City (full-time)
2. 1970-71: Assistant to the Social Science Bibliographer at the University of North Carolina at Chapel Hill while studying philosophy there (part-time)
3. 1971-73: Cataloger for the Library of Mary Washington College in Fredericksburg, Virginia (full-time)
4. 1973-75: Indexer for *Reader's Guide to Periodical Literature,* published by the H. W. Wilson Company in the Bronx, New York, NY (full-time)
5. 1975-77: Freelance indexer for NewsBank, Inc., which indexed newspaper clippings, while I was living at my present address in NYC (part-time)
6. 1977-82: Cataloger for Recording for the Blind, which creates audiobooks for the blind and other disabled people, New York, NY (part-time); RFB moved from New York City to Princeton, New Jersey in 1982, even *after employees voted to reject* a move to unionize workers in NYC!
7. 1982-84: Periodical librarian for Hofstra University in Hempstead, Long Island, NY (part-time)
8. 1984-85: Librarian for Yonkers Public Library, Yonkers, NY (part-time)

Self-Employment Publishing Journals for High-IQ Societies:

9. 1979-89: I served as editor for the Triple Nine Society without pay from 1979-81, and then, 1985-89, by publishing their journal inexpensively, charging each member just $1 per monthly issue and keeping the excess to live on, which was possible because my rent was a mere $75 per month and TNS had about 750 members.
10. 1989-2009: I published journals for societies I founded, the Top One Percent Society (1989 onward) and the One-in-a-Thousand Society (1992 on), the latter to supplement my skimpy income since I had a maximum of only 300 TOPS members and 150 OATHS members from those who had tried my tests in *Omni* magazine in 1985 and in 1990. I got Social Security Disability in 1997, which was enough to live on.

1970 (age 26): My second try at the Graduate Record Exam

At this age I tried the Graduate Record Exam (GRE) a second time and this time my verbal score went up slightly from 760 to 790 and my quantitative (math) score went down slightly from 760 to 740. The percentiles compared to other college students taking the GRE were put at the 99th percentile for my verbal aptitude and the 95th percentile for my quantitative (math) aptitude. (See “Age 20” for remarks on my initial attempt at the GRE six years earlier.) Scoring in the top one percent in verbal aptitude compared to college seniors trying to get into grad school despite reading only about half as fast as the average high-school senior seems unusual. I was a bit more test savvy this time, so when I came across a long reading section near the end of the test, I realized this would slow me down greatly, so I looked at the end of the test and saw a lot of verbal analogies, which I knew I could zip through much more quickly, so I jumped to that section. When I returned to the reading section, the time limit left me with 6 or 8 or 10 questions unanswered. I did not count exactly how many questions I left unanswered lest the proctors assume I was cheating by taking more than the allotted time. I was fairly surprised to reach the 99th percentile compared to college seniors given how many questions I left unanswered.

1971 (age 27): Grad Philosophy Student at the University of North Carolina at Chapel Hill

I studied philosophy for a year as a graduate student at the University of North Carolina at Chapel Hill. For me the most memorable professors I encountered there was E. M. (Elie Maynard) Adams (1919-2003), who received his PhD. In philosophy from Harvard in 1948. The Wikipedia article about him says he developed one of the most comprehensive metaphysical systems, which included a key role for values, so that in many respects his approach to philosophy resembles that of my own favorite philosopher, Stephen C. Pepper (1891-1972, PhD in philosophy from Harvard in 1916). I once ordered a second hardback copy of Pepper's book *World Hypotheses* online and it turned out to have Adams' signature in it, so it must have come from his library after his death. The state of North Carolina decided to boost tuition at this university for out-of-state students from $1,000 to $2,500 and to no longer offer them part-time jobs (I worked part-time in the university's library), so continuing to attend there became financially no longer feasible for me.

1972 (age 28): Full-time librarian; paying off loans

After leaving the University of North Carolina I worked for two years (1971-1972 and 1972-1973) as a librarian at Mary Washington College in Fredericksburg, Virginia, with 1972 thus being the predominant year of employment there. It had recently been an all-girls college but had become co-educational. My father's sister, who lived in New York City with a country place in Connecticut, died in 1973 at the age of 69. My aunt had been a Broadway stage actress in the 1930s and her roommate and thereafter lifelong friend was Eve Arden, who became a famous film actress. Eve Arden mentions my aunt as well as my grandmother prominently in her 1985 autobiography *Three Phases of Eve.* She married her husband at my aunt's Connecticut place in the early 1950s and I met them there in the early 1970s. Her husband looked so handsome I thought he must be a hired gigolo! My aunt needed funds to place her mother, my grandmother, in a nursing home. She knew her mother had given me $1500 to attend the University of Minnesota, and I was happy to repay this amount since I now had a full-time job. I had recently repaid my father his loan of $520 to complete my last year at Shimer in 1965. My aunt was amused that her brother had charged me 5% interest for that loan. My grandmother died in 1976 at the age of 96. She is mentioned as "Ida E." in Eve Arden's book. They had all visited Europe together in 1971, which gave my grandmother a chance to have a last look at Switzerland, where people were impressed with her perfect German after having been away for 74 years. But she and her husband had spoken German together up until his death in 1954, so she had plenty of practice.

1973 (age 29): Move to my present address near Times Square

By the year 2020 I will have lived at my present apartment just ten minutes' walk from the heart of Times Square for 47 consecutive years. My sister had had the apartment from 1965 to 1973, and I had occasionally shared it with her, but from 1973 onwards I was the sole renter. It is ideal for a person who cannot drive due to a visual impairment because every convenience that I normally use is within a relatively short walking distance. It is just one flight of stairs up from the street, which is an additional convenience.

1974 (age 30): My mother's move to Greenville, Pennsylvania

My mother had been working for a time at a residence for the mentally retarded in Atlanta. She was so efficient that several other employees were apparently let go so my mother could do all their work as well as her own. This situation became physically burdensome, so my sister bought a place for my mother in Greenville, Pennsylvania, where an ex-boyfriend of hers and his family lived. I was asked to contribute $500 towards a downpayment on the house as well as $600 to help with moving my mother's things from Atlanta to Greenville. At this time I had returned to the Wilson Company in the Bronx, this time working as an indexer for *Reader's Guide to Periodical Literature* for two years, 1973-74 and 1974-75, with 1974 the central year in this period. So with this employment I was able to contribute these two amounts but also sent my mother $50 a month for a year until she asked me to stop. My mother asked me if she should wait to get Social Security when she turned 65 in 1978 or start getting a smaller monthly amount by starting Social Security payments at the age of 62 in 1975. I said that if she thought she could get a job between the ages of 62 and 65 she should wait, but if not, then she should get Social Security right away because she needed it. She had been married twice for a bit over ten years each time and hence was entitled to 50% of the monthly amount that either of her husbands would have been entitled to, which would not deduct anything from their own monthly payments. So she started receiving payments in 1975 at the age of 62. That covered her food and other miscellaneous expenses, while my sister paid off her mortgage over the next ten years. I subsequently gave my sister $1500 to help with her downpayment on a house in upstate New York, where she still resides with her husband. I also helped my brother with $2,000 for some legal expenses. My mother subsequently implied that I was stingy, so I told her for the first time about these financial contributions I had made to her, my sister, and my brother, which seemed to touch her. I did not mention the $1500 I had repaid to my grandmother and $572 to my father, so five family members benefited from my lack of stinginess. My mother scolded me once for giving coins to a beggar, so I refrain from giving to beggars, who are plentiful in the Times Square area where I reside, to honor her wishes.

1975 (age 31): My first try at sexual relations: a failure

First try at sex with another person; start of lifelong sexual dysfunction.

1976 (age 32): My try at group and individual psychotherapy

I took a college psychology course in "group dynamics," which turned out to be a course in group psychotherapy. I asked the teacher about trying his psychotherapy group, and he let me join. At the end of the initial one-on-one interview, he asked if I had any recent dreams, which he said often were indicative of one's underlying problems. I told him I did remember one vivid image, in which my mother had her head under a water faucet that was pouring out water and she was trying to kill herself by sucking in the water. I was behind her and pulled her back to prevent her from drowning herself. The therapist asked me how I would interpret the dream. I did not mention the obvious suicidal component but did say that it seemed to represent my trying to control the hysterical feminine side of my personality. I told him I could not recall any other parts of the dream. He seemed impressed by this dream because he subsequently [said]

during one group session that I was in great need of the therapy. But I did not remain with the group long, perhaps less than half a dozen weekly sessions, because after one session the group talked about the therapist after he left, as they were supposed to do, but this time their criticisms seemed especially biting. A day or two later this criticism reminded me of my parents verbal fights prior to my 5th birthday, when they divorced. They rarely spoke to each other after that. I apparently blamed myself for their divorce because my father had been angry at my table manners (see Age 4 above). So I started crying and kept crying for 12 hours straight, which seemed extremely unusual. In old-fashioned parlance this would probably have been called a "nervous breakdown," but in more modern parlance it would probably be called a sign of the "post-traumatic stress syndrome," the original stress being my parents' divorce when I was 5. One of the other patients after this therapy session came up to me and told me I was "feeling sorry for myself." I was actually feeling sorry for my parents, but I did feel some underlying guilt for whatever I might have contributed to their disharmony. This trite and contemptuous put-down for a sincere and matter-of-fact report by me of an important event struck me as non-therapeutic, so I never went back to that group. I did try individual therapy with another therapist for the next four years but did not find it helpful. I did notice, however, that I had an uncanny knack for interpreting dreams, those of others as well as my own. Dreams that were utterly opaque to others were instantly clear to me. In *The Quotable Jung* I recently came across the following relevant quote (p. 71): "The art of interpreting dreams cannot be learned from books. Methods and rules are good only when we can get along without them. Only the man who can do it anyway has real skill, only the man of understanding really understands."

1977 (age 33): First saw *Star Wars* film; my favorite sci-fi listed

The first *Star Wars* film came out in 1977. It reminded me of the Robert A. Heinlein juvenile sci-fi novels of the 1950s. Scribner's published the first 12 of them but rejected the thirteenth, *Starship Troopers,* as too militaristic. Ironically, it became the only one of Heinlein's juveniles ever made into a movie. I still rate two of the Heinlein juveniles among my favorite sci-fi novels: *Tunnel in the Sky* and *Citizen of the Galaxy. Citizen of the Galaxy* resembles *Star Wars* in that the hero has his guardian killed early in the story and has to make his way in the world on his own. Heinlein subsequently turned his attention to adult novels starting with *Stranger in a Strange Land,* which won awards but which I found to be a bore. It was published in 1961, two years after *Starship Troopers.* Here are some of my favorite sci-fi novels and films, arranged chronologically:

My Favorite Sci-fi Novels	My Favorite Sci-fi Movies
1. *The Time Machine*, by H. G. Wells (1895)	1. *War of the Worlds* (1953)
2. *The Night Land*, by William Hodgson (1912)	2. *This Island Earth* (1955)
3. *Star Bridge,* by Williamson & Gunn (1955)	3. *Forbidden Planet* (1956)
4. *Tunnel in the Sky,* by Heinlein (1955)	4. *The Time Machine* (1960)
5. *Citizen of the Galaxy,* by Heinlein (1957)	5. *Star Wars* (1977) & sequels

6. *Starship*, by Brian Aldiss (1958)	6. *Alien* (1979) & sequels
7. *Dark Universe,* by Daniel F. Galouye (1961)	7. *Terminator* (1984) & sequels
8. *Stainless Steel Rat,* by Harry Harrison (1961)	8. *Dune* (1984)
9. *Dune,* by Frank Herbert (1965)	9. *Back to Future* (1985) & seq.
10. *The Pnume,* by Jack Vance (1970)	10. *Total Recall* (1990)
11. *Ender's Game,* by Orson Scott Card (1977)	11. *Dark City* (1998)
12. *Songmaster,* by Orson Scott Card (1978)	12. *Limitless* (2011)
13. *Web of Sand,* by E. C. Tubb (1979)	13. *Lucy* (2014)

1978 (age 34): Met two brainy female, both in *Guinness*

Leta and Marilyn were mentioned in the "Highest IQ" entry in the *Guinness Book of World Records,* Leta prior to 1986 for her 196 IQ and Marilyn from 1986 to 1989 for her 228 IQ. I dated both women starting with Leta in 1978 and then Marilyn a few years later. They met each other at a Mega Society meeting in the mid-1980s at which I was present as founder of that society. Leta disliked having been displaced from *Guinness* by Marilyn and considered the 228 IQ fake, although as I mentioned regarding Alicia Witt (see the year 1984) IQs above 500 have been attained. Marilyn found Leta amusing; Leta did not find Marilyn amusing.

1979 (age 35): My role as editor for a high-IQ society

In 1979 I began editing a monthly journal for the Triple Nine Society — so-called due to its 99.9 percentile minimum requirement. My cover design consisted of (1) a bell-shaped curve, to represent the distribution of IQ scores, (2) the word "Vidya" above it, the name given to the journal by a previous editor, from a Sanskrit word meaning "divine knowledge," a word etymologically cognate to the English words "wisdom," "vision," and "video", so accordingly I made the letters in "Vidya" hexagonal to capture the exotic Hindu origin of the word; (3) a long vertical line for the tail of the "y" in "Vidya" that cut through the bell-shaped curve at the 99.9 percentile, roughly 3 standard deviations above the mean; (4) to the right of this vertical tail for the "y" the words "The Journal of the Triple Nine Society," each word on top of the next; and (5) at the bottom of the tail of the "y" the number 99.9 in somewhat larger size than the other numbers along the bottom of the bell-shaped curve. It was only after 5 monthly issues that I noticed the obvious Freudian interpretation one could give my design: (1) the bell-shaped curve corresponds to the oral phase in Freudian psychology due to its resemblance to the female breast; (2) the hexagonal shapes of the lettering correspond to the anal phase in Freudian psychology due to their resemblance to the anus or feces; (3) the vertical tail of the "y"

corresponded to the phallic stage in Freudian psychology due to its its resemblance to a phallus or penis; (4) the word to the right of the "y" tail correspond to the "latency" phase of Freudian psychology, which Freud surmised interrupts the explicitly sexual phases for the sake of human intellectual development; and (5) the "99.9" at the bottom of the "y" corresponds to the final, genital phase, where humans attain full sexual maturity, since the 9's bear a striking resemblance to spermatozoa! These symbolisms had all been totally unintentional on my part!

1980 (age 36): Travel to the Andromeda Galaxy

The first annual meeting of the Four Sigma Society was held in San Francisco in August 1980, as reported in issue 7 of *Sigma Four*, the society's journal. The Four Sigma Society was founded by Kevin Langdon with a minimum requirement of 164 IQ (the 99.997, percentile or 1-in-30,000 in rarity). I mentioned to the group having read in a non-fiction book by Isaac Asimov that if one could keep a steady acceleration and deceleration of one Earth gravity both to and from the Andromeda Galaxy, one could go to the Andromeda Galaxy and back in just 56 years. Kevin ridiculed this remark by saying: "Let's go! Let's go!" But in *The Quotable Einstein* (1996) Einstein is quoted as having said that science could make no progress if people stuck merely to practical problems.

1981 (age 37): My scores on the Concept Mastery Test

The CMT: untimed, high-ceiling intelligence test for gifted adults; Childhood IQs ranged from 135 to 200 for Terman's gifted group as adults.

Form A raw score ceiling = 190

Mensa's minimum Form B raw score = 125

CMT Form B was made easier than CMT Form A to facilitate comparisons of Terman's group with lower IQ groups like A.F. captains. Average Form A raw score for U.S. adults: 2 right!

Form	Name	Raw score	IQ	Percentile	Rarity: 1-in-X
A	Ceiling of CMT Form A	190	181.3	99.999981	5,400,000
A	Ron Hoeflin on Form A	162.5	169.4	99.9993	140,000
A	Mensa Form A minimum	78	133	98	50
A	Stanford U. seniors average	63.2	126.5	95	20
A	U.S. adults Form A mean	2	100	50	2
B	Ron Hoeflin on Form B	185.5	169.4	99.9993	140,000
B	Mensa Form B minimum	125	133	98	50
B	Air Force captains average	60	(?)	(?)	(?)

As Triple Nine Society editor, members sent me copies of the two Concept Mastery Tests, untimed high-ceiling IQ tests designed for Terman's gifted group as adults focusing on vocabulary and general knowledge. My scores were as follows:

To convert Form A raw scores to IQs, subtract 2, divide by 37, and multiply by 16

(as specified in Terman's *The Gifted Child Grows Up*, p. 138).

1982 (age 38): High-IQ Societies I Founded

In 1982 I founded the Prometheus Society and the Mega Society at the 99.997 percentile (one-in-30,000) minimum requirement and 99.9999 percentile (one-in-1,000,000) minimum, respectively. Kevin Langdon mentioned that about 600 people had qualified for his Four Sigma Society from the *Omni* readers who tried his test there. I suggested that he invite the top 20 to form the nucleus of a one-in-a-million society, but he had no interest in this idea. Since he seemed to have let the Four Sigma Society lapse into inactivity, I founded Prometheus as a replacement for it, and added the Mega Society to follow through on my idea that such a high-level society might be feasible. I accepted people into Prometheus on the basis of a wider range of tests than Kevin's alone, and I admitted people into the Mega Society by statistically combining very high scores on several tests, until my own Mega Test appeared in *Omni* in April 1985, where I put the Prometheus cut-off at a raw score of 36 out of 48 and the Mega cut-off at a raw score of 43 out of 48. To make ends meet financially I founded the Top One Percent Society in 1989 and the One-in-a-Thousand Society in 1992. Since Prometheus and Mega eventually fell into the hands of other competent people, in 2006 I also founded the Epimetheus Society (Epimetheus was a brother of Prometheus) at the Prometheus cut-off of 1-in-30,000, and the Omega Society at a cut-off of 1-in-1,000,000.

<u>High-IQ Societies I Founded</u>:

	Name of society	Year founded	Minimum %ile	Rarity
1.	The Mega Society	1982	99.9999	1-in-1,000,000
2.	The Prometheus Society	1982	99.997	1-in-30,000
3.	The Top One Percent Society	1989	99	1-in-100
4.	The One-in-a-Thousand Society	1992	99.9	1-in-1,000
5.	The Epimetheus Society	2006	99.997	1-in-30,000
6.	The Omega Society	2006	99.9999	1-in-1,000,000

1983 (age 39): My sister's marriage

My sister married for the first time on January 1, 1983 after a career as a professional ballet dancer, about 2 years with a Canadian ballet company and then about 12 years with the Metropolitan Opera in New York City. She then took a job at an upstate college, where she had a successful career teaching ballet for 25 years, given a prize as the best teacher at that college towards the end of her time there. At the time of her marriage she was 43 years of age and her husband was 29. He had been married once before and they had one child, who lived with his mother in the Midwest. By January 1, 2020, my sister and her husband will have been married for 39 years. (For the sake of accuracy, I attended their wedding when I was 53 days shy of my 39th birthday.)

1984 (age 40): Alicia Witt, with 500+ IQ, stars in *Dune* at age 7

According to newspaper reports a 3-year-old girl named Alicia Witt achieved a mental age of 20 on an IQ test. Even if she had been 3 years 11 months of age chronologically, this would have been equivalent to an IQ of over 500! At the age of 7 she starred as the super-genius sister of the hero played by Kyle MacLachlan in the 1984 film *Dune.* Although some critics disliked *Dune,* I liked it except for the grotesque boils on the face of the evil Baron Harkonnen, perhaps put there by the director David Lynch, who was better known as the director of horror films. [e.g., David Lynch's 1977 film *Eraserhead*. Lynch's later 1980 film *The Elephant Man* deals with disfigurement. David Lynch may not have enjoyed 'final cut' on *Dune*, unlike Lynch's next film *Blue Velvet*: "After *Dune* I [David Lynch] was down so far that anything was up! So it was just a euphoria. And when you work with that kind of feeling, you can take chances. You can experiment." -Ed. Note] I don't recall this disfigurement being in the original *Dune* novel by Frank Herbert, which I read when it first came out in 1965, notable for its length: 540 pages, three times longer than the usual sci-fi paperback novel of those days. The film *Dune* is rated 54 out of 100 by Rotten Tomatoes compared to 98 out of 100 for *Forbidden Planet.*

1985 (age 41): My Mega Test published in *Omni* magazine

My Mega Test was published in *Omni* magazine in April 1985, billed on the front cover as the world's hardest IQ test.

1986 (age 42): John Sununu, Governor of New Hampshire, with a Ph.D. from M.I.T., later White House Chief of Staff in the George H. W. Bush Administration, praises my Mega Test

A summary of the results of the performance of *Omni* readers was published in the January 1986 issue of *Omni*, one month before my 42nd birthday. A distribution graph of the scores on the test was published as well as thumbnail sketches of the top 5 scorers. The top scorer with a raw score of 45 right out of 48 was H. Herbert Taylor, who had been U.S. champion at the Asian board game Go, ranked third highest in the world [at Go] among non-Asian players. Tied for second at 44 right out of 48 were three people, including John Sununu, who at that time was the Governor of New Hampshire and later the White House Chief of Staff for the George H.W. Bush

administration. He had a Ph.D. in mechanical engineering from M.I.T. He described my test as "one of the most enjoyable exercises I've gone through in some time…a superbly stimulating diversion." For founding the Mega Society I was mentioned in the *Guinness Book of World Records'* "highest IQ" entry for four consecutive years, 1986-1989.

1987 (age 43): Completed my Ph.D. in philosophy

In 1987 I finally completed my PhD in philosophy at the New School for Social Research in New York City with a dissertation on the philosophy of American philosopher Stephen C. Pepper (1891-1972), who had earned his doctorate at Harvard in 1916 and worked most of his teaching career (1919-1958) at the University of California at Berkeley, where he served as chair of the Art Department (1938-1953) due to his interest in aesthetics, then as chair of the philosophy department (195301958). His nine main books consisted of four on aesthetics, three on value theory and ethics, and two on metaphysics and epistemology. I became interested in his philosophy in 1968 at the age of 24 when I encountered his 1942 book *World Hypotheses*, a comprehensive study of the metaphysics of Western philosophy.

1988 (age 44): Won first prize in a philosophy essay competition sponsored by the American Philosophical Association for a paper titled "Theories of Truth: A Comprehensive Synthesis"

In 1988 won a national essay competition in philosophy, the Fifth Annual Rockefeller Prize, awarded by a committee of the American Philosophical Association, for a paper titled "Theories of Truth: A Comprehensive Synthesis." At that time I was working with just 5 categories instead of my current set of thirteen, a total I did not attain until the age of 62. With thirteen categories I was able to encompass (find a niche for) all thirteen perspectives on truth mentioned in the 1995 *Oxford Companion to Philosophy.* There was mention of me in a column by Jack Anderson and his colleague Dale van Atta in the *Washington Post* dated November 28, 1988. It was titled "Is 176 IQ Enough in White House?" and focused on John Sununu's performance on and praise of my Mega Test that appeared in the April 1985 issue of *Omni* magazine as reported in the January 1986 "Games" column in *Omni.* In this year Keith Raniere attended a meeting in New York City of the Mega Society, having scored very high on the Mega Test. (He scored 45 right out of 48, and when he received that score he immediately sent a correction of a minor error he had made, bringing his score to 46, which would have been the top score at that point.) We thought he would go on to make advances in the field of computer programming.

1989 (age 45): Termination of *Guinness*'s "Highest IQ" entry:

The new editor of the *Guinness Book of World Records* wrote to me to inform me that they were dropping their "Highest IQ" entry. I guess super-high IQ claims like Alicia Witt's 500+ IQ were starting to dumbfound them!

1990 (age 46): *Omni* publishes my Titan Test; my profile on a personality test published in *Personality Self-portrait* in 1990

My Titan Test, a twin to my Mega Test, was published in *Omni* in April 1990.

1991 (age 47): Soviet Union breaks up

In 1991 the split up of the Soviet Union into 15 independent republics caused many to regard this as the end of the Cold War, but the fact that Russian and China still function as despotisms suggests that the end of the Cold War is a delusion.

[Cf. *The End of History and the Last Man* by Francis Fukuyama -Ed. Note]

1992 (age 48): My discovery of the 6th, 7th, and 8th categories

In 1992 I made a major breakthrough in my theory of categories. From 1968, when I first encountered Pepper's book *World Hypotheses*, to 1982 I was focused on four categories, corresponding to the four so-called "relatively adequate" world hypotheses or metaphysical systems he discerned in Western philosophy. My main insight for these was that they corresponded to Aristotle's four causes. From 1982 to 1992 I had upped the number of categories to five, using Pepper's own system of metaphysics in his 1967 book *Concept and Quality* as the fifth main world hypotheses. In each of these two periods I collected other examples besides world hypotheses that could be grouped under each theory, such as Zeno's four paradoxes of motion under the four-category theory and the main branches of philosophy (ethics, aesthetics, metaphysics, epistemology, and logic) under the five-category theory. But In 1992 I saw that I could include Pepper's so-called "relatively inadequate" world hypotheses within my theory. This was done by conceiving the feedback loop as a circle with eight phases: the four nodes D, A, G, and Q (for drive, anticipatory set, goal object, and quiescence) plus the binary segments that join these nodes, giving D, DA, A, AG, G, GQ, Q, and QD as niches for mapping the world hypotheses into. In *World Hypotheses* Pepper had said at one point (p. 328) that there were a total of "seven or eight" basic world hypotheses, counting both the relatively adequate and relatively inadequate ones.

1993 (age 49): My discovery of the 9th, 10th, and 11th categories; start of being listed in Marquis *Who's Who* books

In 1993 I made a further breakthrough in the elaboration of my theory of categories. In his 1928 paper "Philosophy and Metaphor" published in *The journal of Philosophy* Pepper had insisted that even mathematicians employ metaphors (p. 131): "Does the mathematician insist that he at least can use terms that have no significance and still avoid talking nonsense? He is wrong. He has the metaphor of sheep in a pasture, or sheep and goats, or sheep and goats and fleas. The animals can move about in a certain limited number of ways. The animals are the mathematicians' primitive ideas, the limited number of ways in which they can move are his postulates." In his *Introduction to Mathematical Philosophy* (1919) Bertrand Russell mentions (pp. 5-6) that Peano's axioms for number theory had "three primitive ideas," namely "zero, number, [and] successor," plus "five primitive propositions": "(1) 0 is a number. (2) The successor of any number is a number. (3) No two numbers have the same successor. (4) 0 is not the successor of any number. (5) Any property which belongs to 0, and also to the successor of every number which has the property, belongs to all numbers."

“Property” seemed to be a primitive idea Russell overlooked. We can then correlate “0” with the drive factor D since 0 initiates (like a drive) the natural numbers 0, 1, 2, 3, etc.; “successor” with the anticipatory factor, A, since a successor anticipates, a next number, e.g., 4 is anticipated to be the successor of 3; “number” with the goal object factor, G, since a number is the basic goal object of number theory; and “property” with the quiescent factor, Q, as when we define the property of being an even number by the formula 2n = m, where if n is any whole number, then m is an even number. All of Peano’s axioms combine these four primitive ideas in pairs, and from this insight it emerged that the central pairs, DG and AQ, are essential to account for some of the axioms. Axiom 1, “0 is a number,” links “0”, which I identify with D, and “number,” which I identify with G; and the second clause in Axiom 5, “the successor of every number which has the property,” links “successor,” which I class in A, with “property,” which I class in Q. The concepts of successor and property, yielding an AQ binary connection. This brings the total number of categorial niches to ten (D, A, G, Q, DA, AG,GQ, QD, DG, and AQ), and a nine-category system would simply overlook one of these categories, while an eleven-category system would have an eleventh category to fuse or unity the basic ten. I immediately applied this discovery to analyzing the most famous set of categories, the ten categories of Aristotle (384-322 B.C.) ten categories.

Starting in 1993 I began to be listed in the Marquis *Who’s Who* books: *Who’s Who in the East* from 1993 onward; *Who’s Who in America* from 1994 onward; and *Who’s Who in the World* from 1995 onward. In 1995 only about 35,000 people were listed in *Who’s Who in the World.*

1994 (age 50): My last encounter with my mother

I was visiting my sister and her husband in upstate New York and our mother was also visiting them. One afternoon my sister and her husband were out and my mother started one of her tirades, heaping verbal abuse at me incessantly. I went upstairs to be alone in my own room, but she followed me up there to continue her tirade, so I packed and went back to New York City by bus.

1995 (age 51): My mother’s death; operas she had sung in

My mother died on February 11, 1995. Here is a list of operas she had compiled for me of operas she had sung during her singing career, which omits the vast amount of church choir music she had sung. I once half-jokingly mentioned that her voice could easily drown out a church choir of 50 people, which she then told me was not a proper thing for a singer to do, the goal being to blend in with a choir. I have added the language each opera was sung in, to the best of my knowledge. The first opera was composed by Eugen D’Albert, a Scottish-born composer who moved to Austria at the age of 17, studied under Liszt, composed 21 operas, presumably all in German, and married six times!

Operas my mother sang in:

1. *Tiefland*, by Eugen D'Allbert (German)

2. *Carmen*, by Bizet, the role of Michaela (French)

3. *Pagliacci*, by Leoncavallo, the role of Nedda (Italian)

4. *Cavalleria Rusticana*, by Mascagni, the role of Santuza (Italian)

5. *Don Giavanni*, by Mozart, the role of Donna Anna (Italian)

6. *The Magic Flute*, by Mozart (German)

7. *La Gioconda*, by Ponchielli (Italian)

8. *La Boheme*, Puccini, the role of Mimi; also the role of Musetta (Italian)

9. *Tosca*, by Puccini, the role of Tosca (Italian)

10. *Madame Butterfly*, by Puccini, the role of Cho-Cho-San ("Butterfly") (Italian)

11. *Der Rosenkavalier*, by Richard Strauss (German)

12. *Mignon*, by Thomas, the role of Marta (Italian)

13. *La Traviata*, by Verdi, the role of Violet (Italian)

14. *Il Trovatore*, by Verdi, the role of Leonora (Italian)

15. *Masked Ball*, by Verdi, the role of Amelia (italian)

16. *Aida*, by Verdi, the role of Aida (Italian)

17. *La Forza del Destino*, by Verdi, the role of Donna Leonora (Italian)

My sister was employed as a dancer for the Metropolitan Opera in New York City for 12 years from fall 1968 to spring 1980. At my request she compiled a list of the operas she danced in, a total of 25. This seems a suitable point at which to insert her list of operas. I now live in the same apartment my sister lived in from 1965 to 1973, which had a convenient proximity to the Metropolitan Opera House of a mere 13 short New York City blocks, a distance which would take a mere 13 minutes to walk.

Operas my sister danced in:

1. *Adriana Lecouvreur*, by Cilea

2. *Aida*, by Verdi

3. *Un Ballo in Maschera*, by Verdi

4. *The Bartered Bride*, by Smetana

5. *Boris Godunov*, by Mussorgsky

6. *Carmen*, by Bizet

7. *Don Giovanni*, by Mozart

8. *L'Elisir d'Amore*, by Donizetti

9. *Eugene Onegin*, by Tchaikovsky

10. *Faust*, by Gounod

11. *La Forza del Destino*, by Verdi

12. *Hansel and Gretel*, by Humperdinck

13. *Lucia di Lammermoor*, by Donizetti

14. *Madama Butterfly*, by Puccini

15. *Die Meistersinger von Nurnberg*, by Wagner

16. *Orfeo ed Euridice*, by Gluck

17. *Parsifal*, by Wagner

18. *Le Prophete*, by Meyerbeer

19. *Rigoletto*, by Verdi

20. *Romeo et Juliette*, by Gounod

21. *Samson et Dalila*, by Saint-Saëns

22. *Tannhauser*, by Wagner

23. *La Traviata*, by Verdi

24. *Turandot*, by Puccini

25. *I Vespri Siciliani*, by Verdi

She had walk-on parts in other operas not involving dancing, e.g., playing a newspaper boy.

I never mastered singing or any musical instruments but have a strong appreciation of classical music, so I have listed 25 of my favorite pieces on the next page, limiting myself to just one composition per composer, whom I have listed in alphabetical order, not in order of preference.

<u>25 of My Favorite Classical Music Compositions</u>:

1. Bach, J. S., *Piano Concerto No. 1 in D Minor* (as performed by Maknickas)

2. Bartok, *Concerto for Orchestra* (one of the greatest 20th century compositions)

3. Beethoven, *Fifth Symphony* (probably the greatest symphony ever composed)

4. Boieldieu, *Harp Concerto* (the last third of this is hauntingly exotic)

5. Brahms, *Tragic Overture* (Brahms is my favorite composer)

6. Bruch, *Violin Concerto No. 1* (as performed by Heifetz)

7. Bruckner, *Symphony No. 4*

8. Chopin, *Etudes* (esp. op. 10, #1, “Waterfall”; op. 10, #12; “Revolutionary,” and op. 25, #11, “Winter Wind”)

9. Debussy, *String Quart*et

10. Dvorak, *Cello Concerto* (the best cello concerto I’ve ever heard)

11. Liszt, *Les Preludes*

12. Mahler, *Das Lied von der Erde* (“The Song of the Earth”), first song, for tenor

13. Mendelssohn, *Hebrides Overture* (also known as *Fingal’s Cave*)

14. Mozart, *The Magic Flute,* especially the *Queen of the Night Aria*

15. Mussorgsky, *Night on Bald Mountain,* reorchestrated by Rimsky-Korsakov

16. Prokofiev, *Cinderella* (ballet)

17. Puccini, *Turandot* (opera)

18. Rameau, *The Hen,* reorchestrated by Respighi in his work *The Birds*

19. Satie, *Gymnopedie I & III*, orchestrated by Debussy; *II* has a weird melody that Debussy in my view rightly declined to orchestrate from its original piano version; I prefer *III* (whish Satie numbered *I*) because of its elegant harp accompaniment in Debussy’s orchestration

20. Schubert, *Symphony No. 8, the "Unfinished"* (Pinnock's tempo)

21. Shostakovich, *Symphony No. 5* (cruelly treated by Stalin but loyal to Russia)

22. Stravinsky, *The Firebird* (ballet) (flows better than *Petrushka* or *Rite of Spring*)

23. Verdi, *Aida* (my favorite opera, as I once told my mother, an opera diva)

24. Wagner, *The Ride of the Valkyries* (non-vocal orchestral version preferably)

25. Widor, *Toccata for Organ* in his *Symphony No. 5, fifth movement*

1996 (age 52): A death in my apartment

In September of this year I had a blind date with a woman who met me in a nearby plaza. She wanted a place to stay for a night or two, so I agreed. I noticed she had some glistening substance under her eyes that I took to be some odd cosmetic, but it turned out to be Vaseline, which she kept all over her body, even her scalp! Her explanation was that she had had a severe sunburn once and used the Vaseline as a protection against any future sunburns. I told her she was unlikely to get a sunburn at midnight, so why use the Vaseline at night. Everything she touched became greasy, including doorknobs and sheets. Within a few days I offered her some money so she could pay for a room at a cheap rooming house in the Bronx. We spoke by phone once or twice after that and in December I realized I could use rent money from her to purchase my first computer. So she came back, complaining that the rooming house where she had stayed had had a lot of alcoholics. I went to visit my sister at Christmas for a few days. When I got back I found this woman, Barbara Abbott, dead on my floor. I called 911 and they sent police, who sent a team to make sure it was not a homicide. I was interrogated at the police station while they searched my apartment for any evidence. There had been blood on the floor, which I had not noticed given my weak eyesight. I told them Barbara had probably had a stroke and collapsed on the floor, the blood being due to the way her mouth hit the floor. I told them she had complained of heart palpitations a couple of weeks earlier, and the clot that might have caused her death could have been from her leg, which had been severely damaged in an auto accident a couple of years earlier. She had a half-sister living in Brooklyn whom she spoke with by phone on occasion. She did not share the name, address, or phone number with me, explaining that she was on bad terms with her half-sister's husband and did not want to get involved with him inadvertently through my calling their number. After her death there were no written documents among her belongings, so the authorities presumably buried her with no family or friends present. She was just 40 years of age.

1997 (age 53): Social Security Disability

My visual acuity and my income were both sufficiently low that I qualified for Social Security Disability payments in 1997 at the age of 53. I had qualified as legally blind two decades earlier but had not applied for disability because of employment opportunities that came my way. The amount of the monthly payments were equivalent to what I would have been entitled to when I reached 65, and my rent was so low that I could get by financially just with these payments and no other income.

1998 (age 54): Discovered a 12th category

In 1998 I was reading John Rawls' book *A Theory of Justice.* He makes the assumption that justice can be defined by a committee of people who do not know what their position in a future society will be (e.g., race, gender, age, etc.) and have to devise the organizing principles for such a society so as not to unfairly disadvantage any particular type of person, facilitated by their pretense that they will not know to what role they will be assigned. He calls this committee's workings the "original position," which he summarizes by means of twelve "elements" that are listed and numbered on pages 146-147. The twelfth element reads "No Agreement Point," described as "a. general egoism" or "b. the state of nature." It occurred to me that just as my eleventh factor fuses the other ten categories together, a twelfth factor could diffuse or fragment them into disunity. My fused category I originally designated "DAGQD" and this negation of it as "Not-DAGQD," but I eventually simplified "DAGQD" to just "U" for the unity or fusion of the ten basic categories, and "N" for the negation or disunity of the ten basic categories, as might occur if some drive failed to secure its ultimate success or quiescence.

1999 (age 55): Full-page article about me in *Esquire* magazine in its so-called "Genius" issue

Esquire magazine published a full-page article about me in its November 1999 issue, billed on the front cover as its "Genius" issue. It was largely a sarcastic put-down of high-IQ people, but I escaped with the least denigration of the four people they highlighted. Or so I am told. I never read the issue except for the page about myself, which it took me two weeks to get up enough nerve to read.

2000 (age 56): Transition from 20th to 21st centuries

Since there was no year 0, December 31, 1 B.C. was followed by January 1, 1 A.D., and one hundred years after that was January 1, 101 A.D. So the dividing line between the twentieth and twenty-first centuries occurred at the end rather than the beginning of the year 2000. Still, the change from the first digit being "1" to its being "2" seems to most people to be *numerically*, if not *chronologically*, significant. The Arthur C. Clarke novel and the Stanley Kubrick movie titled *2001: A Space Odyssey* both came out in 1968 and were both based on a short story by Clarke, "The Sentinel," written in 1948 and first published in 1951. [The 1968 Arthur C. Clarke science fiction novel outlines the function of the monolith less cryptically. -Ed. Note] A lot of sci-fi novels and films become outdated by virtue of their inclusion of specific dates in their titles or in their

texts. George Orwell's novel *1984* was first published in 1949, so it looked forward just 35 years, while the gap between 1968 and 2001 was a similar 33 years. We are now past both 1984 and 2001, which reduces the incentive to read either book or to watch movies based on them. The opening narration in the 1956 film *Forbidden Planet* claims that the first manned landing on the moon occurred "in the last decade of the twenty-first century," meaning between 2091 and 2100. Since the actual first landing was in 1969, this prediction was off by an astonishing 122 to 131 years! An opposite huge error occurs in *2001: A Space Odyssey,* which predicted that the first manned trip to Jupiter would occur in 2001. There's no telling yet how big a mistake this prognostication will turn out to be.

2001 (age 57): First met my Polish countess friend, a direct descendant of Catherine the Great, soon after the 9-11 attack

Marzena grew up in Poland and came to the United States, not counting brief earlier stays, at about the age of 18 and remained here for about 38 years. She was the great-great-great-great granddaughter of Catherine the Great of Russia (her great-grandmother was Catherine's great-granddaughter). When I first saw her I thought, "This is a world-class beauty." She shared a number of characteristics of her famous ancestor such as a love of art, a great facility with foreign languages, an ability to socialize with almost anyone easily, etc. She also has a startling facility for sight reading in any of the five languages she knows, even if she does not know them perfectly, namely Polish, Russian, French, Italian, and English. I once gave her a copy of Lewis Carroll's famous poem "Jabberwocky," which she had never seen before, having been educated in Poland, and she read all the nonsense words fluently and perfectly without any preparation! She also read some books to me over the phone, notably the fairy tales compiled by the brothers Grimm. She was trained as a classical ballet dancer in her teens, but she has an amazing talent for disco dancing and even earned a living at it by treating it as if it were "exotic" dancing at some night spots in New Jersey, but overdressed as if she were going skiing! But the other girl dancers complained about her "special treatment," so she agreed for a time to adopt their much more scanty garb for a time before finally quitting. Even when overdressed she had customers who liked her dancing so much that they would follow her from one night spot to another where she would be dancing. That was before I knew her, but I have seen her disco dance and it is very impressive. She has a tendency to speak in long monologues, which I adjusted to readily since my mother spoke the same way. She also looked similar to my mother in several ways: same height (5 feet 6 inches), same weight (110 to 112 pounds), and strikingly similar facial bony structure. But when I started to interrupt Marzena's monologues with comments or questions, she became noticeably hostile, as if the idea of a dialogue was quite alien to her. Every time I asked a question, for example, she always insisted that she had already explained that in her previous remarks. I told her she would be a lousy teacher if she answered her students' questions that way. I tease her by explaining that I sometimes just want to confirm that we are "on the same page" in understanding each other, a phrase she hates. She tells me to wait until she finishes her thought or sentence, but these can easily go on for half an hour or more, so any reaction I have to what she is saying would be completely useless by the time that much time has gone by. So both in style and content we have been so incompatible that our conversations often end in shouting matches. She indulged a lot in what I would call magical thinking, whereas my own thinking is grounded in cause-and-effect and

modern science. She claimed, for instance, that Pasteur on his deathbed had recanted his microbe theory of disease, which I knew to be impossible, judging by my having seen the realistic Paul Muni movie about Pasteur, *The Story of Louis Pasteur*. Another striking illustration of our conflicting styles of thought can be seen in the following vignette. She said that late one night she had been riding in a vehicle with a friend and suddenly there were two headlights in front of them and a head-on collision seemed inevitable. But then the vehicle that had been in front of them was behind them, which she and her companion interpreted as some sort of "quantum-mechanical" (i.e., what I would call "magical") interpenetration. I offered her a more plausible explanation: that what they had seen had been the headlights of two oncoming motorcycles, which passed them on opposite sides of their vehicle. She vehemently rejected this theory, in keeping with her preference for more bizarre and unconventional explanations. If her viewpoint were correct, one would think people would occasionally be seen walking through walls or the like! She often tells me that some bizarre idea of hers has been "proven" is hence is not open to question, as if she thought that modern science were like mathematics where absolute certainty is to be found, whereas modern science is far more tentative than that, moving from one grandiose theory or "paradigm" to another as some genius thinks of a new way of organizing the data. Nonetheless, her conversation can be entertaining. In the early years of our hours-long phone conversations I collected some of her verbal gaffes, a sampling of which I list here:

Marzena's marvelous bloopers:

1. Gem in a haystack (for "needle in a haystack")
2. Soda fuzz (for "soda fizz")
3. Humbility (for "humility")
4. Burn at the stalk (for "burn at the stake")
5. She's no pheasant (for "she's no peasant")
6. Swangili (for "Svengali")
7. Meeting ends (for "making ends meet")
8. Peacemaker (for "pacemaker")
9. I'm not an airbag (for "I'm not an airhead")
10. Squeezers (for "tweezers")
11. Those 707 movies (for "those 007 movies")
12. Clink (for "click" as on a computer mouse)
13. Cufflinks (for "handcuffs")
14. Tooks (for "tux" as in "tuxedo")
15. Toot (for King "Tut")
16. I am rusted (for "I am rusty")

17. Withhold the winter (for “withstand the winter”)

18. Under his sleeve (for “up his sleeve”)

19. Safety zone (for “comfort zone”)

20. Sharpman (for Al “Sharpton”)

21. Country road (for “rocky road” ice cream)

22: Bankbeds (for “bunkbeds”)

23: Chick click (for “chick flick”)

24: Fringe (for “cringe”)

25: Drools (for “drawls” in speech)

26: Whimsy (for “flimsy”)

27: When it comes to shovel and push (for “when push comes to shove”)

28: Clog in (for “log in”)

29: Those morons in Utah (for “those Mormons in Utah”)

30: I don’t know if I can stomachache that (for “…stomach that”)

31: Mosquito mop (for “fly swatter”)

32: Golden gloves (for “kid gloves”)

33: Stick out like a sore throat (for “…like a sore thumb”)

34: They’ll have me submitted (for “…committed”)

35: Thumble (for “thimble”)

36: Bay Root (for “Babe Ruth”)

37: Word by mouth (for “by word of mouth”)

38: Speck (for “spic,” meaning “Hispanic”)

39: Blanche card (for “carte blanche”)

40: Windshield (for “wind chill”)

41: Shovel comes to shovel (for “push comes to shove”)

42: I speak good language (for “…speak good English”)

43: Stiffened me (for “stiffed me,” meaning shortchanged or cheated)

44: Niece (for “knees”)

45: Blueneck (for “blueblood”)

46: Tightened her tubes (for “had her tubes tied”—meaning Fallopian tubes)

47: Potato couch (for “couch potato”)

48: Bone of a peach (for “pit of a peach”)

49: Wibbly (for “wobbly”—probably conflating “wobbly” and “wiggly”)

50: A little bet (for “a little bit”)

51: Blueberry (for “Blackberry,” the electronic device)

52: Syntaxes not working so well since the stroke (for “synapses…”)

53: Axe (for “aches”)

54: Right and back (for “right and left”)

55: Good newses (for “good news”)

56: Succulent (for “succinct”)

57: Nauseated (for “emaciated”)

58: Heckles (for “haggles”)

59: Beer hopping (for “bar hopping”)

60: MyTube (for “YouTube”)

61: Passing board (for “boarding pass”)

62: Switch box (for “remote control”)

63: Ating (for “eating”)

64: Coke tile (for “cocktail”)

65: Steelmaster (for “Stairmaster”)

66: Sprout (for “Sprite,” the beverage)

67: Semi-sisters (for “half-sisters”)

68: Thanks a million box (for “thanks a million bucks”)

69: I gave her a strong bone (for “I gave her a strong backbone”)

70: Earthshake (for “earthquake”)

71: Shook treatment (for “shock treatment”)

72: It would be a fun (for “it would be fun”)

73: Get our funs (for “get our fun”)

74: Bold (for “bald”)

75: Tooth instruments (for “dental braces”)

I questioned Marzena to confirm my interpretation of her words as given by me in parentheses above. In fairness, I should mention one of my own bloopers or blunders. Marzena had an Asian

friend from India named “Ashish” (pronounced “Asheesh”). I forgot his name, so I spontaneously called him “Sushi,” hoping she would know who I meant because of the “sh” sound. She did know who I meant and got a laugh out of it.

The countess would spend hours on the phone with me talking about whatever entered her head, mostly episodes in her life. When I eventually started to contribute to the conversations, she took offense, criticizing both the manner and content of my remarks. She hated any mention of numbers, for instance, which I loved. I joked that I’d send her a book and scratch out all the page numbers so as not to offend her! That was one witticism from me she appreciated. She accused me of being emotionally immature, perhaps because my sense of humor usually did not appeal to her. I ended our 18-year-long friendship in 2020 by changing my phone number, since she always insisted on initiating our conversations by phoning me - I was not to call her. Our conversations generally would start out pleasantly, but would frequently descend into her heaping generous amounts of abuse and contempt on me, to the point that I would often hang up on her. Since we seemed to annoy each other so much, I felt ending the relationship would benefit us both.

2002 (age 58): Suicide of the Countess’s ex-boyfriend

Just a few months after I first met the Polish countess mentioned above, her ex-boyfrfiend, whom she had known for ten years, suddenly committed suicide by stabbing himself in the heart. The Countess suspects it might have been murder, but she told me this ex-boyfriend had bought a collection of knives a year before his death, which suggests suicide was the more likely explanation. She did not like my theory that her harsh tone toward him might have helped motivate his suicide.

2003 (age 59): My final cat, named “Stormtrooper”

I have had cats continuously since 1975, starting with Fluffy and Toughy, then Princess and Big Boy. I did not want any more cats because it is unpleasant to see them die, but this final cat was running around along railroad tracks and in back of apartments a couple of blocks away from me and a woman who had been feeding it wanted me to take it since she already had two or three dogs, who might not be compatible with a cat. So I reluctantly agreed to take the cat home. It climbed out my front window along a ledge that I thought was too narrow even for a cat. I assumed it jumped from there to the ground but a passerby many hours later pointed out that there was a cat sitting on an air conditioner one flight up, and I immediately realized it must be the cat I had adopted. So we got the cat down with a ladder. The cat then hid behind my bathtub for two weeks, and I could feed it but not get close enough to catch it. So I borrowed a cage and put food in it and the cat was caught. It initially hissed at me, but when I fed it and touched it on the back, it decided I was friendly and accepted me as his friend. He still hisses at most people unless they pay attention to him and speak gently to him, such as my sister and my Polish friend. The cat has been with me since 2003, and I assume he was one year old when I found him, so he would be 17 as of mid-2019. I count him as my best friend, although he playfully bites me at times. When he wants food he used to put his paw out like a Nazi salute, so I named him Stormtrooper, as well as various alternative names such as Heidi (because he hid

initially, and I didn't know his gender then), Sunshine (because of his coloring), MouseMaster (but he never catches any mice that occasionally intrude here), CutieCat (a play on KittyCat), etc. He has never been neutered or declawed, since I respect a cat's physical integrity.

2004 (age 60): One-Volume Version of This Theory Published; I was mentioned in the non-fiction book *The Know-it-all*

In 2004 I self-published 75 hardcover copies of a one-volume version of this theory under the title *To Unscrew the Inscrutable: A Theory of the Structure of Philosophy.* It consisted of analyses similar to those in the first volume of this 13-volume study. It was 700 pages long counting bibliography and index. A book titled *The Know-it-all* by A. J. Jacobs was published in this year that included a few pages about me (pp. 243-246); Jacobs had read through the entire *Encyclopedia Britannica* and talked about that as well as including a few pages about fellow know-it-alls like himself, such as me.

2005 (age 61): One-volume version of this theory published; Mention of me in a novel titled *Comrades in Miami*

In 2005 I self-published 75 hardcover copies of a second one-volume version of this theory under the revised title *The Encyclopedia of Categories: A Theory of Categories and Unifying Paradigm for Philosophy.* It consisted of additional examples such as those contained in *To Unscrew the Inscrutable.* It was 653 pages long counting bibliography and index. These two volumes went as high as 12 categories, then included two more chapters on compound and complex examples, respectively. A third volume was typed that finally included 75 13-category examples to be distributed evenly in the first three volumes, but this version got lost in a computer crash while I was working on the bibliography and index. This third volume would have been published in 2006. I saved the best examples from these three volumes, but only the best of the 75 13-category examples from the third volume, and included them in the first volume of the present 13-volume study. There was mention of me (p. 7, by my last name only) in a spy thriller titled *Comrades in Miami* by José Latour published this year.

2006 (age 62): My Discovery of a Thirteenth Category

In 2006 I noticed the need for a thirteenth category, which I called D' (D-prime) because it is related to the D factor as a child is to its parent or a pupil to its teacher. I was soon able to discover dozens of examples of thirteen-category structures, such as the analysis of the various perspectives on truth mentioned in the 1995 *Oxford Companion to Philosophy*, all of which I was able to encompass in my theory (see Volume 1, Chapter 13).

2007 (age 63): Became intimate with a daughter of Picasso

I was in a one-year relationship with an illegitimate daughter of Pablo Picasso that lasted from 1966 to 1967. I traveled down to Naples, Florida for two weeks per month to be with her. We played a lot of Scrabble, among other activities, and I suddenly became very good at the game by being able to use all 7 of my letters (a "Scrabble" play) about once every game, which gives one a bonus of 50 points, enough of a margin to win every time. She was so annoyed with my

winning streak that she tried to change the rules to give herself a better chance of winning. I told her just try to consistently improve her own score, don't worry about my score. After all, English was not her native language. She spent the first 20 years of her life with her mother and her mother's husband in Germany. Around 1940 her mother's husband was on the Eastern Front fighting in Russia, so her mother took a vacation in France, where she encountered Picasso. She hid the fact that the girl baby born in 1941 was not her husband's biological offspring, fearing he would divorce her. Picasso's daughter in her youth was a virtuoso violinist and played in an orchestra. The conductor heard a mistake and had his violinists play the passage two at a time. Her partner played it wrongly, but the conductor accused her of making the mistake. Her partner later admitted to her that he had made the mistake. But she was sufficiently annoyed with the conductor that she quit the orchestra. She married a musician and they moved to the U.S. to play in an orchestra here. Subsequently she married a second man who had been a CIA spy in Vietnam and elsewhere, fluent in 6 languages. He was so paranoid about her cheating on him that he tied her up each night to their bed. She was showing signs of mental deterioration under this regimen, so her husband took her to some CIA psychiatrists, who diagnosed her as "paranoid schizophrenic," no doubt believing her claim that her husband tied her up each night was delusional. This second husband was into painting and she changed her focus to painting rather than the violin, and eventually had some of her paintings in five different museums. She was not told by her mother who her true father was until 1988 when she had already achieved success as a painter. My Polish friend and I both liked her art works better than Picasso's. Picasso had died in 1973 at the age of 92, so by 1988 it was way too late to claim any portion of his billion-dollar estate, or even to get help in establishing whether she was biologically related to Picasso. One day we were walking along a street in Naples, Florida and she pointed ahead of us and asked why I was interested in that 15-year-old girl. I looked carefully but could not see anyone at all within a hundred yards of us. I certainly did not know any 15-year-old girls in Naples or elsewhere nor had an interest in any minors anywhere. She had her computer linked to mine purportedly as a way of our saving money but actually as a way of spying on me. In retrospect, I think I had made a typographical error on a website search. Oddly enough, she herself had introduced me to trolling for nude photos of women on the Internet. She had married a third husband, a character actor in the 1942 film *Casablanca*, but she told me she had run off to Europe to be with a former lover while still married to him. So her attitude toward my alleged infidelity seemed highly hypocritical. I never dated or even flirted with any other women during the year I was with her. Still, she did return to and remained with that third husband to the end of his life at the age of 95, his being 40 years older than her. So I did not particularly fault her seeking a younger man. She subsequently broke off her relationship with me and phoned all my closest friends to tell them I was a pedophile. She later tried to patch up our relationship, but this rough treatment from her was severe enough to eliminate any hope of patching things up with me. She soon found a new lover and I believe she married him, her fourth husband. I had gradually accumulated a handful of friends, but most of my life I had made do with few if any friends, so I was able to go my way without much discomfort. I visited my sister and her husband in a town north of New York City and we played eight games of Scrabble together, of which I won 7 — a far better performance than I had previously achieved. I explained that my better performance was due to my practice with Picasso's daughter and my ability to repeatedly get a "Scrabble" bonus an average of once each game. But I could tell that my sister's husband

was very annoyed, and we began to play other games. I subsequently ceased regular yearly visits to them to avoid friction and because the 5-hour bus ride each way was rather tedious. My sister also put me on the phone with my brother each time I visited, even after I told her I was not interested in speaking to him. So [my] not visiting her eliminated the annoyance of speaking to him. He subsequently sent me a Christmas card in which he openly wondered what was the point of sending me the cards, so I asked him not to communicate with me in future except in the unlikely event that we needed to exchange information, in which case we could communicate through a third party such as our sister. In explanation, I told him there had been an underlying antagonism from him toward me throughout our lives. He has [so far] respected my wishes not to contact me again. Obviously my main defense mechanism throughout my life has been to shy away from people, from whom most of my unpleasant feelings about myself arise. On my own, it is just my occasional memories of unpleasant incidents in the past that elicit my suicidal thoughts, images, and feelings.

2008 (age 64): Obama elected President: What he did wrong

What Obama did wrong: (1) His Apology Tour early in his presidency, when he apologized for U.S. foreign policies for the past few decades to foreign dictators such as the Saudi leader, while abusing democratic allies such as Israel and Britain; (2) he doubled the national debt in just 8 years from ten trillion to twenty trillion dollars; (3) he gave Iran 150 billion dollars, which had been frozen because they had been the leading state sponsor of terrorism in the world; (4) he encouraged unaccompanied teenagers from south of the border to enter the country, including many members of MS-13, a vicious gang from El Salvador that has the motto “kill, rape, control” and kills its victims with machetes; (5) made a dedicated communist, John Brennan, head of the CIA, an organization that had for decades led the Cold War *against* communist countries; (6) Obama led a conspiracy by top FBI and Justice Department officials to undermine Trump’s administration by false and defamatory accusations against him and many top officials in his administration that Obama had grudges against, notably General Flynn, whom Trump had appointed National Security Advisor against the wishes of Obama; (7) although Trump was severely criticized for commuting the sentence of his friend Roger Stone, whose judge, foreman of the jury, and prosecution behaved unethically in many ways, by sheer numbers Obama and other recent Democrat presidents far exceeded Trump in the number of their pardons, commutations, and rescinding of sentences. The totals were as follows: Trump (as of 3.5 years in office): 36; Obama: 1,927; George W. Bush: 200; Bill Clinton: 459; George H. W. Bush: 77; Jimmy Carter: 566; Gerald Ford: 409; Richard Nixon; 926; Lyndon B. Johnson: 1,187; John F. Kennedy: 575; Dwight D. Eisenhower: 1,157; Harry Truman: 2,044; and Franklin D. Roosevelt: 3,687. If we omit Roosevelt and Truman and stick to the subsequent 13 presidents, Republicans averaged 89 pardons etc. per year over a period of 31.5 years, while Democrats averaged 168 pardons etc. per year over a period of 28 years, and Obama’s 1,927 pardons, etc. averaged 240.8 per year, 43% higher than the Democrat yearly average and 170% higher than the Republican yearly average. Stone’s judge prohibited him from putting forward his preferred defense, greatly hampering his case; the prosecution illegally withheld exculpatory evidence for Stone; and the foreman of the jury lied when she said she was impartial, when in fact her online remarks showed she was radically anti-Trump and anti-Stone, contrary to her sworn statements when she signed on for jury duty.

2009 (age 65): Marriage; Cataract Surgery

I married a woman from the country of Georgia, a former part of the Soviet Union, which broke up into fifteen separate countries in 1991. In that same year at the age of 17 she had been kidnapped into a marriage by a wealthy gangster 18 years older than her, and the government did nothing to extricate her from this virtual sexual slavery. She had a daughter in 1996 and left the country of Georgia in 1999, leaving her daughter in the care of her mother. The father never paid any child support, so she worked for a total of 23 years supporting both her daughter and mother financially. I had cataract surgery in 2009 and afterwards my visual acuity was rated at 20/150 and 20/250, a small change from my 20/120 and 20/320 Snellen ratios at the age of 24, just over 40 years earlier. Vision in my right eye had become completely clouded, so I counted the operation a success. I let the surgeon perform cataract surgery on the left eye because the surgeon said there was a moderate cataract there, even though I did not notice any clouding in that eye, just a greater-than-usual struggle in reading.

2010 (age 66): Eye Muscle Surgery

I learned that the same surgeon who had done the cataract surgery also did eye muscle surgery. I had been hit in the face by total strangers on more than one occasion, apparently because my right eye looked to the right at an angle of 45 degrees from the angle of the left (better) eye, which they must have construed as some sort of smart-alecky challenge rather than the visual defect that it actually was. I thought having this defect corrected might deter similar attacks in future.

2011 (age 67): Departure of my Polish friend for Europe

My Polish friend left the U.S. permanently for Europe in 2011. She had been my best friend for ten years. A few days after she left I decided to count how many suicidal thoughts or fantasies I had in one day. The number was 19.

2012 (age 68): Traveled to the Republic of Georgia

The only time I ever left the United States, except for a few brief trips across the border to Canada, as when my sister worked there as a ballet dancer, was to the Republic of Georgia on the Black Sea from January 28 to February 5, 2012, to speak to the American Embassy to get my wife's daughter permission to get a visa to travel to the United States. Georgia has its own unique language, related to the Basque language in southern France and northern Spain, and its own unique alphabet, quite distinct from any other alphabet. When Russia helped two provinces of Georgia with heavy Russian populations break away and gain a quasi-independent status (although only a handful of nations recognized that new status), President George W. Bush helped fly Georgian commandos back to Georgia from Afghanistan in order to support the Georgian side. For that the Georgians named a boulevard after Bush. My wife did not make the trip with ma, perhaps because she thought there would be trouble with her ex-husband there, whose goons might round her up once again. When the American Embassy official asked me why she had not come, I told him there were other reasons my wife would have liked me to give

but that this one seemed the most plausible one so far as I understood the situation. My wife's daughter did not come back to the U.S. with me but only a few months later, perhaps to finish a semester of high school there in Georgia. She was only 16 years of age and her knowledge of English was quite skimpy. Even her mother thought she was still 15 years of age later that year and I said she was 16; since her daughter was right there, I asked her to ask her daughter, and the daughter confirmed my number. Her daughter went back to Georgia a year or so later and married a man she had been lovers with since the age of 15. She was 18 when they married. The guy she married was about 20 years older than her and took a domineering attitude toward the relationship, which my wife did not like, since that had been a family pattern for several generations and not a good one. The American Embassy questioned the fact that I was 30 years older than my wife, and I mentioned that my wife's former Georgian husband, the father of her daughter, was 18 years older than my wife, and that my wife said that wide age differences between wives and husbands in Georgia was common. The daughter eventually settled with her husband in Philadelphia; my wife's mother came to live with us for a while but within a few months went back to Georgia; and I have lived with my wife here in New York City for nearly ten years. For me, being quite shy, the trip to Georgia was very stressful and it would have been a lot easier if my wife had traveled with me, but I went alone out of a sense of obligation. Both Stalin and his chief henchman Beria were originally from the Republic of Georgia. Stalin had almost completed a degree in theology, as his mother had wished, but he lacked the funds to take the final exam, so he never got the degree. Even at his death the people of the Soviet Union were so deluded by the total control of the media by the Communist Party that many wept when he died. I dated a woman from Romania who admitted she cried when Stalin died, for which most of her Romanian friends laughed at her.

2013 (age 69): Began Work on the Present 13-Volume Opus

I noticed that Samuel Johnson's great unabridged dictionary of 1755, of which I have a hardback copy of in a folio reprint for which I paid over $1,000, is now available in a computer-readable Kindle edition for a mere $9.99. It then occurred to me that a bulky version of my theory might attract more attention than single-volume versions, and I could distribute the work for free as email attachments. Kindle has various format requirements that I wanted not to worry about, so I decided to go it alone, unless some Kindle expert out there wishes to work on a Kindle version. I decided on 13-volumes simply because that is the number of basic categories that I now use. I found an inexhaustible source of examples in books of quotations, since quotations of sufficient length can almost invariably be sorted into 13 categories. But the first volume consists of examples from my first three single-volume books. And the second volume consists of examples of diverse length — from two to thirteen categories — from various dictionaries of quotation that were not by-and-large specialized. The remaining eleven volumes focused chiefly on 13-category examples based on quotation books, with the third through seventh volumes focusing on specialized topics such as physics, math, psychology, and so on, while the eighth through twelfth volumes focusing on specific persons. The thirteenth volume focuses on examples in the realm of philosophy. I have toyed with the idea of putting out a second, third, and perhaps fourth 13-volume series, each of which would take about 7 years to complete, at which point I would be 97 years of age. But even at 40 volumes (13 + 13 + 13 + 1)

the total number of examples would be about 13,000, which would fit in with my apparent fetish for the number 13.

2014 (age 70): Central Park Tower begun, second tallest building in the Western Hemisphere, just 15 minutes' walk away

According to the Wikipedia article about "The Central Park Tower," this building is scheduled to be the second-tallest in the Western Hemisphere, rising to 1550 feet when it is completed in 2020. Excavation on its 80-feet-deep foundation began in 2014, so I have entered it under that date. It is relevant to me because I now see it every afternoon as I walk to my usual fast-food restaurant, where I dine, read the newspaper, and work on this treatise. My apartment building is about 15 minutes' walk from the Central Park Tower, while my favorite restaurant is just five minutes' walk from there. About two-and-a-half minutes' walk from my apartment this building now sticks up twice as high as any surrounding building from my vantage point. At one point it was planned to have a spire on top that would reach to 1775 feet, just one foot short of the height of the Freedom Tower, which is now the highest building in the United States and the Western Hemisphere. The Willis Tower (formerly named the Sears Tower) in Chicago is about the same height as the Central Park Tower, but for various technical reasons Wikipedia chooses to designate the Central Park Tower as slightly higher than the Willis Tower. On a worldwide basis the Central Park Tower and Willis Tower will be among the 20 tallest buildings in the world, even after four other taller buildings are completed, including one in Saudi Arabia that will be the world's tallest building at one kilometer (1,000 meters) high. The Central Park Tower is so skinny that it looks like New York City giving its middle finger to the Universe!

2015 (age 71): *Numbers for Nerds* and other nerd books

In 2015 I initiated a book idea called *Numbers for Nerds* in which there would be a large number of questions with numerical answers, with answers given on a subsequent page so the reader could guess first. I intended the questions and answers to be educational, not mere trivia, such as "How many members does the United Nations currently have?" I chose a co-author, my childhood friend Judy Miller, to think up half the problems. She collaborates with a writers group that I thought could help come up with ideas for marketing the book. Then I worked on two additional books in a nerd series, one titled *Words for Nerds,* and one titled *Happy Birthday Book for Longevity Nerds.* The first would ask questions that would require (usually) a one-word answer, such as "What is fear of the number 13 called?" Again the aim was educational, not merely trivia. The *Happy Birthday* book would list people who died at certain ages, from under 10 to over 100, focusing on relatively well-known individuals. One could look to see what persons had died sooner than, later than, or at one's current age. These books would help to feed one's thirst for knowledge, for those who have such a thirst. So far we have not found a publisher for these books, which affords additional time to expand and improve each of them. But I've been focusing on the present treatise mostly, so the nerd series has been put on the back burner until these 13 volumes are done.

2016 (age 72): Trump elected President: What he did right

At the risk of alienating Trump haters, I will mention ten things I thought Trump has done right so far. (1) Drastically lowered the unemployment rate, including record low unemployment for blacks, Hispanics, and Asians—which contradicts claim that Trump is a racist (imagine Hitler bragging about the low Jewish unemployment rate, when in fact he made it illegal for Jews to work at all!); (2) drastically reduced red-tape regulations that had hampered business activity; (3) decreased taxes; (4) the economy dramatically improved due to these actions; (4) attempted to build a border wall along the southern border with Mexico to reduce drug and human (prostitute) trafficking, for which he was accused of racism, the Democrats' usual knee-jerk smear of Republicans; (5) moved the U.S. embassy in Israel from Tel Aviv to Jerusalem, the latter being the capital of Israel, and recognized the Golan Heights as Israeli territory, Syria having formerly used it as as a base for attacking Israel; (6) increased tariffs on Chinese imports to reduce the $500 billion a year balance of trade deficit with China, and took similar with other trading partners; (7) Sought to reduce chances of military conflicts with antagonistic powers such as Iran and North Korea through military strength rather than weakness, as by giving permission for U.S. ships to fire on Iranian boats that were harassing U. S. ships; (8) made the U.S. self-sufficient in producing energy, reducing the need for U.S. involvement in the Middle East; (9) encouraged investigation of China and World Health Organization collusion in support of China's exporting the coronavirus worldwide, as when China *allowed* planes to fly from the contaminated region in China to all parts of the world but *prohibited* such flights to other parts of China, thus leading to over 200,000 deaths from the virus worldwide so far; (10) showed vision and imagination in supporting eventual manned flights to Mars as well as a Space Force as a sixth arm of the US military (the others being army, navy, marines, coast guard, and border patrol). My chief criticism of Trump would be his lack of sufficient enthusiasm for balanced budgets. Overall I would rate Trump as among the greatest of all U.S. presidents so far. The Democrats' and mainstream media's attacks on Trump are so incessant, one-sided, and absurd that they well deserve the designation: Trump Derangement Syndrome.

2017 (age 73): My Cat's Illnesses

My cat vomited after eating a contaminated can of cat food. He did not eat for a week. My wife found a veterinarian online who would check him out for free. She gave me a long menu of things she could do for the cat that would have cost over $700, of which I chose two that seemed as though they would do the trick — the main one being an anti-nausea shot. He could eat as soon as I got him home.

2018 (age 74): Fall through a trapdoor into a deli's basement

I was at a nearby deli to get some cat food, and walked to the back where I could find it, but the place had an unfamiliar arrangement due to merchandise being moved around by the workers. I took one step to what I thought was solid flooring and fell 15 feet into the basement through a trapdoor that I had not noticed. Fortunately there was a steep stairway that I slid along, so that I landed on my feet. A worker ran down the ladder after me and asked if I needed to go to the hospital. I declined but asked for a few seconds to collect myself before climbing back up the

ladder. I had scraped the skin off a few knuckles and the worker asked if I needed a bandage. Again I declined the offer. Once I was back upstairs they offered to give me two cans of cat food for free, and after a moment of hesitation, I decided to accept. My knuckles healed after a few weeks, but my left arm was wrenched by hitting the floor as I went down through the trapdoor, so I had to avoid lying on that side for quite a while. A couple of years earlier I had had a more ordinary fall on some so-called "black ice," which I had interpreted as a wet spot on the pavement but which was actually ice. A passerby offered to help me to stand up, and I would have preferred to stand up by myself, but it would have looked awkward to lie there for a few minutes while I collected myself, so I accepted the help. I ended up with back pains that finally went away suddenly 21 months later. Both falls were due largely to my weak eyesight. I even apologized to the deli workers for falling in their deli due to my weak eyesight.

2019 (age 75): Estimating my childhood Stanford-Binet IQ; my eccentric, mouse-loving cat

Childhood Stanford-Binet IQ scores tend to be much higher than any adult IQ scores because it is easier to put a lot of ceiling on childhood tests well beyond any normal child's capabilities, but it is difficult to challenge the most gifted adults except through highly speeded tests, which are not congenial to my slow reading speed due to my poor vision. [Editor's note: See also the difference between ratio and deviation scores] I never took the Stanford-Binet, but it is possible to estimate what it might have been by comparing scores achieved by the top 7 members of Terman's gifted group on both the childhood Stanford-Binet and the adult Concept Mastery Test, Form A, with my adult CMT Form A score, using the following chart:

	CMT raw score	CMT IQ	S-B IQ	Rarity (1-in-X)
1. Ceiling of Form A CMT	190	181	(?)	4,000,000
2. One-in-a-million score	178	176	204	1,000,000
3. Top Terman group score	172	173.4	200	300,000
4. My scores	162.5	169.4	192	140.000
5. 7th from top Terman score	160	168	190	100,000

Thus my adult CMT IQ of 169.4 corresponds to a childhood Stanford-Binet IQ of 192, both IQs having a rarity of about one-in-140,000. In support of this, Phil Bloom, who designed the high-ceiling Bloom Analogies Test for gifted adults, put the rarity of my performance on the untimed version of his test at one-in-100,000. The 192 childhood IQ jibes with my unusually early childhood memories, as indicated in this autobiography, compared with most other people's lack of such early memories. The 192 IQ S-B IQ is a crude estimate since it assumes a 1.00 correlation between the S-B and the CMT, whereas the true correlation must be significantly lower.

My wife (now ex-wife) noticed in May 2019 several large mice dining with my cat, who did not seem to mind their sharing his food at the same time as he was eating. I noticed the mice myself feeding at the cat's food, though not at the same time as the cat. They seemed like gerbils to me, as if they were escaped pets from a neighbor's apartment, but my wife insisted they were mice, and her vision is much better than mine. Yet this cat still hisses at my wife despite sharing the same apartment with her for years, as well as at most strangers who visit, perhaps as a warning not to step on him. He does not hiss at strangers who show an interest in him, such as my sister or my friend Marzena, perhaps because their interest shows less likelihood of their stepping on him. A mouse or gerbil would not of course pose such a threat.

2020 (age 76): Irony of copyrighting this book in 2020

I pushed myself to complete these first 13 volumes before the end of the year 2020 because I liked the irony of that as a copyright date, given that my vision is well below 20/20.

The two following lists summarize the 13 most positive and 13 most negative events in my life:

13 Notable Positive Experiences in My Life:

1. Age 2: Swinging on a swing with one of my grandmother's hens in my lap; she died before I was 3 but my mother later said she highly praised my intelligence

2. Age 6: Noticed the cover of a sci-fi paperback and became a lifelong sci-fi fan

3. Age 15: Scored 99th percentile each on tests of verbal, spatial, and numerical aptitudes, despite reading only 54% as fast as the average high-school grad

4. Age 16: Heard Bartok's *Concerto for Orchestra,* became a lifelong classical music fan based on this and other major works by Prokofiev, etc.

5. Age 31: Discovered I have an uncanny aptitude for analyzing dreams

6. Age 35: Amazing Freudian symbolism in my cover design for Triple Nine Society

7. Age 41: My Mega Test, high-ceiling adult IQ test, published in *Omni* magazine

8. Age 42: Governor John Sununu (PhD from M.I.T.) highly praised my Mega Test

9. Age 42-45: Mentioned in *Guinness Book of World Records'* IQ entry for four consecutive years (1986-1989) for founding world's highest high-IQ societies and designing its main admissions test

10. Age 44: Won first prize from the American Philosophical Association for an essay competition for a paper I titled "Theories of Truth: A Comprehensive Synthesis"

11. Age 46: My Titan Test, high-ceiling adult IQ test, published in *Omni* magazine

12. Age 50 onward: Listed in *Who's Who in America* and *Who's Who in the World*

13. Age 55: Full-page article about me in *Esquire* magazine's "Genius" issue (Nov. 1999); the issue ridiculed geniuses but I received less ridicule than three other "geniuses" featured in this issue.

In harmony with these positive reflections, poet W. H. Auden (1907-1973) wrote: "Geniuses are the luckiest of mortals because what they must do is the same as what they most want to do" (*Genius: Webster's Quotations, Facts & Phrases*, p. 1).

13 Notably Negative Experiences in My Life:

1. Age 3: Pushed downstairs by brother, leaving forehead scar lik frown line and probably the detached retina for which I had an eye operation 5 years later

2. Age 5: Divorce of my parents

3. Age 5 onward: Mother's frequent lifelong hours-long hysterical tantrums

4. Age 8: Eye operation for detached retina (25 days in hospital flat on my back)

5. Age 8: Pretend wedding at the invitation of an 8-year-old girl & her girlfriends; totally unprovoked dog attack & bite next day at the behest of these same girls!

6. Age 15: Second eye hospitalization for retinal problem

7. Age 15-19: Abuse from my mother's domineering second husband

8. Age 19: Flunked out of my first college due mainly to visual handicap

9. Age 19 onward: Beginning of lifelong daily suicidal thoughts and fantasies

10. Age 23: Flunked out of my third college due largely to my visual handicap

11. Age 31: Cried for 12 hours straight when reminded of my parents' divorce

12. Age 31 onward: First try at sex, beginning of lifelong sexual dysfunction

13. Age 72-74: Two serious falls, one through a trapdoor to a deli's basement

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Critic and essayist Max Beerbohm wrote: "I have known no man of genius who had not to pay, in some affliction or defect either physical or spiritual, for what the gods had given him." (*Genius: Webster's Quotations, Facts* [etc.], p. 86).

My own nihilistic view of reality: “(1) Each life (2) is (3) a nightmare (4) because (5) it (6) ends with (7) a ghastly death, (8) and (9) lives in general (10) simply link (11) one nightmarish life (12) after the next (13) in an ultimately meaningless con-catenation.”

D: (1) Each life

DA: (2) Is

A: (3) A nightmare

AG: (4) Because

G: (5) It

GQ: (6) Ends with

Q: (7) A ghastly death

QD: (8) And

DG: (9) Lives in general

AQ: (10) Simply link

U: (12) After the next

N: (13) In an ultimately meaningless concatenation

D’: (11) One nightmarish life

I wrote that statement without any vision of how it might eventually be analyzed, yet it readily falls into our usual 13-category pattern, each part of which can be explained or justified as follows:

D: (1) Each life can be classed in D since a life is that of an agent or drive-bearer, D.

DA: (2) Is can be classed in DA since in the expression “each life is a night-mare” th word “is” links the drive words “each life,” D, and the anticipatory words “a nightmare,” A.

A: (3) (3) A nightmare can be classed in A since a nightmare amounts to the anticipation, A, of an unpleasant outcome.

AG: (4) Because can be classed in AG since in the expression “a nightmare because it” the word “because” links the anticipatory words “a nightmare,” A, and the goal-object word “it,” G.

G: (5) It can be classed in G since this pronoun refers to each life as a goal object, G.

GQ: (6) Ends with can be classed in GQ since in the expression “it ends with a ghastly death” since the words “ends with” link the goal-object word “it,” G, and the quiescent words “a ghastly death,” Q.

Q: (7) A ghastly death can be classed in Q since any death is a quiescent dis-satisfaction, Q, at least for the person experiencing it, and often for others.

QD: (8) And can be classed in QD since this conjunction links the quiescent completion , Q, of preceding words, and the drive, D, to add more words.

DG: (9) Lives in general can be classed in DG since lives amount to goal objects, G, from the point of view of observing agents or drive-bearers, D.

AQ: (10) Simply link can be classed in AQ since these words lead one to anticipate, A, the quiescent manifestation, Q, of what follows what.

U: (12) After the next can be classed in U since these words can be construed as involving the unified, U, passage from a drive, D, in this case one life, to the next as its quiescent outcome, Q, when a child is produced.

N: (13) In an ultimately meaningless concatenation can be classed in N since what is “meaningless” is a negation of what we usually crave, namely meaning or ultimate purpose for our lives.

D’: (11) One nightmarish live can be classed in D’ since such a life amounts to a subordinate agent or drive-bearer, D’, subordinate due to its nightmarish-ness, i.e., its unsatisfactory outcome in death, a ghastly outcome which religions try to hide by pretending that there will be a renewed life for each person after death, a story that is a foolish fairytale to any mature mind.

Metaphysics of Change

Werner Couwenbergh

Abstract

In his defense of dialetheism, Graham Priest not only argues for the existence of semantic (abstract) dialetheias, but also for real-world, empirical dialetheias. To that extent he presents a dialectically inspired metaphysics of change, based on two key hypotheses: the Leibniz Continuity Condition and the Spread Hypothesis. It is shown that - in an ontological interpretation - these hypotheses face serious objections. More specifically, they fail on internal consistency, empirical consistency and ontological parsimoniousness.

[Editor's Note: Metaphysics is a branch of Western philosophy which arguably traces its lineage back to Aristotle's *Metaphysics* and considers fundamental issues such as being, time, and unity of identity through change. Accordingly, The British philosopher Peter Frederick Strawson, author of *Individuals: An Essay in Descriptive Metaphysics*, once said that the pursuit of metaphysics should strive to demonstrate "how the fundamental categories of our thought hang together, and how they relate, in turn, to those formal notions (such as existence, identity, and unity) which range through all categories."

Graham Priest is an analytic philosopher with interests in the history of philosophy, logic, and metaphysics. Graham Priest's inconsistent account of motion is apparently outlined within Priest's 1987 book, *In Contradiction: A Study of the Transconsistent*. Therein, Priest seeks an "intrinsic account of change, in which it is a matter of the features of the object solely at the instant whether it is changing at the instant" in contradistinction to the received 'cinematic' view of extrinsic change attributed to David Hume and Bertrand Russell. Priest "offers three arguments against the extrinsic account": the abutment argument, causation, and an appeal to Zeno's arrow argument. Georg Hegel's inconsistent view of motion and the Leibniz Continuity Condition are also considered.

Source: https://plato.stanford.edu/entries/change/#IncMot

Graham Priest and Richard Routley are credited with jointly coining the word 'dialetheism' in 1981. A dialetheia is purported to be a 'Janus-headed' two-way truth insofar as both the dialetheia sentence and its negation are true: "If falsity is assumed to be the truth of negation, a dialetheia is a sentence which is both true and false. Such a sentence is, or has, what is called a truth value *glut*, in distinction to a *gap*, a sentence that is neither true nor false." Dialetheism therefore "amounts to the claim that there *are true contradictions*."

Source: https://plato.stanford.edu/entries/dialetheism/#SomeBasiConc]

Contents

1. Introduction

In *In Contradiction: A Study of the Transconsistent* Graham Priest argues in defense of dialetheism: the view that some contradictions are true. Priest first focuses on demonstrating the existence of dialetheias related to semantic and set-theoretic paradoxes, and naïve proof theory (part I). He subsequently presents a dialetheic logical and truth theory. His main goal, again, is to make dialetheias acceptable, and to show that the "transconsistent", just like the transfinite, has a rich, interesting and philosophically highly relevant structure (part II).

For Priest, however, dialetheias are not confined to the abstract world. He also wants to make the existence of real-world (empirical) dialetheias plausible. To that end he presents a dialectically inspired (Hegelean) metaphysics of change, which results in a dialetheic account of change, motion and time (part III)[1].

Although Priest is very careful not to commit to either metaphysical realism or to empiricism, his metaphysics of change will be interpreted as a defense of the existence of true ontological contradictions. The rationale for this is given in appendix A.

Priest's main hypotheses are the Leibniz Continuity Condition and the Spread Hypothesis. They lie at the heart of his metaphysics of change and are summarized in §2.

The critical analysis of the underlying assumptions and consequences of the Leibniz Continuity Condition and the Spread Hypothesis is the main objective of this paper. In §3 It is argued that:

- The Leibniz Continuity Condition is (ontologically) inconsistent;
- The resulting intrinsic (dialetheic) state of change is a consequence of conceptualization, and not a real-world contradiction;
- In its current form the Spread Hypothesis relies heavily on *ad hoc* assumptions, and is empirically not substantiated;
- Priest's metaphysics of change is not ontologically parsimonious.

The conclusion (§4) is that although dialetheism without a doubt deserves a prominent place in the conceptual realm, it cannot plausibly be defended in the ontological realm.

[1] Part IV contains the material new to the second edition, and pertains to all of the first three parts.

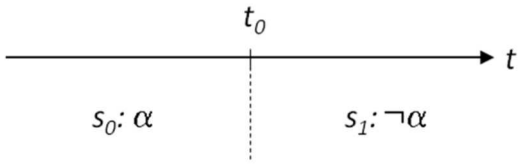
2. Empirical Dialetheias – Priest's Metaphysics of Change

Priest's justification of dialetheism is first and foremost presented as a way to deal with semantic and set theoretic paradoxes. The ensuing dialetheias are therefore inherently logical in nature. In moving from the abstract to the concrete, i.e. from logical paradoxes to contradictions in the empirical world, Priest's defense of dialetheism relies – by his own account – on plausibility arguments rather than on conclusive proof. In his outline of a dialectically inspired metaphysics of change, which attempts to make real-world dialetheias acceptable, he focuses on three related topics: change, motion and time.

2.1. Change: The Leibniz Continuity Condition[2]

2.1.1. Dialetheic Change

Assume a system *s* that is in a state s_0 (described by α) before a time t_0, and in a state s_1 (described by $\neg\alpha$) after t_0:



We then have the following possibilities for the state of the system *s* at t_0:

A]	s_0 only:	α	↘	Classical logic
B]	s_1 only:	$\neg\alpha$	↗	
C]	Neither s_0 nor s_1		➔	Truth value gap
D]	Both s_0 and s_1:	$\alpha \wedge \neg\alpha$	➔	Dialetheic change

Priest dismisses type C changes, in line with his endorsement of the exhaustion principle[3]. He then argues that not all changes are of type A or B, but that there are also changes of type D. The argument is based on the existence of intrinsically symmetrical changes[4]: both type A and type B

[2] Priest, 2010, pp. 159-171.

[3] Priest, 2010, pp. 64-66.

[4] Examples given: symmetry of one's epistemological state before and after one knows the answer to a problem; walking out of a room through a door: (in an idealized situation) is one in or out the room at the moment one passes the door? The latter example is analyzed in detail in §3.2.

changes break the symmetry, so they cannot apply. And since type C changes were excluded, we are left with D – a dialetheic change[5].

The above presupposes the existence of *instants* of time. Priest presents three arguments for their existence:

1. Representation of physical continua by the real line is a cornerstone of well corroborated scientific theories;

2. He dismisses what he calls the *cinematic account* of change, in which the universe is conceived as a succession of "still" *intervals*: this view doesn't accommodate for an intrinsic state of change, which is implausible;

3. Even if there were such intervals, they would need to be infinitely sub-divisible (excluding *atomic* intervals), in order to avoid dialetheism.

2.1.2. The Leibniz Continuity Condition

Priest refers to Leibniz's original formulation of the continuity principle:[6]

> When the difference between two instances in a given series or that which is presupposed can be diminished until it becomes smaller than any given quantity whatever, the corresponding difference in what is sought or in their results must of necessity also be diminished or become less than any given quantity whatever. […]

He interprets this to imply that for two mathematical sequences (s_n) and (t_n):

$$\lim_{n\to\infty}(s_n - t_n) = 0 \;\rightarrow\; \lim_{n\to\infty} s_n = \lim_{n\to\infty} t_n \,,$$

and asserts Leibniz intended the principle to be applicable to all limiting processes: whatever (arithmetic, geometric, physical, temporal, etc. process) holds up to the limit, holds at the limit.

As this could evidently lead to undesirable consequences[7], some bounds must apply. Rather than focusing on these bounds, Priest limits the applicability of the principle to changes in physical states of affairs over time, and removes the notion of "limit" from the formulation. His Leibniz Continuity Condition (LCC) reads as follows:

> […] anything going on arbitrarily close to a certain time is going on at that time too.

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[5] Priest also presents a dialectical tense logic based on extensional and intensional formal semantics (extending on his dialetheic logic), in order to allow the formal modeling of type D changes. Cf. also Priest, 1982.

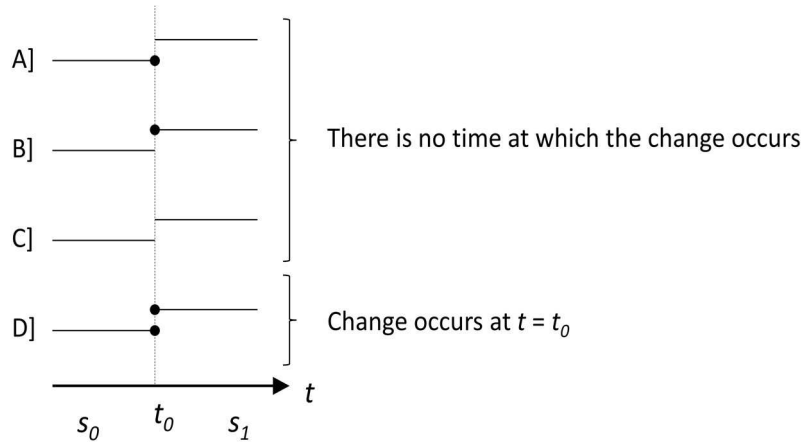
[6] Priest, 2010, p. 165.

[7] E.g., it could be proven that every real number is rational, that the limit of every sequence of continuous functions is continuous, that every parabola is a closed and bounded figure, etc.

2.1.3. Justification of the LCC

As the LCC can be neither verified experimentally, nor proven mathematically, Priest resorts to a plausibility argument: even though "capricious" behavior is not impossible in mathematics (where states of affairs are *atomistic*), such behavior is counter-intuitive in nature (where succeeding states of affairs are *connections*). Changes that violate the LCC would be unintelligible, as there would be no time (instant) of change. According to Priest, "if something happens it must take *some* time, if only an instant".[8]

This reasoning leads to the conclusion that any change from a continuous state s_0: α to a continuous state s_1: $\neg\alpha$ is a (dialetheic) type D change (cf. also §2.1.1):



Consequently, the LCC "implies that contradictions are realized at the nodal points of certain sorts of change."[9, 10] More generally (with s_0: α and s_1: β), at time $t = t_0$ a nexus state is produced ($\alpha \wedge \beta$), which Priest identifies with the state of change itself.

2.2. Motion: The Spread Hypothesis[11]

2.2.1. The Russellean and Hegelean Accounts of Motion

Priest applies this identification of contradiction and state of change to motion: the change of place with respect to time. According to the orthodox, "Russellean" account of change, "motion consists *merely* in the occupation of different places at different times". Priest has two key objections to this account:

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[8] Otherwise we would be left with the cinematic account of time, which Priest contests.

[9] Priest avoids the infinite regress by remarking that "to be changing into a state of change is already to be in that state of change".

[10] This is the case for both discrete and continuous changes.

[11] Priest, 2010, pp. 172-181 and Priest, 1985.

1. There is no intrinsic state of motion. At each instant the state of a body in motion is no different from the state of the same body at rest at the same place. This again amounts to the cinematic, Russellean, account of change, whereas for Priest change – and instantaneous velocity – must be relational:

   $\frac{df(t)}{dt} \neq 0 \; at \; t = t_0$ is equivalent with: $\lim_{\varepsilon \to 0} \frac{f(t_0+\varepsilon)-f(t_0)}{\varepsilon} \neq 0$,

   where *f(t)* expresses position as a function of time, and the limit quantifies over all instances around t_0, expressing the relational nature of change. In other words: "[…] a journey is not a series of states indistinguishable from states of rest, even a lot of them close together".

2. Priest's second (related) objection builds on Zeno's paradox of the arrow. According the orthodox account of motion, even though the arrow makes no progress at each instant of its journey, in the sum of all instances it does. Priest grants that there are ways to deal with this mathematically, but finds it philosophically and physically hard to accept that a sum of – even infinitely many – nothings is not nothing.

Given these objections, Priest proposes the "Hegelean" account of motion, which does hold a state of motion to be intrinsic, and holds this state to be inconsistent. According to Hegel's view of the continuum, distinct points merge. Hence, applying this view to time, a body cannot be localized to a certain instant of time *t*.

2.2.2. The Spread Hypothesis and its Consequences

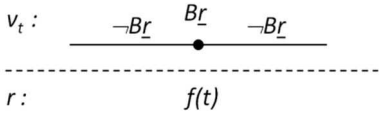
Priest defines the Spread Hypothesis (SH) as:

> A body cannot be localized to a point it is occupying at an instant of time, but only to those points it occupies in a small neighborhood of that time.

Where the Russellean state description of motion would be given by:[12]

$$\begin{cases} 1 \in v_t(B\underline{r}) \Leftrightarrow r = f(t) \\ 0 \in v_t(B\underline{r}) \Leftrightarrow r \neq f(t) \end{cases}$$

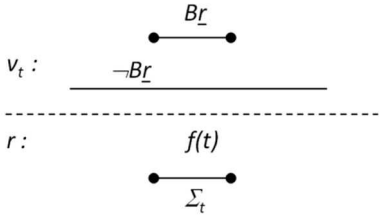
or graphically:



The Hegelean state description of motion is now given by:[13]

$$\begin{cases} 1 \in v_t(B\underline{r}) \Leftrightarrow \text{for some } t' \in \theta_t : r = f(t') \\ 0 \in v_t(B\underline{r}) \Leftrightarrow \text{for some } t' \in \theta_t : r \neq f(t') \end{cases}$$

or graphically:



[12] Where $x = f(t)$ gives the motion of a body *b* along a 1-dimensional continuum ($\mathbb{R}$), *r* is a real number with name $\underline{r}$, *Bx* represents "*b* is at point *x*", and v_t is the evaluation of *Bx* at time *t*.

[13] Where θ_t is an interval around *t*, such that if $t' \in \theta_t$, *Bx* at *t'* is reproduced at *t*.

Σ_t is the spread of all the (spatial) points occupied by *b* at time *t*. With $\theta_t = t$, Σ_t becomes degenerate and the Hegelean state description of motion reduces to the Russellean one.

For non-degenerate cases the state description of motion becomes inconsistent: "to be in motion is to occupy more than one place (in fact a continuum of places) at the same time, and hence to be and not to be in some places".

According to Priest, the SH solves his two initial objections to the orthodox account (§2.2.1):

1. There *is* an intrinsic state of motion (or change in general): a state with an inconsistent state description.
2. Since at time *t* an arrow in motion occupies all points in Σ_t (which, given that *f(t)* is continuous, is an interval), it advances during a single instant, and by extension over time.

Furthermore, Priest argues that the presented account "coheres with the canonical representation of motion" and "is compatible with our scientific understanding". In order to achieve this, Priest has to put two restrictions on the interval θ_t:

- Even a state of rest could be inconsistent if the body is at rest at time *t*, but θ_t extends beyond the period of constant position. Hence θ_t is taken to be "very small (maybe in the order of Planck's constant?)".
- Allowing θ_t to extend into the future opens the door to backward causation: the state description at *t* would depend on values of *f* at times after *t* (e.g., $f\left(t + \frac{\theta_t}{2}\right)$). In order to avoid backward causation, Priest takes θ_t to be entirely prior (and hence asymmetrical) to *t*.

Priest attempts to give physical meaning to the spread Σ_t and speculates that "quantum mechanical indeterminacies are fundamentally the result of inconsistencies in motion". Applying the SH to Heisenberg's uncertainty principle: $\sigma_x \sigma_p \geq \frac{\overline{h}}{2}$, we get: $\sigma_{\sum_t}\ \sigma_{\prod_t}\ \geq \frac{\overline{h}}{2}$. More generally Priest stresses the ontological impossibility to pin down states of affairs over small neighborhoods of time.

2.3. Time[14]

The SH is generalized as follows:

> A physical magnitude cannot be localized to its value at an instant of time, but only to those values it has at a small neighborhood of that time.

Priest now considers time itself as the physical magnitude in question: at a time *t* it is every time around that time (more formally: $\forall t' \in \theta_t : Tt' is\ true\ at\ t$)[15], and offers an explanation for time's flow, its direction and its duration:

[14] Priest, 1992, and Priest, 2010, pp. 213-220.

- The flow of time: Priest considers the extant proposed solutions that deal with the flow of time as implausible (e.g., the "orthodox" denial of the objective reality of the flow of time (regarding it as illusory or psychological), or the postulation of (higher order) hyper-times with respect to which time would flow). According to the Hegelean account of change, and applying the SH, "there is only one time, and that, being in a constantly inconsistent state, is in a state of flux".
- The direction of time: According to Priest the anisotropy of time results from the skew of its interval of non-localization around *t* towards the past:

- The duration of time: Priest holds that the phenomenology of time implies that the present cannot be a durationless point, as "we experience a present extended through a certain period of time". If time satisfies the SH, however, "there is […] some past occurring at the present", and the "extended present" can be accounted for.

Priest concedes that according to the presented account, a sorites argument would result in it being all past times now,[16] which is unacceptable. The above account therefore needs to be amended. He proposes the following four options:

1. The SH is not applicable to time itself; the flow of time can no longer be accounted for (the direction of time and the duration of the present can still be explained in terms of the skew of the intervals of non-localization of physical states of affairs).
2. Assume that θ_t is infinitesimal; the explanations of the flow and direction of time remain valid, the extended present becomes infinitesimal.
3. Stop the sorites by imposing a distinction between *t* as the index of the (inconsistent) state description (S_t), and *t* in 'the time is *t*' (*Tt*):

$$S_t = \{Tt: r = v_t\} \cup \{\neg Tt: r \neq v_t\}$$

   All presented explanations remain valid in this case. This distinction however implies a realist view of tense, and a commitment on the A-series/B-series issue. Priest speculates that "the sentences in the state description [could] give the (inconsistent) B-series description of time; whereas the index of the state description marks the point representing the present, dividing the temporal continuum into past and future".
4. Assume the predicate '$x \in \theta_t$' is vague (e.g., if θ_t is a fuzzy set); the sorites would then fade out after sufficient iterations. All presented explanations would remain valid, and neutrality on the reality of tense would be retained.

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[15] Where *Tx* represents 'the time is *x*'.

[16] If θ_t is for example 1 minute, at 12:00 it would be every time between 11:59 and 12:00, but at 11:59 it would be every time between 11:59 and 11:58, … Hence at 12:00 it is every time before 12:00.

3. Critique

3.1. Objectives and Assumptions

The following critique focuses exclusively on the plausibility arguments (and underlying assumptions) presented by Priest in favor of the existence of real-world dialetheias. Based on the Priest's argumentation, the LCC and the SH are interpreted as ontological hypotheses (even though Priests explicit claim is merely to attempt to make empirical dialetheias plausible).[17]

An important challenge in engaging in a persuasion-type dialogue with a dialetheist is finding common ground.[18] As Priest presents plausibility arguments, which aim to be rationally convincing, we need a definition of what qualifies as "plausible" and "rationally convincing". I will use the following criteria (although a dialetheist might challenge their aptness) as a gauge to evaluate the plausibility of Priest's arguments and assumptions:

- Internal consistency;
- Consistency with empirical data;
- Ontological parsimony.

3.2. Critique of the Leibniz Continuity Condition

Based on the LCC, Priest concludes that change from a state where α holds to a state where β holds can produce a nexus state where $\alpha \wedge \beta$ holds:

$$\begin{cases} s_{t<t_0} = \alpha \\ s_{t=t_0} = \alpha \wedge \beta \\ s_{t>t_0} = \beta \end{cases}$$

How should we interpret this nexus state?
If we take the state at t_0 to be represented by the logical conjunction of α and β, both α and β are true at t_0. With $\beta = \neg\alpha$ we seem indeed to have an inconsistent state description at the moment of change t_0. This, however, is merely a semantic dialetheia, not an ontological contradiction.[19] In order for an actual ontological inconsistency to occur at t_0, the conjunction $\alpha \wedge \beta$ must be conceived as the existence of a single, distinct and indivisible state **$(\alpha \wedge \beta)$**,[20] in which the separate states α and β are fused into one. If at t_0 we have indeed such a singular (and

[17] Cf. appendix A.

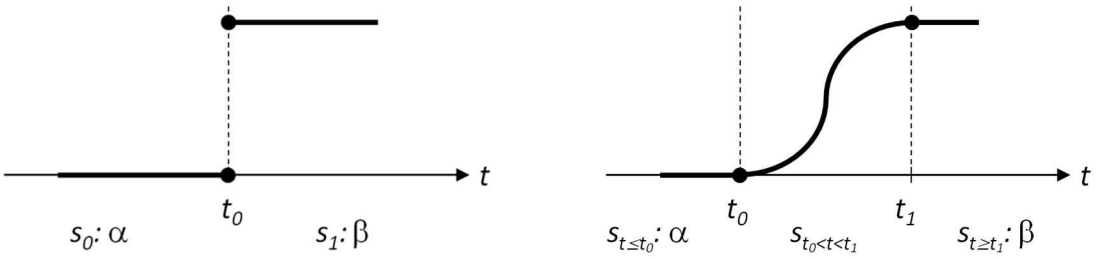
[18] Lewis (in Priest, G., Beall, J., Armour-Garb, B. (eds.), 2011, p. 176.), for example, refuses the debate on the ground that "the principles *not* in dispute are so very much less certain than non-contradiction itself".

[19] The question whether this is an empirical dialetheia is discussed in appendix A.

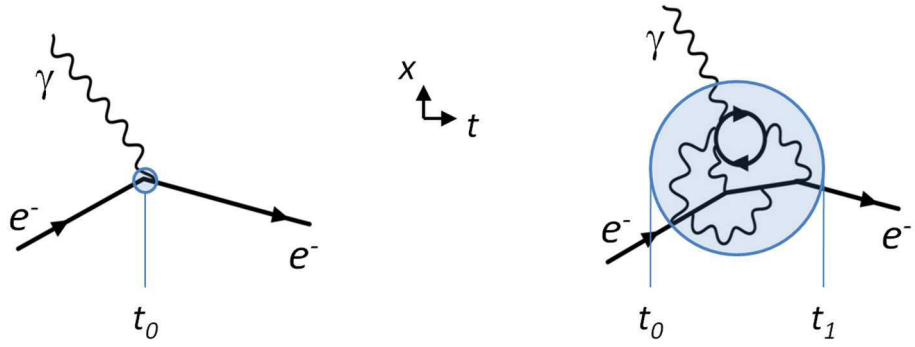
[20] An "ontological" conjunction, so to speak.

possibly inconsistent) state, it is a unique and intrinsically different state from both α and β. Consequently the LCC, which was the initial hypothesis, is violated:[21] what goes on arbitrarily close to a certain time *isn't* going on at that time too. In other words: the LCC is ontologically inconsistent.

Instead of the dialetheic change (left figure), a more natural way to represent change would be (right figure):



The state between t_0 and t_1 ($s_{t_0<t<t_1}$) is a dynamic transition state, which is consistent, continuous and not instantaneous. The following figure (a Feynman diagram of the interaction between an electron (e^-) and a photon (γ)) illustrates the difference between the dialetheic account of change (left figure) and a more "naturalistic" one (right figure):



A dialetheic change requires us to conceive of the time between t_0 and t_1 as an instant. The complex, dynamic transition is subsequently conceptualized as a single state. This is precisely what causes the inconsistency at t_0 – the so called intrinsic state of change.

In the "naturalistic" account, the time between t_0 and t_1 can also be arbitrarily reduced (to the Planck scale and even below – there is no reason to assume that ontological inconsistencies would suddenly arise). We do not, however, have an intrinsic state of change.

It can be argued that any intrinsic state of change is *in fine* the result of some degree of conceptualization or abstraction of nature.[22] Priest uses the example of a symmetrical change as

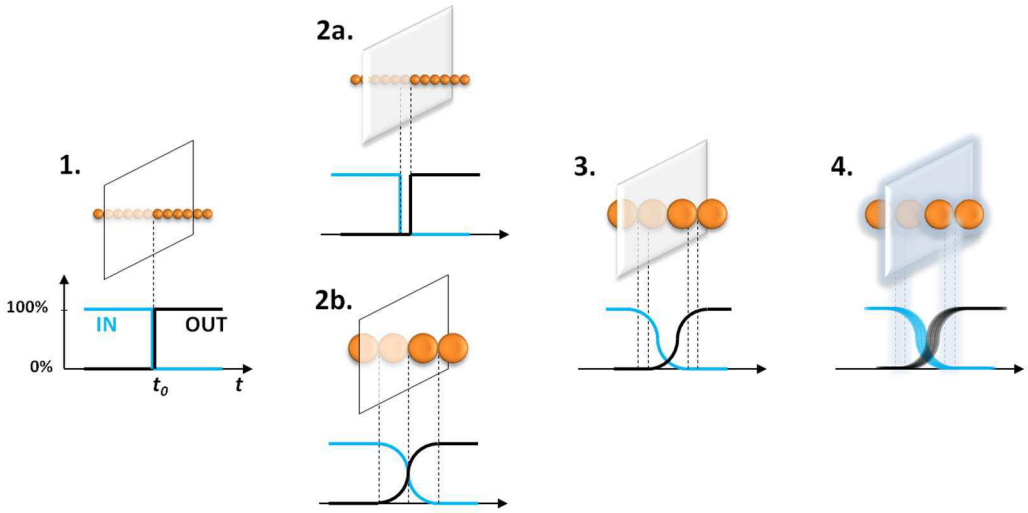
[21] As is Leibniz's claim that "nature never makes leaps" (*New Essays on Human Understanding*, 56).

[22] In fact, Priest acknowledges this in the context of self-reference: "[…] the very acts of conceptualization produce the closures which give paradox." (Priest, 2010, p. 47), and set theory: "Mathematical realism is a form of mystification" (by which he means reification, Priest, 2010, p. 151).

an argument for the existence of inconsistent states. The specific example he presents is the following:[23]

> I am in a room. As I walk through the door, am I in the room or out of (not in) it? To emphasize that this is not a problem of vagueness, suppose we identify my position with that of my centre of gravity, and the door with the vertical plane passing through its centre of gravity.

It is clear that with these abstractions, there will be an instant at which the person's centre of gravity crosses the plane of the door. And with the assumption of the LCC and Priest's other assumptions[24], at that instant it will be both in and out of the room. Priest argues that these abstractions are necessary to show that the inconsistent state is not the result of vagueness. But it is, on the contrary, precisely those abstractions that create the inconsistency. Systematically removing them eliminates the contradiction. This is illustrated in the following figures:



Priest's dialetheic change is represented in figure 1 on the left. In figure 2a the abstraction of a two-dimensional door is removed. This creates a truth value gap when the moving body's centre of gravity is "in the door". Alternatively (in figure 2b), we can give the moving object back its physical dimensions, which results in a continuous change. Removing both abstractions adds up to a continuous change with truth value gap (figure 3). Finally, after accounting for the inherent uncertainty introduced by measurement (figure 4), the intrinsic state of change disappears entirely.

Priest, in addition, assumes a symmetrical change. In this example perfect symmetry would imply that an identical room[25] exists on both sides of the plane of the door. In that case "in" and "out" would lose their meaning and become indiscernible, and the contradiction would disappear. In any real-world situation, however, the symmetry would at some point be broken, which means type A and B changes cannot be excluded.

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[23] Cf. e.g., Priest, 2010, p. 161 and Priest, 1985.

[24] Cf. §2.1 for why Priest retains only the dialetheic type D change.

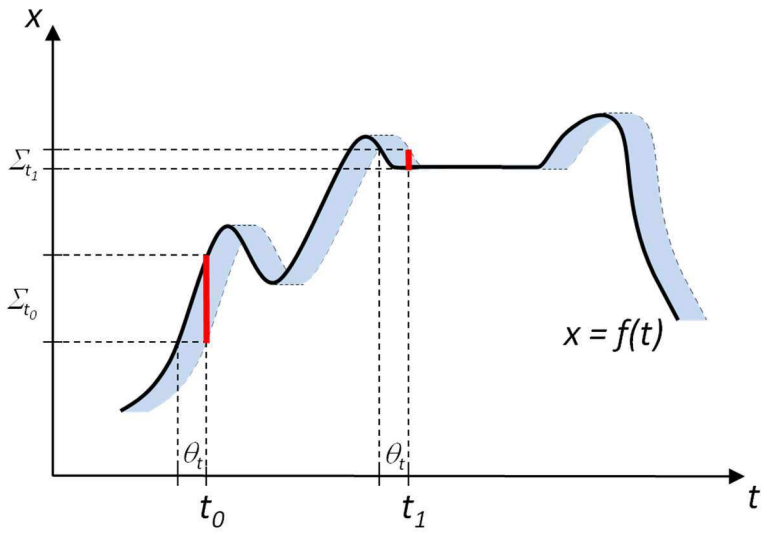
[25] And universe for that matter.

The key point is that conceptualization is at the core of Priest's "contradictions in the world".[26] It is abstraction that narrows down the change to a single instant, a discrete temporal change, which, when subjected to the LCC, results in the intrinsic (inconsistent) state of change. But since the resulting inconsistencies are related to fictional objects (dimensionless centre of gravity, two-dimensional plane, ..), concluding that a real-world contradiction is realized – be it empirical or ontological – would be a form of reification. The dialetheia related to the moment of change is therefore not convincingly supported by a real-world example, let alone empirical data, and thus remains confined to the abstract realm.

3.3. Critique of the Spread Hypothesis

Priest's metaphysics of change, and in particular his Hegelean account of motion, has been subject to various criticisms.[27] I will focus specifically on problems that arise with the ontological interpretation of the SH, which lies at the heart of Priest's account of motion.

The black line in the graph below illustrates the trajectory of a (point-like) body with equation of motion *x = f(t)*. Under the assumption of the SH, and with *t* at the leading edge of θ_t,[28] the shaded area represents the evolution of the spread Σ_t over time.[29]



An obvious problem is that, while Priest gives no clear definition for θ_t:[30]

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[26] A similar remark can be made regarding Mortensen, 1997.

[27] Cf. e.g., Tooley, 1988, Peña, 1996, Shapiro, 2002 and Mortensen, 2012.

[28] Cf. §2.3.

[29] Cf. Priest, 1985, p. 344 (with some minor changes and corrections) – not reflecting the "spatial sorites" presented below.

[30] Priest, 2010, p. 178.

- "θ_t […] may depend not only on *t* but also on *f*";
- "It is quite plausible to suppose that its [θ_t's] length depends on the velocity […]";

there are several *ad hoc* restrictions that need to be imposed on it in order for his account of motion and time to work: [31]

- θ_t cannot be degenerate (or Priest's account would reduce to the classical one);
- θ_t has to be very small "maybe in the order of the Planck's constant?";
- θ_t has to precede *t* (in order to avoid backward causation, but this still doesn't solve the problem of a possible inconsistent rest state, e.g., at t_1 in the graph above; cf. also infra);
- θ_t might need to be vague or infinitesimal (as possible ways to escape the sorites argument when applying the SH to time);[32]
- θ_t has no spatial equivalent ("there is no analogue of the spread principle for space")[33].

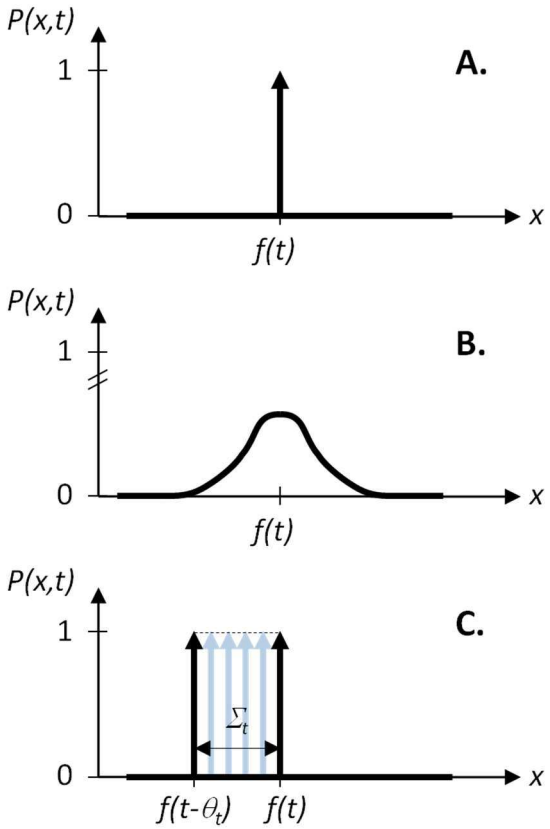
A second problem is the physical interpretation of the spread Σ_t. In order for an inconsistent state of affairs to exist, and in line with the definition of Priest's Hegelean state description of motion, a body – e.g., a particle – both is and is not at every position in the interval Σ_t:

$$\forall r \in \Sigma_t: 1 \in v_t(B\underline{r} \wedge \neg B\underline{r})$$

Let us compare the probability density functions for the position this particle at a time *t* for the classical, quantum mechanical and Hegelean accounts (cf. figures A, B and C on the right respectively)[34]. For both the classical and quantum mechanical cases the integral over space:

$$\int_{-\infty}^{+\infty} P(x,t)dx$$

is normalized and equals 1: there is a probability of exactly 1 that the particle is somewhere in the universe at time *t*. In the Hegelean case, however, since the particle



[31] Priest, 2010, pp. 178-179 and 214-220.

[32] Cf. §2.3.

[33] Cf. Priest, 2010, p. 216. In essence, this violates special relativity and the world-postulate. Cf. also Mortensen, 2012.

[34] Where the upward arrows represent the Dirac δ function.

has a probability of 1 to be at *every* $x \in \Sigma_t$, [35] this integral is divergent.[36] In addition, Priest's standard account of the SH doesn't reflect the probabilistic nature of reality. The classical case is simply duplicated over Σ_t.[37]

A related question now immediately ensues: if at time *t*, a particle with rest mass m_0, is in motion and hence occupies all positions in Σ_t, what is its mass (or energy) at that time? The choice would seem to be between either zero – the particle's mass m_0 being somehow distributed over all positions in Σ_t, or infinity – the particle having mass m_0 at every position it occupies in Σ_t.[38] Neither of these options is acceptable. Alternatively we would need to sever the link between a particle's existence (matter) and it having a mass, which is contrary to current scientific understanding.

It should be noted that there is a vague analogy with special relativity, where according to relativistic dynamics mass increases with velocity:[39]

$$m = \frac{m_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$

The SH would however, if at all possible, need additional and substantial (*ad hoc*) fine-tuning to make it compatible with special relativity, and even then the question would remain whether the SH has actually brought something new in terms of explanatory power.

Finally, and although Priest recognizes and proposes solutions for a sorites argument that arises when the SH is applied to time, a similar, but distinct problem for space is not properly addressed:

- SH: "A body cannot be localized to a point it is occupying at an instant of time, but only to those points it occupies in a small neighborhood of that time.",
- Hence, at time *t* a body occupies all points it occupied in the interval [*t*, *t*-θ_t],
- But at time *t*-θ_t, the body occupied all points it occupied in the interval [*t*-θ_t, *t*-2θ_t],
- But at time *t*-2θ_t, the body occupied all points it occupied in the interval [*t*-2θ_t, *t*-3θ_t], …
- Consequently, at time *t* the body occupies all points it occupied in its past.[40]

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[35] Cf. Priest, 1985, p. 341: "At a certain instant, *t*, [a body] occupies a point in space, x, and […] the body is equally at the place it occupies at *t'*, *x'* ($\neq x$)."

[36] Unless of course Σ_t is zero (which is not relevant here, as it represents either the classical case or a rest state), or infinitesimal (which would still pose problems in case we consider actual physical objects and not idealized point-particles, e.g., divergence of the density).

[37] Cf. also Peña, 1996.

[38] Cf. also McKie, 1992.

[39] Priest indeed suggests that $\theta_t = f(v)$, but doesn't elaborate on what exactly *f(v)* could/should be. Cf. supra and Priest, 2010, p. 178.

[40] Which highlights additional implicit abstractions that were made: the identity over time of "a body" and the definition of objects *tout court*.

Even disregarding this argument, there is always the possibility of an inconsistent rest state (cf. supra), which is a superposition of an intrinsic (consistent) state of rest, and an intrinsic (inconsistent) state of change. Since the superposition is fundamentally inconsistent, the rest-state is not a rest-state, and the SH is internally inconsistent. Priest's reply to this: "[…] since θ_t is very small […] this unstable state of affairs can never last for very long"[41], is not very reassuring, and in any case the "spatial" sorites argument above requires a more rigorous fix. As with the "temporal" sorites, it can perhaps be addressed by appropriate *ad hoc* assumptions (e.g., take θ_t to be infinitesimal or vague), but it does seriously undermine the actual intrinsicness of the Hegelean state of motion.

[41] Priest, 2010, p.179.

4. Conclusion

Priest's metaphysics of change aimed at making empirical dialetheias plausible. In associating a state of change with an inconsistent – dialetheic – state of affairs, Priest does indeed define an intrinsic state of change. However, his arguments are not rationally convincing,[42] and the key hypotheses on which his metaphysics of change are based – the Leibniz Continuity Condition and the Spread Hypothesis – show some salient weaknesses:

- As the inconsistent state is ontologically different from the consistent states before and after the change, the LCC fails its own test, and is (ontologically) inconsistent.
- The inconsistent state generated by the LCC is a direct consequence of conceptualization. Concepts are of course part of the world, but at the most fundamental level their illusory universality disappears, as they are ultimately instantiated and revealed as a particular.[43]
- The SH – in its current form – relies heavily on *ad hoc* assumptions (i.p. regarding the choice of θ_t) and several immediate consequences are empirically not substantiated nor are they compatible with current scientific understanding.
- Priest's metaphysics of change relies in essence on *ad hoc* duplication and superposition of (conceptualized) states of affairs and cannot be considered ontologically parsimonious: entia non sunt multiplicanda praeter necessitatem...

The overall balance – I think – is therefore not in favor of ontological dialetheism.

This being said, Priest's defense of dialetheism in the context of logic, mathematics and semantics is laudable. The way humans perceive and think about the world is inherently conceptual and contradictions are sure to arise:[44]

> Priest's motivation for advancing his dialetheism is a good and important one, namely the recognition that humans do in fact reason from inconsistent representations of the world […].

But it does not follow that the world itself is inconsistent:[45]

> By all means accept talk involving contradiction-affirming concepts of truth and set, but don't see this talk as somehow part of a descriptively adequate account of the world. It isn't; it is only to be accepted as part of a fiction. Such a fiction has its roots in the appreciation that such concepts are profoundly useful, yet in places deeply flawed: the fault is in the concepts, not the world. Seeing matters this way takes away the temptation even to contemplate the possibility that the world itself might be deeply inconsistent. It offers us a way of reconciling reasonable forms of dialetheism and realism with total respect for the Law of Non-Contradiction.

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[42] E.g., whether Priest's account of motion conclusively solves Zeno's paradox of the arrow remains to be shown: as long as the fundamental connection between subsequent instances isn't clarified a "cinematic account of instances" looms.

[43] E.g., in a specific and unique cognitive state.

[44] Smith, 1991.

[45] Kroon in Priest, G., Beall, J., Armour-Garb, B. (eds.), 2011, p. 262.

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Appendix A: Interpretation of "Empirical Dialetheism"

In *Metaphysics IV* Aristotle expresses the principle of non-contradiction (PNC) both as a law of reality and as a law of thought[46]. Łukasiewicz identifies three distinct versions of the principle in Aristotle, and formulates them as follows: [47]

- Ontological: "To no object can the same characteristic belong and not belong at the same time";
- Logical: "Two conflicting (contradictory) propositions cannot be true at the same time";
- Psychological: "Two acts of believing which correspond to two contradictory propositions cannot obtain in the same consciousness".

Since Łukasiewicz the ontological version is widely recognized as being distinct from the others.

In *In Contradiction* Priest distinguishes between logical dialetheias (confined to set theory and semantics) and empirical dialetheias (contradictions "in the world").[48] How does this categorization compare to the Aristotelian/Łukasiewiczian one?

Priest's prime motivation for dialetheism is addressing the logical paradoxes, and it is clear from part 1 of *In Contradiction* that the logical dialetheias match up with the logical PNC.

Pragmatics, for Priest, is "the theory of the application of logic, and in particular its relation to the notions of assertion, belief and rationality".[49] As he asserts that "contradictions can be believed",[50] it seems that Priest's pragmatics correspond to the psychological PNC.

Given the above, it is now tempting to associate empirical dialetheias with the ontological PNC. Even though Priest concedes that "for the present, […] there is good reason to suppose that the perceivable world is consistent",[51] this certainly does not commit him to ontological consistency, as he rejects simple empiricism. Mares[52] takes Priest to be a metaphysical dialetheist. Priest, however, stresses that he remains neutral on the key issues and does not commit to

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[46] Pasquale, 2006.

[47] Łukasiewicz, 1910.

[48] Priest, 2010, p. 159.

[49] Priest, 2010, p. 94. In making the connection between logic and belief, Priest seems more in line with Aristotle (and his law of thought), than with Łukasiewicz, for whom there is no link between opinions and propositions. Of course Aristotle would have accepted neither logical nor psychological dialetheias, whereas Łukasiewicz would certainly have been more open to entertain them – the latter in particular.

[50] Priest, 2010, p. 96-99. E.g., Priest believes "that the Russell set is both a member of itself and not a member of itself". With respect to belief Priest defends a strict trichotomy: accept/reject/be agnostic – this can also be subject to criticism.

[51] Cf. Priest, 1999, and also Beall, 2000 and 2001.

[52] In Priest, G., Beall, J., Armour-Garb, B. (eds.), 2011, pp. 264-275. Mares endorses semantic dialetheism.

metaphysical dialetheism.[53] In the absence of an unambiguous definition, it is in fact quite possible for Priest to be and not to be a metaphysical dialetheist.

Even so, Priest's argumentation for (the plausibility of) the existence of contradictions "in the world" touches on topics that clearly (and by his own account) belong to the realm of metaphysics. And although Priest carefully avoids commitment to either to a correspondence theory of truth[54], metaphysical realism, or empiricism, it is hard not to interpret an argument for the existence of contradictory states of affairs in the world (cf. the LCC and the SH) as an argument for ontological dialetheias – even with some interpretational leeway.

Finally, it should be noted that the subject matter of contradictions is not the only basis for their categorization. Grim[55] highlights some additional elements:

> Where we might have expected a single univocal notion of contradiction we find an enormous range. We have at least four basic forms of approach—semantic, syntactic, pragmatic, and ontological—multiplied by (1) a distinction between implicit and explicit contradictions, multiplied by (2) contradictions as pairs or single statements, multiplied by (3) the number of distinctions between token sentences, types, statements, propositions, assertions, and claims, with that in turn multiplied by (4) the number of senses of negation. On the most conservative of estimates, that gives us some 240 senses of contradiction.[56]

This diversity complicates the debate on the PNC and dialetheism, and a lot of fundamental work still remains to be done in this area.

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[53] Priest, 2010, p. 302.

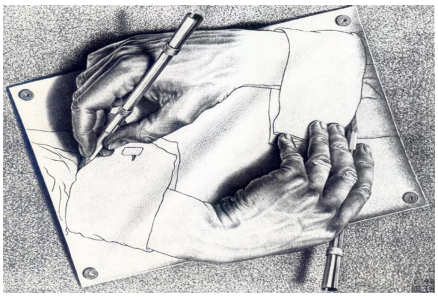
[54] Cf. Priest, 2000.

[55] In Priest, G., Beall, J., Armour-Garb, B. (eds.), 2011, pp. 49-72.

[56] To this list we might add the different senses of the conjunction. Cf. e.g., Varzi in Priest, G., Beall, J., Armour-Garb, B. (eds.), 2011, p. 93.

Dogtooth and the Plasticity of Meaning

Ken Shea


“A theory is committed to those and only those entities to which the bound variables of the theory must be capable of referring in order that the affirmations made in the theory be true.” -W.V. Quine

“The sentence ‘dreams fulfil desires’ may have been repeated throughout the centuries; it is not the same statement in Plato and in Freud.” -Michel Foucault

“A single balloon must stand for a lifetime of thinking about balloons.” -Donald Barthelme

There are 26 letters in the English alphabet and, contingent on the dialect, 44 phonemes with corresponding grapheme representational combinations. A phoneme is the smallest distinct unit of sound employed to distinguish one word from another; linguistically, a grapheme is analogous to a phoneme except that a grapheme is the smallest meaningful contrastive unit within a written system, e.g., English orthography, the scholastic term in linguistics for a writing system. In turn, linguistics would be the ontological hypernym that encompasses language variation, finding expression through but not limited to the following specializations: phonetics, phonology, morphology, pragmatics, dialectology, psycholinguistics, sociolinguistics, typology, syntax, and semantics. Within linguistics, syntax comprises the rules governing sentence structure, whereas semantics is the study of meaning within, *inter alia*, philosophy, linguistics, and computer science (cf. John Searle’s ‘Chinese Room’ argument). The three aforementioned fields and mathematics employ what are known as recursive or inductive definitions to effectively limit the elements of a set to other elements in the set. Another way of dealing with elements in a set is with intension and extension.

Logic, linguistics, and philosophy make use of intensional and extensional definitions to refine sets according to some provided stipulation. Semantically, an intensional definition provides the necessary *and* sufficient conditions for when the term should be employed, whereas an extensional definition will simply enumerate all referents satisfying the definition (e.g., all odd numbers in a given set). Therefore, providing an extensional definition for infinite sets is impossible (cf. halting problem in computer science), but an intensional definition for a set could be defined and thereby reined-in with a rule. An intensional definition can better deal with infinite sets because such a set can be more narrowly defined and thereby restricted. Intensional and extensional definitions need not be limited to mathematics or numbers, however. Using chess

as an example, the rules of chess could be intensionally defined, semantically, since the rules of chess are determinable and finite for any given game. A game strictly conforming to the specified rules is a game of chess, and any game of chess must have followed the specified rules to justifiably be called a game of chess. Linguistically, Gottlob Frege is essentially referring to intensional meaning and empirical reference with sense and reference in the paper “On Sense and Reference,” yet Rudolf Carnap is widely credited with coining the terms *intension* and *extension*. The back cover of the consulted copy of *Meaning and Necessity: A Study in Semantics and Modal Logic* reads that Carnap “proposes a new approach which he calls the method of extension and intension. The meaning of any expression is analyzed into two meaning components: the intension, which is apprehended by the understanding of the expression, and the extension, which is determined by empirical investigation.” Carnap’s good friend Willard Van Orman Quine appeared to prefer the more straightforward terms *meaning* and *reference* for intensional and extensional definitions. In any event, logically, the *comprehension* of a given object encompasses the totality of the object’s intensions; when intensions are discussed in metaphysics, semantics, or the philosophy of language, one may encounter the Latin phrases *de dicto* (“about what is said”) and *de re* (“about the thing”) to refer to the definiens and definiendum.

The Random House Dictionary defines a recursive definition in logic as “a definition consisting of a set of rules such that by repeated application of the rules the meaning of the definiendum is uniquely determined in terms of ideas that are already familiar,” and that same source defines a mathematical recursion as “a formula for determining the the next form of a sequence from one or more of the preceding terms.” Mathematically, syntactically-correct propositions in a formal system can be exploited to compose a set. There will invariably be a larger set of propositions in a particular formal system, e.g., representing all natural numbers. These syntactically-correct propositions should be provable or disprovable within the formal system, and consequently proofs will be possible. An extracted set of syntactically-correct propositions is said to be recursively enumerable if in fact the propositions can be deemed provable or disprovable. Examples of recursively enumerable sets are primes, squares, cubes, even numbers and odd numbers. In the case of a recursively enumerable set of even numbers, the odd numbers would be the set’s complement, i.e., numbers outside of the specified set that are themselves recursively enumerable (as a set) by virtue of being propositions in the larger set of the self-same system of all natural numbers.

(Mathematically, a sequence of natural numbers may be conceived as representing a string of symbols in a formal system. In the philosophy of mathematics, formalists maintain that mathematics is actually the game-like manipulation of strings operating under manipulation rules, rather than propositions in an abstract system. In this way, many formalists contend that mathematics is closer to chess than, say, the ontology of language. To bridge different schools and temporal discontinuities, consider that “the three main mediaeval points of view regarding universals are designated by historians as *realism*, *conceptualism*, and *nominalism*. Essentially these same three doctrines reappear in twentieth-century surveys of the philosophy of mathematics under the new names *logicism*, *intuitionism*, and *formalism*” (Quine, “On What There Is”), thereby shoring up more support for A.N. Whitehead’s finding that European philosophy consists of a series of footnotes to Plato.)

Recursion may explain, linguistically, the ability of a language to produce infinite uses and eventually meanings from elements in the set of a language's letters and words. Grammar functions as the set of rules enabling and limiting standards of usage in a language, whereas syntax is the study of sentences and their structure. Within generative grammar (the term itself arguably implies an infinity arising from a finite source), formatives are the minimal syntactically-functioning units used to form larger constructions; formatives are thought to be morphosyntactic units coupling inflections and forms. Linguist Noam Chomsky outlines a conception of generative grammar in *Aspects of the Theory of Syntax*, though he considers himself indebted to Wilhelm von Humdoldt, particularly Humboldt's contributions to philology and linguistics in "The Heterogeneity of Language and Its Influence." Humboldt's view was that language "makes infinite use of finite means" (cf. Sapir-Whorf hypothesis), a process which may be facilitated through a given language's restriction to, e.g., a finite alphabet, the use of formatives, and recursive definitions like grammatical rules. Such "finite means" may explain the creativity of language insofar as the amorphous infinity of human thoughts and encountered situations can find form through established rules: "A fully adequate grammar must assign to each of an infinite range of sentences a structural description indicating how this sentence is understood" (Chomsky, *Aspects of the Theory of Syntax*, pages 4-5). Languages would ultimately be unlearnable - not inherently *unusable* in restricted applications, but brooking far less creativity - if there were boundless or perpetual seismic shifts occurring on the foundational level of a language's enabling and limiting rules of usage, ringed by syntax.

Crucially, syntax and semantics are distinguishable endeavors, though "theories of syntax and semantics are highly fragmentary and tentative" and "involve open questions of a fundamental nature." Consider the famous 'deviant' example provided by Noam Chomsky of a string that violates selectional rules: "Colorless green ideas sleep furiously." This example boasts a correct grammar, but the resulting sentence is devoid of a common meaning derivable by a sober mind (cf. W.V. Quine's notion of stimulus-synonymy). Sentences like "colorless green ideas sleep furiously," "the boy may frighten sincerity," "misery loves company," and "they perform their leisure with diligence" can potentially be interpreted allusively if imported into or contrasted with a novel context of greater or less complexity. "That is, these sentences are apparently interpreted by a direct analogy to well-formed sentences that observe the selectional rules in question," and thereby overcome category mistakes or other kinds of semantic shortcomings (ibid, pages 148-149). Chomsky later seeks refuge in 'field properties,' or a semantic field, which is a lexical set of words grouped according to meaning or a specific domain. These 'field properties' may "illustrate relations of meaning rather than relations of fact" which "cannot in any natural way be described within the framework of independent lexical entries" (ibid., pages 160-161). What is needed are semantic properties, and these are used to group words conveying hierarchically-linked meanings within a semantic field. The idea of a 'field property' may likewise have its roots in the pioneering work of Wilhelm von Humdoldt. In any event, other philosophers besides Wilhelm von Humboldt have specifically noted the possible gulf separating naming and meaning; Gottlob Frege observed that Evening Star and Morning Star have the same referent but are freighted with distinct meanings; likewise, Betrand Russell noted that 'Scott' and 'the author of *Waverley*' share a referent yet possibly differ in meaning. The cleavage of naming and meaning by Frege in this sense may have initiated the so-called linguistic turn in

philosophy, the closer examination of how words, the world, and wielders of words dynamically interact. The linguistic turn is conceptually analogous to the reformulations brought about by the Swiss semiotician Ferdinand de Saussure, who distinguished the linguistic sign from the material *signifier* of the sign and the conceptual *signified* of the meaning within semiology; the semiotic relationship sketched by Saussure is marked by the simultaneous movement of a dyadic relationship and *semiotic arbitrariness* and will be discussed in part two of this paper.

Syntax and semantics thereby being distinguishable, the majority of what follows in this paper will concern the ways in which syntax and semantics are in fact distinguished and how each functions to inform ontology, particularly subjective ontology, and ultimately epistemology, or the commonly-accepted parts of reality. A few points to keep in mind are that thought and phenomenal awareness are feasible without language (simply look at other animals), but in some ways they form the deeper foundation of language (cf. Gerald Edelman's primary consciousness and secondary consciousness, both steeped in evolutionary morphology and neuronal group interaction via developmental selection, experiential selection, and reentry). The biologist Gerald Edelman conjectured that primary consciousness began on planet Earth approximately 300 million years ago; in other words, most of the evolutionary history of sentient beings has occurred without recourse to language. The pivotal consideration for the notion of 'truth' throughout evolution was not its fidelity to a particular speech pattern, e.g., an isomorphic language, but its causal impact on behavior: "Natural selection does not care whether a brain has or tends toward true beliefs, so long as the organism reliably exhibits reproductively advantageous behavior. Plainly, there is going to be *some* connection between the faithfulness of the brain's world model and the propriety of the organism's behavior. But just as plainly, the connection is not going to be direct" (Churchland, "The Ontological Status of Observables," *A Neurocomputational Perspective: The Nature of Mind and the Structure of Science*, page 150). Richard Rorty resonated similar sentiments: "to see the employment of words as the use of tools to deal with the environment, is to repudiate the question of whether human minds are in touch with reality. No organism, human or non-human, is ever more or less in touch with reality than any organism" since "the very idea of 'being out of touch with reality' presupposes the un-Darwinian, Cartesian picture of a mind which somehow swings free of causal forces exerted on the body" (Rorty, *Consequences of Pragmatism*, page XXIII). John Locke's *tabula rasa* view is similarly incoherent seen through the Darwinian prism.

Determining true and false belief, many philosophers, including Bertrand Russell, believe is possible without recourse to drawn-out semantics. A true conclusion, the thinking goes, could be arrived upon without actual understanding all the way through: "In mathematics, we start from rather simple sentences which we believe ourselves capable of understanding, and proceed, by rules of inference which we also believe ourselves to understand, to build up more and more complicated symbol statements, which, if our initial assumptions are true, must be true whatever they may mean. As a rule it is unnecessary to know what they 'mean', if their 'meaning' is taken to be a thought which might occur in the mind of a superhuman mathematical genius. But there is another kind of 'meaning', which gives occasion for pragmatism and instrumentalism," ("The Uses of Language," *The Basic Writings of Bertrand Russell*, page 106) which will be discussed below in the context of, e.g., Charles Sanders Peirce, William James, John Dewey, and scientific realism. What might be interesting to point out now is that Bertrand

Russell establishes rules of inference and symbol statements providing the guideposts in the absence of singular understanding, whereas the philosopher of science Thomas Kuhn equally convincingly makes the obverse case: “Indeed, the existence of a paradigm [roughly analogous to an understanding] need not even imply that any full set of rules exists.”

Kuhn’s views are similar to those of Michael Polanyi, who argued that scientific fields are frequently plowed and cultivated with a so-called *tacit knowledge* - Kuhn describes this as “knowledge that is acquired through practice and that cannot be articulated explicitly” (Kuhn, *The Structure of Scientific Revolutions*, page 44). In the same chapter within *The Structure of Scientific Revolutions*, viz., “The Priority of Paradigms,” Kuhn made the case for Wittgensteinian rule-allergic family resemblances, à la *Philosophical Investigations*, furnishing a framework for thinking about the accrual of scientific knowledge (see pages 44-46 of *The Structure of Scientific Revolutions*): “They [research problems and techniques] may relate to resemblances and by modeling to one or another part of the scientific corpus which the community in question already recognizes as among its established achievements” (cf. supervenient bridge laws). The etiology or provenance of the paradigms may only be dimly comprehended by scientists, singly or communally; the upshot is promoting science without pausing to consider the ecological impact of scientific discoveries or needing ‘a full set of rules’ prior to proceeding apace. Whether beneficial or detrimental societally, that procedure does promote fast results: “That scientists do not usually ask or debate what makes a particular problem or solution legitimate tempts us to support that, at least intuitively, they know the answer. But it may only indicate that neither the question nor the answer is felt to be relevant to their research” (ibid, page 46).

At any rate, how might syntax, semantics, propositions, and logic congeal in terms of philosophy? Philosophy has traditionally treated epistemology as one of perhaps five distinct branches - the other four being metaphysics, logic, aesthetics, and ethics. Ontology is subsumed under metaphysics; ontology studies both what exists and the consequent taxonomies based on what is believed to exist at a particular time (cf. W.V. Quine’s ‘eternal sentences’). The Greek roots forming the compound word for ontology - viz., *onto-* and *-logia* - translate out as *being* and *logical discourse*. Metaphysics is purported to concern the fundamental nature of reality as such - Aristotle’s foundational *Metaphysics* indicates that metaphysics is both “the science of first principles and causes” and the study of “being *qua* being,” hence the *Metaphysics* seeks to differentiate, e.g., substance and quality. In a different time and place, the German philosopher Arthur Schopenhauer divined a darker rationale lurking beyond, or festering within, the “philosophical wonder,” “conditioned in the individual by higher development of intelligence,” and man’s thirsting after the heady elixir of metaphysics: “Undoubtedly it is the knowledge of death, and therewith the considerations of the suffering and misery of life, that give the strongest impulse to philosophical reflection and metaphysical explanations of the world. If our life were without end and free from pain, it would possibly not occur to anyone to ask why the world exists, and why it does so precisely this way, but everything would be taken purely as a matter of course” (Schopenhauer, “On Man’s Need for Metaphysics,” *The World as Will and Representation*, *Volume 2*, page 161), as other species on Earth appear to. The twentieth-century physicist Erwin Schröedinger, who read Schopenhauer and the Vedanta texts, penned a few concise metaphysical essays such as “The Oneness of Mind” and “The Mystic Vision,” which starts by saying, “For philosophy, the real difficulty lies in

the spatial and temporal multiplicity of observing and thinking individuals. If all events took place in *one* consciousness, the whole situation would be extremely simple. There would then be something given, a simple datum, and this, however otherwise constituted, could scarcely present us with a difficulty of such magnitude as the one we do, in fact, have on our hands. I do not think that this difficulty can be logically resolved, by consistent thought, within our intellects. But it is quite easy to express the solution in words, thus: the plurality that we perceive is only an appearance; it is not real." A moment later in "The Mystic Vision" Schröedinger muses:

> "What is it that has called you so suddenly out of nothingness to enjoy for a brief while a spectacle which remains quite indifferent to you? The conditions for your existence are almost as old as the rocks. For thousands of years men have striven and suffered and begotten and women have brought forth in pain. A hundred years ago, perhaps, another man sat on this spot, like you; he gazed with awe and yearning in his heart at the dying light of the glaciers. Like you, he was begotten of man and born of woman. He felt pain and brief joy as you do. *Was* he someone else? Was it not yourself? What is this Self of yours? What was the necessary condition for making the thing conceived this time into *you*, just *you*, and not someone else? What clearly intelligible *scientific* meaning can this "someone else" really have? If she who is not your mother had cohabitated with someone else and had a son by him, and your father had done likewise, would *you* have come to be? Or were you living in them, and in your father's father, thousands of years ago? And even if this is so, why are you not your brother, why is your brother not you, why are not one of your distant cousins? What justifies you in obstinately discovering this difference - the difference between you and someone else - when objectively what is there is *the same*?"
>
> "To Western ideology, the thought has remained a stranger, in spite of Schopenhauer and others who stood for it and in spite of those true lovers who, as they look into each other's eyes, become aware that their thought and their joy are *numerically* one, not merely similar or identical - but they, as a rule, are emotionally too busy to indulge in clear thinking, in which respect they very much resemble the mystic" (Schrödinger, "The I That Is God").

Undeterred, the British philosopher Peter Frederick Strawson said that the pursuit of descriptive metaphysics should earnestly strive to demonstrate "how the fundamental categories of our thought hang together, and how they relate, in turn, to those formal notions (such as existence, identity, and unity) which range through all categories." Within *Individuals* Strawson reaches into the toolbox of philosophy of language and critical philosophy to analyze reality, therein taken to mean a tableau of individuating facts arising from particulars and set against a spatio-temporal framework of relations, via descriptive metaphysics (e.g., Kant and Aristotle are treated as exemplars of this style), as opposed to revisionary metaphysics (e.g., Descartes, Leibniz, and Berkeley); David Hume, the reader is rightly told, is 'the ironist of philosophy' and therefore 'more difficult to place'; the point of descriptive metaphysics is to capture 'the actual structure of our thought about the world,' whereas so-called revisionary metaphysics hankers for 'a better structure'; the 'scope and generality' of descriptive metaphysics distinguishes it from traditional 'philosophical, or logical, or conceptual analysis' (Strawson, *Individuals: An Essay in Descriptive Metaphysics*, page 9). These aspirations were granted a further linguistic turn by fellow Oxford philosopher Stuart Hampshire, who reckoned metaphysical enterprise and the philosophy of language should be harmonized when he concluded, "It is a necessity in the use of language that we should refer to persisting objects, employing some criteria of identity through change."

The reader may be thinking at this point that metaphysics implies an epistemology or way of seeing the world, a certain *weltanschauung* brought to bear in ideally elaborating one's metaphysics through a language which accounts for identity and change. The same Random House Dictionary consulted earlier defines metaphysics accordingly: "The branch of philosophy that treats of first principles, includes ontology and cosmology, and is always intimately connected with an epistemology." The cosmology aspect of this shop-worn definition could be likened to Strawson's revisionary metaphysics, particularly in the age of science, whereas Theodor Adorno would contend that metaphysics still has a place; Quine, true to the definition which Daniel Dennett bestowed on his former teacher, would spurn a first philosophy or talk of 'first principles' and consequently attempt to align philosophy and science on an opulent, shared ontological continuum of descriptive metaphysics; Bertrand Russell reckoned that philosophy "gives unity and system to the body of the sciences" and has utility in "the critical examination of the grounds of our convictions, prejudices and beliefs" in the concluding chapter of *The Problems of Philosophy* (ibid., page 90). The pragmatist William James despaired of even coming to grips with metaphysics as such ("No exact definition of the term 'metaphysics' is possible") before giving a very respectable, perhaps indirect, definition of metaphysics: "It means the discussion of various obscure, abstract, and universal questions which the sciences and life in general suggest but do not solve; questions left over, as it were; questions, all of them very broad and deep, and relating to the whole of things, or to the ultimate elements thereof. Instead of a definition let me cite a few examples." William James then gives an impressive list:

- "What are 'thoughts,' and what are 'things'? And how are they connected?"
- "What do we mean when we say 'truth'?"
- "Is there a common stuff out of which all facts are made?"
- "What is the most real kind of reality?"
- "What binds all things into one universe?"
- "Is unity or diversity more fundamental?"
- "How are mind and body joined? Do they act on each other?"
- "In knowledge, how does the object get into the mind? or the mind get at the object?"
- "We know by means of universal notions. Are these also real? Or are only particular things real?"
- "What is meant by a 'thing'"?
- "'Principles of reason,' are they inborn or derived?"

"Such are specimens of the kind of question termed metaphysical." "One may say that metaphysics inquires into the cause, the substance, the meaning, and the outcome of all things." (James, "The Problems of Metaphysics," *Some Problems of Philosophy*, page 997-998).

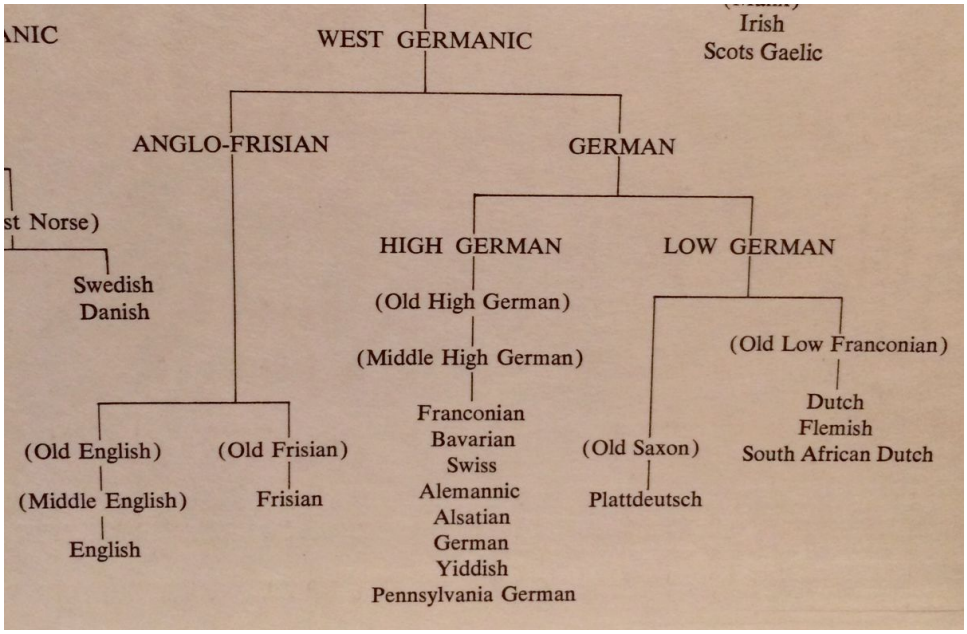
The word *epistemology* itself derives, etymologically, from the Greek words for knowledge and discourse, *episteme* and *logos*. Hermeneutical ontologist Martin Heidegger blended ontology and epistemology in a definition of metaphysics when he said, "In metaphysics reflection is accomplished concerning the essence of what is [ontology] and a decision takes places regarding the essence of truth [epistemology]." Heidegger made the intriguing point that metaphysical areas resist being isolated and thus examined: "Every metaphysical question always encompasses the whole range of metaphysical problems [e.g., cause, change, identity,

and time]. Each question is itself always the whole." Metaphysics, fondly regarded by Immanuel Kant in *The Critique of Pure Reason* as the 'queen of all the sciences,' could profitably be thought of, according to Theodor Adorno, as centered around concepts; thus, "one calls these materialists metaphysical materialists, because matter for them is the ultimate ground of being" (Adorno, *Metaphysics: Concept and Problem*, page 9). Adorno earlier clarified, "concepts in a strong sense, in which they are almost always given precedence over, and are assigned to a higher order of being (*Wesenhaftifkeit*) than, existing things (*das Seinende*) or the facts subsumed under them, and from which the concepts are derived"; since knowledge can arise from concepts, "the question of the nature of the concept has from the first been a metaphysical and an epistemological one," possibly deriving from Aristotle's *Metaphysics* (ibid, pages 4-5). Although Heraclitus, Parmenides, and particularly Plato predate Aristotle and have been considered instrumental in conjuring metaphysics, Theodor Adorno counts Aristotle's *Metaphysics* as the foundational text *par excellence* partly because "Plato's philosophy is a synthesis of Eleatism - especially Parmenides - and Heraclitus. From Parmenides he took the doctrine of being as the One, the absolutely indivisible and imperishable, and from Heraclitus the doctrine of the absolute transitoriness of appearance, which exists in a state of constant flux and, moreover, is deceptive and unreliable." Adorno regards Plato as only "metaphysician per se" in that "the world of the senses is described as that which is absolutely without being" (ibid., page 16), thereby in principle ruling out the possibility of rendering meaningful distinctions in this fleeting, woebegone, sublunary existence. Martin Heidegger comments: "This realm of the suprasensory has been considered since Plato, or more strictly speaking, since the late Greek and Christian interpretation of Platonic philosophy, to be the true and genuinely real world. In contrast to it the sensory world is only the world down here, the changeable, and therefore the merely apparent, unreal world. The world down here is the vale of tears in contrast to the mountain of everlasting bliss in the beyond" (Heidegger, "The Word of Nietzsche: God is Dead," *The Question Concerning Technology*, page 61).

The metaphysical debates, which nonetheless according to A.N. Whitehead may presumably owe their footnote-existence to Plato, revolving around realism, conceptualism, and nominalism and mirrored in the philosophy of mathematics as logicism, intuitionism, and formalism are at root debates about the role of concepts. Metaphysics, however, can be historically situated in a few different ways. For instance, positivists Auguste Comte and Saint-Simon, perhaps structurally channeling and/or materially subverting Georg Hegel, expounded a tripartite philosophy of history that moved ascendingly from the (1) theological phase, (2) the metaphysical phase, and culminated with the so-called (3) 'positive' phase, thereby placing these items on the same dialectical plane (ibid, pages 4-5). Writing on this dialectical schema, William James wrote that "Auguste Comte, the founder of a philosophy which he called 'positive,' said that human theory of any subject always took three forms in succession. In the theological stage of theorizing, phenomena are explained by spirits producing them; in the metaphysical stage, their essential feature is made into an abstract idea, and this is placed behind them as if it were an explanation; in the positive stage, phenomena are simply described as to their coexistence and successions. Their 'laws' are formulated, but no explanation of their natures or existence is sought after" (James, "Philosophy and Its Critics," *Some Problems of*

Philosophy, page 991); hence in this tripartite sense, the ‘positive’ scientific stage would arguably be synonymous with ‘postmetaphysical.’

Friedrich Nietzsche took a decidedly grim view of metaphysics within *Human, All Too Human* as he said that metaphysicians were from the *Hinterwelt* (the backworld) and hence metaphysicians were *Hinterweltler* (backworldsmen). As frequently happens in German - n.b., both German and English share the West Germanic hypernym on the overarching Indo-European language tree, but English takes a detour from West Germanic to Anglo-Frisian, whereas German and, in turn, High German and Low German forgo this detour - Nietzsche could be taken one of at least two ways - viz., that metaphysicians were rustics and untutored to the ways of the actually-existing world or, second, that metaphysics was exercised by *Wesenhaftifkeit* rather than *des Seinende*, that is, by a world behind the world of appearance.



Above: Branches of Indo-European Language Tree

There is an intimation that Nietzsche was taking a shot at Platonic realism and the world of ideal forms, compared to which this realm, this ‘veil of tears,’ is a shoddy reproduction. The presentiment is magnified based on Heidegger’s comments: “The pronouncement ‘God is dead’ means: The suprasensory world is without effective power. It bestows no life. Metaphysics, i.e., for Nietzsche Western philosophy understood as Platonism, is at an end. Nietzsche understands his own philosophy as the countermovement to metaphysics, and that means for him a movement in opposition to Platonism.” Both Friedrich Nietzsche and the self-described Nietzschean Michel Foucault came to prefer the anti-Platonic genealogical method. Taking a page from the historical method which Nietzsche nurtured to full flower in *The Genealogy of Morals*, Foucault assessed the merits of this methodology: “If the genealogist refuses to extend his faith in metaphysics, if he listens to history, he finds that there is ‘something altogether different’ behind things: not a timeless and essential secret but the secret that they have no

essence, or that their essence was fabricated in a piecemeal fashion from alien forms" (Foucault, "Nietzsche, Genealogy, History," *Aesthetics, Method, and Epistemology*, page 371). The genealogical method repudiates "the metahistorical deployment of ideal significations and indefinite teleologies. It opposes itself to the search for 'origins'" (ibid, page 370); indeed, "history also teaches us how to laugh at the solemnities of the origin" (ibid, 371). Consequently, the "historical sense can evade metaphysics and become a privileged instrument of genealogy if it refuses the certainty of absolutes" (ibid, page 379), by seeing larger portions of reality as socially-constructed, historically-shaped, and therefore both contingent and malleable.

The philosophy of science keeps these metaphysical discussions alive and kicking by contrasting, e.g., scientific realism, or the conceptual belief that scientific theories in fact accurately describe the real world, with scientific instrumentalism, or the decidedly more skeptical belief that ideas are handy instruments for making predictions and contextualizing observations within theories but perhaps little more than that. The potential reason that metaphysics pervades all of these fields is that "inflationary metaphysics and 'pragmatic' decisions begin, it seems, as soon as we open our eyes" to the degree that "any decision concerning what the observable world contains must be essentially 'pragmatic'" (Churchland, "The Ontological Status of Observables," *A Neurocomputational Perspective: The Nature of Mind and Structure of Science*, page 146). In novelistic garb, the seeker aching for ego dissolution and a phenomenal merging with the cosmos, the scientist moved by a cosmic religious feeling removing her glasses and squinting into a telescope, a gambler in dire straits placing a last bet, the wealthy landowner, the stern judge, the attentive devotee, the fiery political revolutionary, the exacting mathematician, the sneering intellectual, the naïf, the disgruntled spouses, the melancholy child, the layabout, the perfumed and voluptuous charmer, the lost soul listlessly falling into the arms of addiction, the masochist, the jilted lover, the *bon vivant*, and the depraved nihilist are all archetypes that people Fyodor Dostoevsky novels, and these arguably impregnate slightly different metaphysical worldviews to the extent that art imitates life (cf. William Gass's *Fiction and the Figures of Life*, Krzykztof Kieślowski's Polish drama series *Dekalog*, Richard Rorty's "Problem About Fictional Discourse?" in *Consequences of Pragmatism*, Keith Donnelan's take on the 'causal theory of reference,' Meinongianism, and Terence Parsons's "A Prolegomenon to Meinongian Semantics").

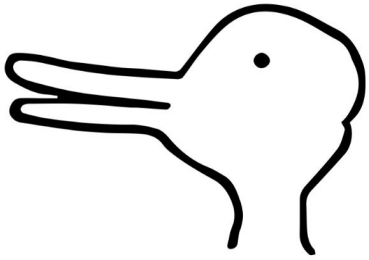
There's a pressing sense in which the philosophy of language as such should emphasize epistemology over or within metaphysics insofar as semantics concerns methodology and classification. W.V. Quine found that, "they [semantic considerations] belong not to ontology but to the methodology of ontology, and thus to epistemology. Those [semantic] considerations showed that I could indeed turn my back on my external things and classes and ride the proxy functions [of names and meanings] to something strange and different without doing violence to any evidence [in the natural world]." While for Quine naturalism and science provided the ultimate arbiter of the identification and description of "discrete blobs" of reality, "all ascription of reality must come rather from within one's theory of the world [cf. Duhem-Quine thesis]," which arises from "occasion sentences that report the observations on which science rests. The scientific output is likewise sentential: "true sentences, we hope, truths about nature":

> "The objects, or values of variables, serve merely as indices along the way, and we may permute or supplant them as we please as long as the sentence-to-sentence structure is preserved. The scientific system, ontology and all, is a conceptual bridge of our own making, linking sensory stimulation to sensory stimulation."
>
> "Epistemology, for me, or what comes nearest to it, is the study of how we [human] animals can have contrived that very science, given just that sketchy neural input [viz., of 'our sensory receptors and the bodies near and far whose emanations impinge on our receptors.']" (Quine, "Things and Their Place in Theories," *Theories and Things*, pages 20-21).

Quine's views expressed immediately above fit nicely with those of philosopher of language J.L. Austin who longed for "a sharpened awareness of words to sharpen our perception of, though not as the final arbiter of, the phenomena," thereby slipping what Winston Churchhill amusingly referred to as "terminological inexactitude" in the 1906 UK general election. Quine, as usual, adds a twist by emphasizing ontological relativity *qua* confirmation holism or this stipulation that "nothing counts as justification unless by reference to what we already accept"; furthermore, "there is no way to get outside our beliefs and our language so as to find some test other than coherence" (Rorty, *Philosophy and the Mirror of Nature*, page 178). In other words, in light of the fact that there is no recourse to a numinous god's eye view regarding human knowledge, W.V. Quine and Wilfrid Sellars are happy to settle for a coherence, versus a correspondence, theory of truth (lowercase 't'). Rorty wagered that Quine and Sellars were thereby immunized against attacks as "we will not find neutral metaphilosophical ground on which to argue the issues Quine and Sellars raise. For they are not offering an 'account' to be tested for 'adequacy' but pointing to the futility of offering an 'account'" from a sanctified, remote god's eye view (ibid., page 180); remember that Quine repudiated a first philosophy and bear in mind Sellars rejoiced that a dynamic "science is the measure of all things" (Sellars, *Science, Perception and Reality*, page 173). The relinquishment of epistemology is a shrug rather than a sigh: "We have not got a language which will serve as a permanent neural matrix for formulating all good explanatory hypotheses, and we have not the foggiest notion of how to get one. (This is compatible with saying that we do have a neutral, if unhelpful, observation language.) So epistemology - as the attempt to render all discourses commensurable by translating them into a preferred set of terms - is unlikely to be a useful strategy" (Rorty, *Philosophy and the Mirror of Nature*, page 349). Richard Rorty considered the terms 'antifoundationalism' and 'antidualism' each superior to 'relativism' in that the former two terms repudiated *a pedibus usque ad caput* the Platonic-Cartesian scheme, which the 'leading contemporary pragmatist' during the 1990s, according to Richard Rorty, the philosopher Hilary Putnam summed up thus: "elements that we call 'language' or 'mind' penetrate so deeply into reality that the very project of representing ourselves as being 'mappers' of something 'language-independent' is fatally compromised from the start" (Rorty, "Relativism: Finding and Making," *Philosophy and Social Hope*, page XXVII).

Wilfrid Sellars, who in "Empiricism and the Philosophy of Mind" argued for 'psychological nominalism' and language as desideratum, viz., "all awareness of sorts, resemblances, facts, etc., in short all awareness of abstract entities - indeed, all awareness even of particulars - is a linguistic affair. According to it, not even the awareness of such sorts, resemblances, and facts as pertain to so-called immediate experience is presupposed by the process of acquiring the

use of language" (Sellars, "Empiricism and the Philosophy of Mind," *Science, Perception and Reality*, page 160), also disabused the myth of the given (i.e., a prearranged sensory world). Without a background of subject and object, there can neither be a 'mirror of nature' in the 'mind' nor anything to be mirrored with varying degrees of fidelity.



Above: Ambiguous Rabbit-Duck Figure

Consider the ambiguous image above made famous by gestalt psychologists and Ludwig Wittgenstein's *Philosophical Investigations*. This is a so-called ambiguous image because there is no definite, once-and-for-all way of perceiving it; such ambiguity presents a surprisingly far-reaching problem for empiricism insofar as certain brands of empiricism are predicated upon a constant observer to behold a stable world and describe it 'objectively,' without prejudice or prejudgment. The rabbit-duck figure demonstrates that the preconceptions one brings to an observation impact that very observation, e.g., whether one sees a rabbit or a duck, and highlights the fallacy of a pre-given world floating free of observation. Suddenly, these ideas of Quinean confirmation holism and the theory-ladenness of Thomas Kuhn and Paul Feyerabend become more attractive.

The Scottish philosopher David Hume uncontroversially claimed that observation and consequent experience themselves derived from past experiences. Hume used the term *impressions* to refer to the sensations and inner feelings - e.g., the piercing coldness of ice or the multitudinous sounds and ordurous stench of a horse-drawn wagon passing through the stupor-inducing heat of midday - from which *ideas* are derived. Remembering or recasting impressions forms ideas; a *complex* idea, even a fictional one, can be formed from a concatenation of simple ideas, which perhaps rely on an entire series of impressions. A tie-dye elephant could be imagined (the word 'imagine' derives from the Latin *imaginare*, meaning to *re*present), for instance, based on the person's previous impressions of 'tie-dye' and 'elephant' in spite of the fact that a tie-dye elephant has presumably not evolved on planet Earth to date. A blind woman or deaf man therefore might not be able, in Hume's construal, to envision certain complex ideas which hinge upon simple ideas and, in turn, perceptual datum like color and sound (cf. Frank Jackson's "What Mary Didn't Know"). As Harold Morick summarized in *Challenges to Empiricism*: "Thus, for Hume ideas are constructions out of simple ideas, and simple ideas are copies of impressions." David Hume also shaped the ensuing debates around so-called analytic and synthetic propositions, which for Hume meant relations of ideas as opposed to matters of fact (the problems with this conceptual schema are unpacked in more detail by W.V. Quine, Paul Churchland, et al. below). At any rate, Hume tells the reader that

relations of ideas “are discoverable by the mere operation of thought, without dependence on what is anywhere existent in the universe,” whereas “matter of fact, which are the second objects of human reason, are not ascertained in the same manner, nor is our evidence of their truth, however great, of a like nature with the foregoing” (Hume, *An Enquiry Concerning Human Understanding*, pages 25-26). Relations of ideas could be likened to analytic truths from which deductive, *a priori* conclusions could be drawn, whereas relations of fact could be seen as being analogous to synthetic truths from which inductive, *a posteriori* conclusions could be probabilistically rendered to suit a given circumstance. The difference for Hume turned on the notion that “the contrary of every matter of fact is still possible” and “all reasonings concerning matter of fact seem to be founded on the relation of cause and effect.” Hume continued that “by means of that relation alone we can go beyond the evidence of our memory and senses” (ibid, pages 25-26), but this is where the headaches potentially start. Many modern-day critics have noted that these apparently empirical conclusions depend on statements “couched in purely sensory terms and which can express the satisfaction of the condition of the presence of a normal observer.” This creates an infinite regress - imagine a doctor declaring that a patient was, indeed, ‘normal’ upon the most exacting inspection; the doctor making the inspection would have to herself be deemed a ‘normal’ observer, and the doctor inspecting the doctor would have to herself be ‘normal,’ and the doctor inspecting the doctor inspecting the doctor would have to herself be ‘normal,’ ad infinitum (Morick, “The Critique of Contemporary Empiricism,” *Challenges to Empiricism*, pages 9-10, cf. Wittgenstein’s ‘private language’ argument). Hume also conceded that *a posteriori* “experimental inference” relied on the acceptance of brute facts: “Hume’s empiricist principles also lead to skepticism beyond that about the legitimacy of experimental inference, ‘It is in vain,’ he said, ‘to ask whether there be body’” (ibid, page 6); a brute fact, as opposed to the principle of sufficient reason, is the philosophical term for a ‘fact’ that resists explanation. W.V. Quine dispensed with adjudicating these issues on a fundamental level and simply treated physical objects and the gods of Homer as tantamount epistemologically *qua* cultural posits:

> “Physical objects, small and large, are not the only posits. Forces [e.g., an unobservable like gravity] are another example; and indeed we are told nowadays that the boundary between energy and matter is obsolete. Moreover, the abstract entities which are the substance of mathematics - ultimately classes and classes of classes and so on up - are another posit in the same spirit. Epistemologically these are myths on the same footing with physical objects and gods, neither better nor worse except for differences in the degree to which they expedite our dealings [‘for predicting future experience in the light of past experience’] with sense experience” (Quine, “Two Dogmas of Empiricism,” *Challenges to Empiricism*, pages 66-67).

The neopragmatist Richard Rorty found that, “truth is a property of sentences, since sentences are dependent for their existence upon vocabularies, and since vocabularies are made by human beings, so are truths.” In a grumpier humor: “truth is not the sort of thing that one should expect to have a philosophically interesting theory about.” Richard Rorty addressed the Platonic tradition as a kind of tragic misstep for Western intellectual development insofar as that venerable progenitor engendered all subsequent philosophy, per Whitehead. By way of preface, Rorty regards philosophy as basically continuous with literature, whereas W.V. Quine placed slightly more faith in philosophy and saw it as basically continuous with science:

> "Pragmatists think that the history of attempts to isolate the True or the Good, or to define the word 'true' or 'good,' supports their suspicion that there is no interesting work to be done in this area. It might, of course, have turned out otherwise. People have, oddly enough, found something interesting to say about the essence of Force and the definition of 'number.' They might have found something interesting to say about the essence of Truth. But in fact they haven't. The history of attempts to do so, and of criticisms of such attempts, is roughly coextensive with the history of that literary genre we call 'philosophy' - a genre founded by Plato. So pragmatists see the Platonic tradition as having outlived its usefulness. This does not mean that they have a new, non-Platonic set of answers to Platonic questions to offer, but rather that they do not think we should ask those questions anymore" (Rorty, *Consequences of Pragmatism*, page XIV).
>
> Cf. "One is tempted to *define* philosophy as that discipline in which knowledge is sought but only opinion can be had. If one grants that the arts do not seek knowledge, and that science not only seeks but finds it, one will thus have a rough-and-ready way of distinguishing philosophy from both" (Rorty, *The Linguistic Turn*).

The polar opposite of this bleak defeatism might be embodied in the sunny aspirations of Bertrand Russell's isomorphic language. The Russelian notion of an isomorphic language, which Bertrand Russell and 'early' Wittgenstein marveled constituted a 'logically ideal language' that isomorphically captured atomic propositions apropos atomic facts by way of the theory of logical atomism, is steeped in the Platonic-Cartesian scheme which cleanly, too cleanly, demarcates subject and object, inner and outer. The idea of an isomorphic language is much stranger than it first appears in that it possesses transcendental overtones insofar as the reflecting, *re*presenting, recognizing, or *remembering* is very akin to Plato's spiritualism (see, e.g., anamnesis) and, what's more, a truly isomorphic language would cease to be a language or mere representation as such by actually *being* the thing represented. Swiss psychologist Jean Piaget writes on page 21 of *The Psychology of Intelligence*: "According to Russell, when we perceive a white rose we conceive at the same time the ideas of the rose and of whiteness, and this by a process analogous to that of perception; we apprehend directly, and as if from without, the 'universals' corresponding to perceptible objects and 'subsisting' independently of the subject's thought. But what then of false ideas?" Another disharmony is that this process relies on a tacit essentialism that rubs shoulders with Aristotle's hylomorphism, expounded by Alexander's tutor in *Physics*, *Metaphysics*, and *De Anima*. The empiricist-behaviorist view has also been called the Platonic Principle by philosopher George Pitcher: "the behaviorists gave up the [Cartesian] notion that 'nothing is better known to the mind than itself' but they kept the notion that some things were naturally knowable directly and others not, and the metaphysical corollary that only the first were 'really real'" [i.e., the Platonic Principle] (Rorty, "Persons Without Minds," *Philosophy and the Mirror of Nature*, page 105). A *tertium quid* may in fact be afoot:

> "Russell has tried to solve this problem by reinventing the Platonic Forms. He had postulated a realm of otherworldly logical objects and a faculty of intellectual intuition with which to grasp them. But Wittgenstein saw that this led to a new version of the 'third man problem' which Plato had raised in the *Parmenides* - the problem of how the entities designed to explain the knowledge are known. Russell's logical objects, the Kantian categories, and the Platonic Forms were all supposed to make another set of objects - the empirical objects, the Kantian intuitions, or the Platonic material particulars - knowable, or describable. In each case, we are told the latter objects need to be related by the former objects before they become available - before they may

> be experienced or described [e.g., in an isomorphic language]" (Rorty, "Wittgenstein, Heidegger, and Language," *Essays on Heidegger and Others*, page 54).

Aristotle actually "criticizes the Platonic hypostasis of universal concepts as a duplication of the world" because suprasensible "Ideas are derived from the empirical world (Adorno, *Metaphysics: Concept and Problems*, page 20)," and similar arguments could be made against the mirror imagery of a proposed isomorphic language. Ergo, Aristotle and Plato were kept active in Bertrand Russell's doctrinal *The Philosophy of Logical Atomism*, 'early' Wittgenstein, and logical positivism in spite of apparent transcendence. Richard Rorty surmises that these yearnings for a mirror-like isomorphic language stem from an apprehension over 'losing contact' with the 'real' and invokes Parmenides to make the point: "Parmenides' fear of the poetic, playful, arbitrary aspects of language was so great as to make him distrust predictive discourse itself. This distrust came from the conviction that only being seized, compelled, gripped, by the real could produce Knowledge rather than Opinion" (Rorty, *Consequences of Pragmatism*, page 130); opinion imperiously gets classified as 'nonsense' in 'early' Wittgenstein and summarily dismissed as a 'pseudoproblem' within Rudolf Carnap's *The Logical Structure of the World and the Pseudoproblems of Philosophy*. One common feature of language that certainly shouldn't be rejected as 'nonsense' or a 'pseudoproblem' is metaphor, which "is the referral of the properties of one thing to those of another in a different domain. Metonymy allows a part or an aspect of a thing to stand for the whole thing. Both are incompatible with the objectivist view" (Edelman, *Bright Air, Brilliant Fire*, page 237). Two subclasses of metonymy are synecdoche, i.e., referencing a part-whole or whole-part, e.g., 'wheels' for a car, and metalepsis, i.e., employing a figure of speech in an extended context, e.g., fortune will favor the brave in this upcoming NBA draft. Literary critic Harold Bloom remarked, "a metalepsis may be called, maddeningly but accurately, a metonymy of a metonymy." These components of language can't justifiably be cast aside by empiricists or AI researchers anxious to claim verisimilitude.

The reader is very much reminded of the logical positivists and the Vienna Circle when Rorty says, "since discourse which uses two different expressions to apply to the real is, Parmenides thought, committed either to negative predication or to redundancy, no predicative sentence can do more than express Opinion"; Bertrand Russell's logical atomism is likened to the "old epistemological tradition which thinks of some sort of 'vision' as the relationship which hooks mental representations to reality." Martin Heidegger characterized this anxiety of losing "the essential togetherness of Being and Apprehension" as Plato's debt to Parmenides (Rorty, *Consequences of Pragmatism*, page 130). Bearing in mind the rabbit-duck figure above, "Plato and Russell both think that unless this analogue to the *forced* character of visual perception occurs, there will be no distinction between knowledge and opinion, logic and mysticism, science and poetry" (ibid, page 131), cf. John Dewey's radically-opposed pragmatist viewpoint, which rejoiced in an intermingling of disciplines, seeing such an orgiastic dissolving of boundaries as about the most wonderful thing that could ever take place: "When philosophy shall have cooperated with the force of events and made clear and coherent the meaning of the daily detail, science and emotion will interpenetrate, practice and imagination will embrace. Poetry and religious feeling will be the unforced flowers of life" (Dewey, *Reconstruction in Philosophy*, page 164).

Until that happy day dawns might the consensus theory of truth supplant or partially eclipse the multiverse-encompassing ambitions of science and correspondence theory of truth? Might pragmatism? Are there certain aspects of reality that are strictly mind-dependent, hence subjective? Do stubborn brute facts elude description, as David Hume insisted? Has science done enough to compel one to endorse scientific realism and unobservables? If a brute fact or myriad other phenomena cannot satisfactorily be dealt with etiologically, where does that leave ontology and semantics? Does Saul Kripke's *Naming and Necessity* in particular and the causal theory of reference in general impact the answer and represent an improvement over the familiar descriptive theory of names? Are there definite limits to philosophy and science, ironically as Ludwig Wittgenstein and Bertrand Russell supposed? Where precisely are those limits? Have the answers changed over the decades? If so, how? German philosopher, sociologist, and critical theorist Jürgen Habermas has done a beautiful job of establishing the parameters of these foundational issues post-linguistic turn, i.e., post-Frege, post-Wittgenstein, and post-Saussure: "How can we reconcile the assumption that there is a world existing independently of our descriptions of it and that is the same for all observers with the linguistic [cf. semiotic] insight that we have no direct, linguistically unmediated access to 'brute' reality?" (Habermas, "Realism After the Linguistic Turn," *Truth and Justification*, page 2). Habermas couches answers in terms of communication and understanding (Verständigung), obtaining in the intersubjective lifeworld (Lebenswelt), and what he calls *theoretical philosophy*, which for Habermas includes epistemology, metaphysics, and the philosophy of language. In that sense, this paper will also proceed by using the tools furnished by theoretical philosophy in endeavoring to bridge the objective and subjective. The dizzying challenge arises partly because delimiting "the explanans for how the transcendental conditions [of intersubjective conditions of possible experience] are generated would itself already have to be subject to the conditions named in the explanandum" (ibid, page 21).

1.

A serviceable starting point for unpacking many of these ideas might be Ludwig Wittgenstein's *Tractatus Logico-Philosophicus*, which the English analytic philosopher George Edward Moore contended was titled in homage of the *Tractatus Theologico-Politicus*, penned by the Rationalist 17th-century philosopher Baruch Spinoza. The philosophical school of Rationalism advocates 'reason' in favor of experience as the preferred epistemic test of knowledge (cf. empiricism); reason, says the so-called rationalist, is the foundation of certainty in the acquisition of knowledge. The title of *Tractatus Logico-Philosophicus* is therefore remarkably ironic because Ludwig Wittgenstein's only published work during his lifetime - *Philosophical Investigations* was published posthumously - influenced the logical positivism movement in general and the Vienna Circle in particular, including the logician Rudolf Carnap and Ludwig Wittgenstein's one-time mentor, Bertrand Russell, who is referenced along with Gottlob Frege throughout *Tractatus Logico-Philosophicus*. In fact, Bertrand Russell thought very highly of the *Tractatus*, less so *Philosophical Investigations* (Karl Popper may not have been particularly enthused about either, J.L. Austin and John Searle seemed fonder of *Philosophical Investigations*), and Bertrand sought to crystallize the ideas Wittgeinstein later laid out in *Tractatus Logico-Philosophicus* within *The Philosophy of Logical Atomism*. Bertrand Russell would sharpen Wittgenstein's ideas and take logical positivism and the verification principle to new extremes within *The Philosophy*

of Logical Atomism, which craved an isomorphic language ideally mirroring the world such that knowledge per se would be reducible to atomic propositions and truth values. This seemingly quixotic pursuit has been termed *radical empiricism*; logical positivism may now be called *logical empiricism* in certain quarters. By whichever name, the positivists seemed to realize too late or not at all that positivism itself was anything but self-justifying by its own criterion; in other words, the decision to be 'rational' instead of irrational cannot be justified scientifically (cf. Paul Feyerabend's *Farewell to Reason*, John Ralston Saul's *Voltaire's Bastards: The Dictatorship of Reason in the West*). The Italian astronomer Galileo himself marveled that "there is no limit to my astonishment when I reflect that Aristarchus and Copernicus were able to make reason so conquer sense that, in defiance of the latter, the former became mistress of their belief."

In any event, the gnomic *Tractatus Logico-Philosophicus* was the predicate for this odyssey of language later undertaken by the logical positivists; the first proposition of *Tractatus Logico-Philosophicus* is, "The world is everything that is the case," and the last proposition is, "Whereof one cannot speak, thereof one must be silent." Why is that significant? The first proposition and its elaboration through decimal figures - Ludwig Wittgestein's footnote at the start of *Tractatus Logico-Philosophicus* reads, "The decimal figures as numbers of the separate propositions indicate the logical importance of the propositions, the emphasis laid upon them in my exposition" - forms the metaphysical canvas upon which Ludwig Wittgenstein's picture theory of language can be painted. The painting abruptly ceases at the seventh proposition.

The seven propositions of the short text follow:

1. The word is everything that is the case.
2. What is the case, the fact, is the existence of atomic facts.
3. The logical picture of the facts is the thought.
4. The thought is the significant proposition.
5. Propositions are truth-functions of elementary propositions. (An elementary proposition is a truth-function of itself.)
6. The general form of truth-functions is: $[\bar{p}, \bar{\xi}, N(\bar{\xi})]$

   This is the general form of proposition.

7. Whereof one cannot speak, thereof one must be silent.

The picture theory of reference is a linguistic theory that posits reference and meaning are linked semantically through a proposition conjuring a noetic picture of a situation ("state of affairs") or atomic fact. The picture theory of language chimes with the correspondence theory of truth (cf. proposition exposition 4.021 in *Tractatus Logico-Philosophicus* reads, "The proposition is a picture of reality, for I know the state of affairs presented by it, if I understand the proposition"). A proposition is the primary bearer of truth value and the semantic (viz., non-linguistic) content of a declarative sentence (the implications of the logical principle of bivalence are discussed more thoroughly below vis-à-vis scientific realism); two-valued logic is repeatedly stressed in *Tractatus Logico-Philosophicus*.

Propositional calculus is the highfalutin term in logic for propositional (a.k.a., sentential) logic, or the branch of logic that deals with propositions and their relations. Atomic propositions are propositions lacking logical connectives, or the words/symbols used to connect sentences in syntactically-valid ways, e.g., conditional: 'if...then'; biconditional: 'if and only if'; conjunction: 'and'; disjunction: 'or'. (In English, there can be an ambiguity with the nonexclusive and exclusive 'or,' which is effectively overcome by using Latin, laborious specification in English (for the exclusive 'or' one could write, e.g., *p* or *q* but not both or, more punctiliously, either *p* and not *q* or *q* and not *p*;), or, more sensibly, logical notation: "Latin has distinct words for the two senses of 'or': *vel* for the nonexclusive and *aut* for the exclusive. In modern logic, it is customary to write 'v', reminiscent of 'vel', for 'or' in the nonexclusive sense: '*p* v *q*'".) A compound statement formed with logical connectives is termed a *truth function* if, per classical propositional logic, the bivalent truth value of the compound sentence is entirely determined by the truth values of the component sentences. "In order to be able to determine the truth or falsity of a negation, conjunction, or alternation, it is sufficient to know the truth or falsity of the component parts" (Quine, *Methods of Logic*, page 12). Logical connectives (e.g., the conjunction 'and') that enable this truth value are termed *truth functional*. For Hilary Putnam, determining the truth function of complex sentence "is a matter of finding a structure of recursive rules with a suitable relation to the transformational grammar of the language in question" ("Is Semantics Possible?," *Languages, Belief and Metaphysics*, page 149) and applying those rules to the constitutive sentences. Modal logic, by contrast, involves necessity and possibility (i.e., modality) and therefore is clunkily called *non-truth functional*.

(W.V. Quine gives the following example of a non-truth-functional compound proposition: "Jones died because he ate fish with ice cream." The truth value of the immediately preceding compound proposition chronicling the condemned Jones is indeterminable based purely on the component statements, i.e., 'Jones died' and 'Jones ate fish with ice cream' (ibid, page 16). This is a question-begging enterprise Jones was caught up in.

Cf. "One of the most important concepts of logic and thereby of the logic of science is that of (logical) inference (Folgerung-entailment). Can this concept be formulated purely formally? It is often stated that the relation of entailment depends on the meaning of the propositions. In a certain sense we can agree with that; for when the meaning of two propositions is known, it is thereby determined whether one is the entailment of the other or not. The decisive point, however, is: is it also possible to formulate the concept 'entailment' purely formally? If the transformation rules of language are set up purely formally, we call a proposition an inference (entailment) of other propositions if it can be constructed from those propositions by the applications of the transformation rules [see definitions of recursion above]. The question, whether a certain proposition is an inference (entailment) of certain other propositions or not, is therefore completely analogous to the question whether a certain position in chess can be played from another or not. This question is answered by chess theory, i.e. a combinatorial or mathematical investigation which is based on the chess rules; that question is thus a formal one, it is answered by a *Combinational Calculus or Mathematics of Language,* which rests on the transformation rules of language, that is what we have called the syntax of language. Briefly: 'entailment' is defined as deducibility according to the transformation rules; since these rules are

formal, ‘entailment’ is also a formal, syntactical concept” (Carnap, “On the Character of Philosophical Problems, *The Linguistic Turn*, page 57).

Cf. "When David Hilbert, the great logician, heard that a student had given up mathematics to write novels, he is supposed to have said: ‘It was just as well; he did not have enough imagination to become a first-rate mathematician.’" -William H. Gass)

These parameters are important to establish for the *Tractatus Logico-Philosophicus* because both the picture theory of reference and correspondence theory of truth jointly form the backdrop of Wittgenstein’s early work - which Wittgenstein later reckoned was wrongheaded and did not in fact categorically foreclose on future philosophical development after all - predicated on classical propositional logic and bivalent truth value (see exposition 3.01: “The totality of true thoughts is a picture of the world”). The insistence on two-valued logic and the correspondence theory of truth rules out modality, deduction, and degrees of truth as well as nomology (cf. exposition 2.225 reads, “There is no picture which is *a priori* true”). All propositions must conform to two-valued logic or be considered ‘senseless’ (cf. “The picture agrees with reality or not; it is right or wrong, true or false,” thunders Wittgenstein in exposition 2.21). The final proposition of *Tractatus Logico-Philosophicus* (viz., “Whereof one cannot speak, thereof one must remain silent”), however, was said to be largely misconstrued by parts of the Vienna Circle to mean that Wittgenstein considered, e.g., aesthetics and ethics ‘nonsense,’ and hence valueless, because they couldn’t be rendered by propositions to adequately picture the world or mirror reality isomorphically through propositions (exposition 6.522 reads, “This is indeed the inexpressible. This *shows* itself, it is mystical”). Etymologically, the Greek root word for *mystical* happens to be *muein*, which means *close the eyes or lips*. Karl Popper disabused reports that Erwin Schröedinger had objected to Ludwig Wittgenstein’s forbidding rigor with the seventh proposition by supposedly pleading, “but it is only here that speaking becomes worth while”; an illuminating footnote in the chapter “Nature of Philosophical Problems” of *Conjectures and Refutations* reads: “After this paper was first published Schröedinger told me that he could not remember saying this, and that he did not believe he ever said it; but he liked the remark. I have found since that its real author was my old friend [physicist] Franz Urbach” (Popper, *Conjectures and Refutations*, page 93) - a true conjecture and refutation. One should note that Ludwig Wittgenstein considered the *Tractatus* provisionally ‘senseless’ and did not carve out a dispensation for himself: “How does Wittgenstein dispose of the objection that his own propositions are also meaningless? He doesn’t at all; he agrees with it!” (Carnap, “On the Character of Philosophical Problems,” *The Linguistic Turn*, page 55), cf. Wittgenstein’s ladder, the raft parable in Buddhism.

After taking a few years off from philosophy (working as a schoolteacher, gardener, and architecturing a house for his beloved sister, cf. *Correction* by Thomas Bernhard), philosopher of language Ludwig Wittgenstein would replace the picture theory of language exposited in *Tractatus Logico-Philosophicus* with the use theory of meaning articulated through ‘language games’ (an unfortunate term because it implies a frivolity that wasn’t necessarily intended). The notion of a language game sought to repudiate the picture theory of language *qua* the correspondence theory of truth and replace it with language games, family resemblances, and the multiplicity of social uses words might be imported into sentence to serve. One could make

the argument that the linguistic turn which Ludwig Wittenstein certainly had a hand in accelerating should ascribe provenance partly to the nineteenth-century philologist-philosopher Friedrich Nietzsche, whose discussion of language families may be the father of the Wittgensteinian notion of family resemblances, cf. Part 1, Section 20 of Nietzsche's *Beyond Good and Evil: Prelude to a Philosophy of the Future*, section 16: "We really ought to free ourselves from the seduction of words" (Nietzsche); Nietzsche also penned a belatedly-published essay titled "On Truth and Lies in a Nonmoral Sense," which may have presaged Wittgenstein's corpus and philosophy of language as such more broadly. Analogously, Nietzsche's writing that "truth is the will to be master over the multiplicity of sensations" may conceivably be a forerunner to pragmatism, relativism, and certainly Michel Foucault's philosophy of power/knowledge in which reason is expressed in yet subordinated to power structures. In any event, Ludwig Wittgenstein would ostensibly go on to influence British philosophers of language J.L. Austin and Elizabeth Anscombe, and by extension American philosopher John Searle, to the degree that ordinary language usage in general and speech acts in particular can be said to receive their meaning, or semantic content, by analysis of social context. The performative nature of speech acts is inherently social, and conceptual antecedents can be found in Ludwig Wittgenstein's notion of a language game, in which semantics follows usage. Both the picture theory of language of 'early' Wittgenstein and the use theory of language of 'late' Wittgenstein offer conceptual insights into how the mind attempts to interpret reality and render comprehensible the ways in which an objective epistemological raft of ideas arises from more inter/personal and ultimately subjective ontological categories.

Money is the quintessential example of this transmogrification in action. Money, particularly fiat money, has been characterized as a medium of exchange, a store of value, a unit of account, and a standard of deferred payment. The unit of account function of money relates to its fungibility, which is an economics term relating to the interchangeability of units in the same system. The standard of deferred payment is another function of money as such related to debt, which is a deferred payment. (On US currency these words are printed: "This Note is Legal Tender for All Debts, Public and Private." Legal tender is viewed by the courts of law as a suitable device for satisfying monetary debt.) The Bureau of Engraving and Printing says that US paper currency is composed of three-fourths cotton and one-fourth linen, as opposed to the inferior wood pulp of cereal boxes and newspapers. A security thread, watermarks, and color-shifting inks on higher denomination bills further distinguish US currency from lesser imitations. Here are a few questions to consider: Are these bells and whistles enough to account for the social and institutional reality of 'money' today? Are all of the functions of money enumerated above completely independent of factors such as trust and a critical mass of people agreeing that fibers and linens carried in the pocket constitute money? Is money like courts, camaraderie in the workplace, sports games, governments, sexual identity, private property, pool parties, political rights, environmental stewardship, marriages, bar mitzvahs, and celebrity in its contingency and need for social construal for meaning?

In *Mind, Language, and Society* John Searle sought to give definition to these issues by discovering how epistemologically objective social reality arises from ontologically subjective sets of attitudes, such as those imbuing money with value. The challenge will be explaining the connection between epistemologically objective social reality and ontologically subjective sets of

attitudes without slipping into vicious circularity or an infinite regress (e.g., “part of the content of the belief is that it is believed to be believed to be believed to be money,” *Mind, Language, and Society*, page 114). The juicy core of the belief tragically remains untasted in this *Alice in Wonderland* vicious circle. What in the world makes these subjectivities objective? The glue that binds these ontologically subjective sets of attitudes together is language in general and status function declarations in particular, per Searle. The propositional content of declarations such as “This Note is Legal Tender for All Debts, Public and Private” is performative and generative of a fresh institutional reality. In *The Construction of Social Reality*, John Searle contrasts brute facts with institutional facts (viz., “Years ago I made a distinction between brute facts, such as the fact that the sun is ninety-three million miles from the earth, and institutional facts, such as the fact that I am a citizen of the United States,” *Mind, Language, and Society*, page 123). Searle argues that “institutional facts only exist within systems” demarcated by “constitutive rules,” which must be followed substantially or completely to conjure the institutional fact. The rules of chess, for example, must be followed to a healthy degree for one to justifiably claim to actually be playing chess rather than pushing wooden pieces around a 8X8 checkerboard or playing some other contrived game. Jean-François Lyotard summarizes Ludwig Wittgenstein’s language game concept (cf. Saul Kripke’s *Wittgenstein on Rules and Private Language*) from *Philosophical Investigations* on page 10 of *The Postmodern Condition*:

> “Wittgenstein, taking up the study of language again from scratch, focuses his attention on the effect of different modes of discourse; he calls the various types of utterances he identifies along the way *language games*. What he means by this term is that each of the various categories of utterance can be defined in terms of rules specifying their properties and the uses to which they can be put - in exactly the same way as the game of chess is defined by a set of rules determining the properties of each of the pieces, in other words, the proper way to move them. It is useful to make the following three observations about language games. The first is that their rules do not carry within themselves their own legitimation, but are the object of a contract, explicit or not, between players (which is not to say that the players invent the rules). The second is that if there are no rules, there is no game, that even an infinitesimal modification of one rule alters the nature of the game, that a “move” or utterance that does not satisfy the rules does not belong to the game they define. The third remark is suggested by what has just been said: every utterance should be thought of as a ‘move’ in a game.”

Inspired by the philosopher of language Ludwig Wittgenstein and Wittgenstein’s one-time student, translator, and fellow philosopher of language Elizabeth Anscombe, John Searle makes the argument that society largely exists due to institutional facts empowered by collective intentionality and constitutive rules, famously stated as “X counts as Y in C” in *The Construction of Social Reality*. In this simple but socially all-encompassing formula, X could be a physical object, such as the cotton and linen banknotes discussed above, Y is the imposed status function (e.g., ‘money’) or deontic power flowing from factors like constitutive rules, and C is the ‘context’ at which institutional facts effectively create epistemologically objective social reality from ontologically subjective sets of attitudes via collective intentionality.

X Counts as Y in C

John Searle makes a compelling case that “all of institutional reality can be explained using exactly these three notions, [A] collective intentionality, [B] the assignment of function, and [C] constitutive rules” (*Mind, Language, and Society*, page 124). In a simple society, for example, a physical object such as a line of stones could be assigned the function of delimiting the community proper. This example already instantiates [A] collective intentionality, in that the example presumably features numerous community folk banding together for a common purpose and [B] assignment of function, in that the physical line of stones serves as a community barrier. If multiple stones were kicked one sad day, then it could still conceivably serve as a barrier for community folk by dint of a shared recognition and an imposed status function, no longer requiring the physical stones to serve as a demarcation. Searle claims that “this move, the move from physics to the collective acceptance of a status function, forms the basic conceptual structure behind human institutional reality” (ibid., page 126).

In the philosophy of language and linguistics, there is something known as a speech act, or an utterance considered as an action (e.g., a request or forecast). J.L. Austin is a British philosopher of language who pioneered the study of speech acts in general and performative utterances in particular. Performative utterances both describe reality and change the reality that these performative utterances are describing (e.g., ‘war is declared’). The performative utterances outlined in J.L Austin’s popular and aptly-titled *How to Do Things with Words* are classed as locutionary (what was said), illocutionary (what was meant), and perlocutionary (what consequently happened). In *Mind, Language, and Society* John Searle claims that “there are five and only five different types of illocutionary points”: (1) assertive (e.g., statement), (2) directive (e.g., command), (3) commissive (e.g., pledge), (4) expressive (e.g., congratulations), and (5) declaration (e.g., ‘You are fired!’). Declarations are “unique among speech acts in that they actually make changes in the world solely in virtue of the successful performance of the speech act” (ibid., pages 148-150). Here language expressed through a declaration creates a novel institutional reality via a double direction of fit, i.e., world-to-word-to-world. Consider, broadly, that “the illocutionary point determines both the direction of fit [word-to-world and/or world-to-word] and which intentional state is expressed in the performance of the speech act” (ibid., page 147). The direction of fit in speech act theory relates to fitting a name to a referent (word-to-world) or a referent to a name (world-to-word). A statement, an example of an assertive illocutionary point, would have a word-to-world direction of fit whereas a command, an example of a directive illocutionary point, would have a world-to-word direction of fit (cf. mind-to-world direction of fit and world-to-mind direction of fit in philosophy of mind). The reason that all assertives have the word-to-world direction of fit and all directives have the world-to-word direction of fit is that the assertive illocutionary acts aim at persuading the audience to the truth of the proposition whereas directives aim at forcing the audience to match the proposition.

Philosophically, a proposition is the meaning which declarative sentences share, for example, across multiple languages. In this way, propositions can be thought of as the pieces of information encoded by linguistically inharmonious sentences; this transcendental meaning is possible when propositions are philosophically considered non-linguistically and in terms of meaning. Most philosophers still largely consider propositions the primary bearers of truth value insofar as sentences may be deemed as true or false based fundamentally on the proposition. Mathematics treats propositions in a similar way, and propositions assumed true are considered

axioms. Propositional logic, also known as sentential logic, is a branch of logic that deals with propositions and their relationships.

Semantics, broadly speaking, is the branch of linguistics and logic concerning meaning. The field of semantics as such denotes the science of meaning in language, and etymologically the root word for semantics ultimately derives from the Greek word *semasia*, which means signification or meaning; semantically, the important thing to bear in mind is that information conveying meaning is inherently mind-dependent, not mind-independent. Innumerable factors in the world - unobservables like gravity, or observables like shoehorns, walnuts, swimming pools, and record players - are, at least in theory (e.g., scientific realism), mind-independent. Information is generally a mind-dependent descriptor of these realities per scientific realism.

An example: Dendrology is the scientific study of trees, and chronology is the science of arranging events according to the temporal order of their occurrence, hence dendrochronology is the scientific study of dating tree rings.

Above: Examples of Tree Rings

Because the word *science* is employed, some find it more natural, agreeable, or simpler to assume information deriving from dendrochronological studies will be 'mind-independent' and 'objective,' insofar as science in general and scientific realism in particular purport to gauge objective facts; however, information is not objective in this sense. The 'information' derived from dendrochronological studies is a mind-dependent interpretation of, one hopes, real-world data such that the data could not become information as such without interpretation: "The only physical fact is that there is an exact covariance between the number of rings and the age of the tree in years" (*The Mystery of Consciousness*, page 205). To show that information per se is ontologically distinct from the physical fact, consider that "you could just as well say that the age of the tree in years contains information about the number of rings in the tree stump" (ibid., page 206). Such an interpretation would be equally valid. Information, put another way, does not denote a mind-independent causal feature of reality in the same way that gravity, shoehorns, walnuts, swimming pools, and record players are presumed to denote mind-independent features of reality *qua* scientific realism. Information as such is mind-dependent and contingent on semantically-loaded factors, such as interpretation and description.

A proponent of scientific realism would presumably contend that unobservables, such as the force of gravity or dark matter, have exactly the same ontological status as observables, such as planets, in an ideal scientific theory. Scientific realism is a stance in the philosophy of science

that the universe as described by science captures ‘mind-independent’ and ‘objective’ entities; this is the metaphysical commitment of scientific realism. The semantic commitment is a willingness to subscribe to the logical principle of bivalence, and the epistemological commitment is an outcropping of the previous two commitment, viz., the belief that claims about entities presumed to be ‘mind-independent’ and ‘objective’ (metaphysical commitment) and deemed true by way of two-valued logic (semantic commitment) actually describe reality and should be endorsed (epistemological commitment). Onboarding an unobservable like gravity or dark matter ontologically could be advantageous; one still has misgivings that conscientiously abiding by the rigor of the ‘either/or’ logical principle of bivalence could spoil the rewards of otherwise fruitful research. Shouldn’t a more ‘daring’ theory, *ceteris paribus*, withstanding ‘more precise and more severe’ attempts at falsification guide research energies? Be compensated more richly? Better yet is a theory that can be essentially hypostatized in a single test (e.g., Eddington experiment) conveying broad and profound implications (e.g., general relativity).

Karl Popper expands on this point in a chapter titled “The Demarcation Between Science and Metaphysics” within *Conjectures and Refutations*:

> “There are, moreover, *degrees of testability*: some theories expose themselves to possible refutations more boldly than others. For example, a theory from which we can deduce precise numerical predictions about the splitting up of the spectral lines of light emitted by atoms in magnetic fields of varying strength will be more exposed to experimental refutation than one which merely predicts that a magnetic field influences the emission of light [cf. Popper’s ‘deductive testing of theories’ in *The Logic of Scientific Discovery*]. A theory which is more precise and more easily refutable than another will also be the more interesting one. Since it is the more daring one, it will be the one which is *less probable* [perhaps making more assumptions, cf. Ockam’s razor]. But it is better testable, for *we can make our tests more precise and more severe*. And if it stands up to severe tests it will be better confirmed [see falsifiability], or better attested, by these tests. *Thus confirmability (or testability or corrobability) must increase with testability.* This indicates that the criterion of demarcation cannot be an absolutely sharp one but will itself have degrees. There will be well-testable theories, hardly testable theories, and non-testable theories” (Popper, *Conjectures and Refutations*, page 346).

Recognizing the underdetermination of physical theory, W.V. Quine developed a coherence theory of truth - as opposed to correspondence theory of truth envisioning a mirror-like reflection between subject and object according to what William Shakespeare called a ‘glassy essence’ in the play *Measure for Measure* and pragmatist Charles Sanders Peirce called ‘man’s glassy essence’ in 1892 - which sought epistemological coherence among propositions. Quine used phrases like ‘statements close to experience’ and ‘fundamental laws’ to differentiate trivial conjectures from profound laws: “Conjectures of history and economics will be revised more willingly than laws of physics, and these more willingly than laws of mathematics and logic.” Quine’s here blends the notions of epistemological coherentism with semantic meaning holism to show how adopting or refining a new proposition can impact the holism structure such that more important propositions (e.g., general relativity) relating to more fundamental laws (e.g., in physics, math, and logic) will impact more contexts:

> "There is also, however, a variant type of definitional activity which does not limit itself to the reporting of preexisting synonymies. I have in mind what Carnap calls *explication* - an activity to which philosophers are given, and scientists also in their more philosophical moments. In explication the purpose is not merely to paraphrase the defiendum into an outright synonym, but actually to improve under the definiendum by refining or supplementing its meaning. But even explication, though not merely reporting a preexisting synonymy between definiendum and definiens, does rest nevertheless on *other* preexisting synonymies. The matter may be viewed as follows. Any word worth explicating has some contexts which, as wholes, are clear and precise enough to be useful; and the purpose of explication is to preserve the usage of these favored contexts while sharpening the usage of other contexts. In order that a given definition be suitable for purposes of explication, therefore, what is required is not that the definiendum in its antecedent usage be synonymous with the definiens, but just that each of these favored contexts of the definiendum, taken as a whole in its antecedent usage, be synonymous with the corresponding context of the definiens" ("Two Dogmas of Empiricism," *From a Logical Point of View*, page 25).

Distinguishing a few ideas might be helpful at this point, namely, (A) theory-ladenness, and (B) the analytic versus synthetic distinction. Theory-ladenness is a notion popularized by Thomas Kuhn and Paul Feyerabend. Philosopher of science Karl Popper used the more suggestive analogous term *theory-impregnated* to denote the fact that researchers 'make' rather than 'have' observations insofar as "an observation is always preceded by a particular interest, a question, or a problem - in short, by something theoretical." Popper says that the frame of reference which "confers meaning or significance on our experiences, actions, and observations" is hemmed and informed by a 'horizon of expectations,' beyond which meaning cannot be derived (Popper, *Objective Knowledge*, page 342-345, cf. the rabbit-duck figure). Background beliefs about how the world operates are invariably freighted with an entire constellation of theoretical presuppositions held by the 'objective' observer. These basic ideas formed the basis of the Duhem-Quine thesis, which asserted that it is impossible to test a scientific hypothesis (e.g., heliocentrism) in isolation from the background assumptions that fuel any such test. W.V. Quine amplified Pierre Duhem's assertion that theories in science were underdetermined, by datum or knowledge claims, via forwarding confirmation holism, or the epistemological stance that individual statements cannot be properly gauged with an empirical test alone. A set of statements, strictly speaking, needs to be embedded in a theory to properly receive dis/confirmation of any sort. Neither a brain scan nor astronomical datum is sufficiently intelligible or persuasive without a compelling theory, e.g., in cognitive science or physics. Consider that for someone who still believed in geocentrism, the Eddington expeditions would potentially have been seen very differently than a confirmation of Albert Einstein's general theory of relativity, canonized in the Einstein field equations. The Royal Society simply had a dissimilar set of presuppositions, what W.V. Quine called a *web of beliefs*, compared to Aristotle, Ptolemy, and the Roman Catholic Church in the Middle Ages, such that the Royal Society decided the Eddington expeditions offered strong support to Albert Einstein's theory of general relativity after all. Theories have their place in embedding and contextualizing observations - the German poet and magical idealist Novalis rightly said, "theories are nets: only he who casts will catch." Without a net, only data, no information as such.

Theory-ladenness has colossal implications for science, including an analogue to the mind-dependent nature of information as such - scientific datum (e.g., a brain scan) has a meaning imputed onto it by a scientific mind, informed by a raft of presuppositions. In terms of how meaning might actually be imprinted in the brain, German neurophysiologist Wolf Singer has intriguingly considered whether synchronization of oscillatory activity could be the mechanism binding distributed brain processes and thereby promoting *semantic binding* in the tissue of the brain: "A unique property of consciousness is its coherence. The contents of consciousness change continuously, at the pace of the experienced present, but at any one moment all the contents of phenomenal awareness are related to one another, unless there is a pathological condition causing a disintegration of conscious experience. This suggests a close relation between consciousness and binding. It seems that only those results of the numerous computational processes that have been bound successfully will enter consciousness simultaneously. This notion also established a close link among consciousness, short-term memory, and attention. Evidence indicates that stimuli need to be attended to in order to be perceived consciously, and only then will they have access to short-term memory" (Singer, "The Unity of Consciousness: A Conversation with Wolf Singer," *The Ego Tunnel*, page 67). Interviewer Thomas Metzinger and interviewee Wolf Singer alike called for more theory and interdisciplinary cooperation to render the inundation of these many millions of brain scans more intelligible for neuroscience, but in a crucial sense a theory must have the sorts of properties that Singer implies or enumerates (e.g., to account for the dynamic, unified, and quick temporal changeover of conscious attention) to be deemed correctly explanatory. In coming to terms with Popper's philosophy of science, Thomas McCarthy writes that "sense experience is not the primary experience of a manifest immediacy proposed by empiricism; it is preformed by physiology, previous experience, tradition, by what has been learned and what is anticipated In this sense, 'facts' are not 'given' but 'constituted.'" Constituted by whom? Philosophers of science Karl Popper and Thomas Kuhn insist that "the community of investigations, sharing a basic physiological makeup and communicatively interacting within institutional and cultural frameworks that undergo historical evolution" (McCarthy, "Positivism and Philosophy," *The Critical Theory of Jürgen Habermas*, page 47) are standard bearers.

The analytic-synthetic distinction also has a relation to theory-ladenness, and it is this: analytic propositions may not in principle admit of denial within the picture of the facts (e.g., the state of affairs) that contain the terms. There is reason to doubt this seemingly reasonable formulation. Within semantics, analytic propositions are said to be true due solely to the meaning of the terms and internal relations, whereas synthetic propositions are said to derive their truth value from their relation to an external state of affairs (i.e., a different respective direction of fit in principle). With elementary terms, analytic propositions will not cause too many headaches. The proposition containing only elementary terms, *all bachelors are unmarried males*, is seen as unproblematic because a negation is hard to fathom considering the common denotation of these terms. Analytic propositions, however, run into serious problems when confronted with terms that are embedded in a complex, and perhaps scientifically dubious, web of beliefs. Consider an analytic proposition, perhaps wielded hundreds of years ago by a pre-Antoine Lavoisier proto-chemist, which contained terms like phlogiston and calx. Here is the example that Paul Churchalnd gives on page 47 of *Scientific Realism and the Plasticity of Mind*:

(1) Phlogiston is an elemental substance.
(2) Phlogiston forms compounds with other substances.
(3) Combustion and calxification both consist in the release of phlogiston from a compound substance containing it.
(4) The release of phlogiston is induced by high temperatures.

An analytic proposition forwarded hundreds of years ago using the term ‘phlogiston’ might furnish the proto-chemist with a redoubled though misguided faith in phlogiston: “In such a case the denial of one or more of these assumptions would indeed be inconsistent with our understanding of the term ‘phlogiston’ (Churchland, *Scientific Realism and the Plasticity of Mind*, pages 46-47). The proposition only comes out properly in an analytic sense if embedded in, what chemists since Lavoisier know to be, an empirically-false web of beliefs. The analytic proposition containing phlogiston only ‘works’ within a hermetic internal framework. Synthetic propositions might be supposed to turn out better; unfortunately, the Duhem-Quine thesis says that neither analytic nor synthetic propositions are liberated from theoretical presuppositions, e.g., the above example of the Eddington expeditions. So, the presuppositions impact both analytic propositions and synthetic propositions because each is connected to a web of beliefs. The critical realist philosopher Wilfrid Sellars is justified in asserting ‘the myth of the given.’

There have been many attempts to overcome ‘the myth of the given’ and maintain the supposed distinction between analytic propositions and synthetic propositions; these efforts stretch back at least to Gottfried Leibniz, Immanuel Kant, and David Hume. Within the “Two Dogmas of Empiricism” Quine wrote that “Kant’s cleavage between analytic and synthetic truths was foreshadowed in Hume’s distinction between relations of ideas and matters of fact, and in Leibniz’s distinction between truths of reason and truths of fact. Leibniz spoke of the truths of reason as true in all possible worlds,” cf. Gottfried Leibniz’s *salva veritate*, a proposal for intersubstitutivity, Quine’s inscrutability of reference and holophrastic thesis unpacked in *Ontological Relativity* and *The Pursuit of Truth*. “The truths of reason are those which could not possibly be false” (Quine, “Two Dogmas of Empiricism,” *From a Logical Point of View*, page 20), asserts the believer in analytic propositions, deductive conclusions in a closed framework, and *a priori* certainty. Quine adds in the same essay that, “the notion of self-contradictoriness, in the quite broad sense needed for this definition of analyticity, stands in exactly the same need of clarification as does the notion of analyticity itself. The two notions are two sides of a single dubious coin” (ibid, page 20). With respect to intersubstitutivity and, perhaps by extension, the terms and predicates of analytic propositions, both W.V. Quine and J.L. Austin favored treating the sentence as the primary vehicle for conveying meaning, rather than the word per se. In “The Meaning of a Word,” J.L. Austin urged that “what alone has meaning is a sentence” and “the sense in which a word or a phrase ‘has a meaning’ is to say that there are sentences in which it occurs which ‘have meanings’ (Austin, *Philosophical Papers*, page 56); Quine seconded that sentiment in that “words can be said to owe their meaning to their roles in sentences. We learn short sentences as wholes, we learn their component words from their use in those sentences, and we build further sentences from words thus learned” (Quine, “Meaning,” *The Philosophy and Language*, page 446), cf. *Word and Object*, “The Interanimation of Sentences.”

The abandonment of Immanuel Kant's shopsoiled analytic-synthetic distinction as well as reductionism (viz., the two dogmas of modern empiricism for Quine) was viewed as tantamount to "a blurring of the supposed boundary between speculative metaphysics and natural sciences" (ibid., page 20), partly because analytic propositions and synthetic propositions are beholden to confirmation holism. The issue with analytic statements, deductive logic, *a priori* certainty, intersubstitutivity, and the rest of it is that these potentially depend on accepting the artificial imposition of a closed world assumption and abbreviated domain of discourse; put another way, the truths deriving from these methods may be deemed 'true,' yet remain provincial and fairly meaningless; consider the debates over angels dancing on the head of a pin for the medieval scholastics. Similar concerns may extend to quantified modal logic in that these systems hinge on context and meaning as well.

> "Since Aristotle the efforts of logicians (more or less consciously) were directed toward reformulating the deductive rules as formally as possible, i.e. possibly so that with their help the conclusion could be 'calculated' mechanically from the premisses. This was attained first in a strict manner only in modern symbolic logic; the traditional logic was too much hindered by the defect of the language of words" (Carnap, "On the Character of Philosophical Problems," *The Linguistic Turn*, page 57).
>
> Cf. The philosopher of science Paul Feyerabend furnishes this example of the vertiginously peculiar dialectical style of Melissus of Samos from *On Melissus, Xenophanes, and Gorgias*: "God, it is said, must be *one*. If he were many, then the many would be equal or unequal. If they are equal, then they are again one. If not, then some are, and those are one (first part) while others are not, and those do not count. Or: God cannot have *come into existence*. Had he done so then he would have emerged from what is equal, or what is not equal. Emerging from what is equal means remaining the same; emerging from what is unequal is impossible for what is cannot come from what is not. Also, God must be *all powerful* [obviously]: an all powerful god comes from what is equal or from what is not equal. In the first case he again does not emerge but remains the same. In the second case he comes from what is stronger or from what is weaker. He cannot come from what is stronger, for in that case the stronger would still exist. He cannot come from what is weaker, for where should the weak obtain the strength to create the stronger? (Feyerabend, "Aristotle not a Dead Dog," *Science in a Free Society*, page 54).

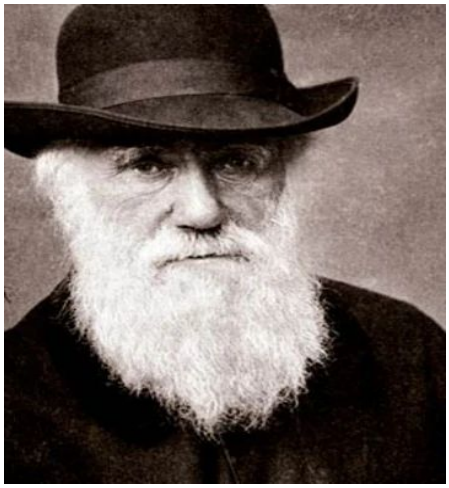
Francis Bacon in the *Novum Organum*, nominally an update to Aristotle's classic text *Organon*, deplores Aristotle's reliance on logic and syllogistic deduction, as opposed to induction. The upshot of the *Novum Organum* was the 'new' Baconian method and hastening towards the widespread adoption of the scientific method. Bacon blanched at any theory which "flies from the senses and particulars to axioms of the most general kind"; and "this is why Baconians boggle at the phrase 'Aristotelian science'" (Rorty, *Objectivity, Relativism, and Truth*, page 47). The English philosopher and empiricist John Stuart Mill also sought to exchange *a priori* and deductive 'certainty' for *a posteriori* probability. In Humean fashion, John Stuart Mill reckoned in *A System of Logic: Ratiocinative and Inductive* that knowledge derives from sense impressions and consequent reasonings predicated on those sense impressions, ruling out *a priori* knowledge on principle. The greater the knowledge obtained, the thinking went, the more inferences that had occurred to that original sense data: "Inference, consequently all Proof, and all discovery of truths not self-evident, consists of inductions, and the interpretation of

inductions." The iterative validation of induction that John Stuart Mill marshalls by way of supposedly *a posteriori* proof of induction is prone to circularity, as Bertrand Russell notes within "Limitations of Scientific Method," viz., "all inductive arguments in the last resort reduce themselves to the following form: 'If this is true, that is true: now that is true, therefore that is true.' This argument is, of course, formally fallacious" ("Limitations of Scientific Method," *The Basic Writings of Bertrand Russell*, page 604, cf. discussion above with David Hume and the vicious circle of doctors). In the famous example of swans, noting ten, a hundred, a thousand, or however many white swans one cares to reference does not thereby preclude the possibility of a black swan; the foregoing example is one of enumerative induction, a form of inductive inference fundamental to the scientific method. The swan example is supposed to be consistent with enumerative induction in that the more instances which are found to support the premise, the higher the probability that 'all swans are white' will attend by way of conclusion. In other words, tagging ten thousand white swans, as opposed to three white swans, would supposedly make it more probable that all swans were white; here one can see the weakness of inductive inference: there are, in fact, black swans. The Scottish philosopher David Hume had a century before John Stuart Mill impugned enumerative inference. There is more than one way, however, to pursue the inductive issue: forms of generalization (e.g., the statistical generalization used in social sciences), Bayesian prior probability, analogical reasoning, and myriad types of causal inference. Indeed, John Stuart Mill focused on causal inference within *A System of Logic: Ratiocinative and Inductive* with, e.g., the method of difference, the method of agreement, the method of residues, and the method of concomitant variations. These remain probabilistic, hence fallible, forms of causal inference, and David Hume is right to invoke concepts such as the uniformity of nature - viz., by saying "If reason determined us, it would proceed upon that principle, that instances, of which we have had no experience, must resemble those, of which we have had experience, and that the course of nature continues always uniformly the same" within *A Treatise of Human Nature* - to highlight the uncertain nature of both the premises and hence conclusions with inductive reasoning. The provisional, makeshift nature at the heart of this science, or 'experimental philosophy,' was not lost on the physicist, astronomer, and mathematician Isaac Newton, who wrote in Book III of the *Principia*, "In experimental philosophy we are to look upon propositions inferred by general induction from phenomena as accurate or very nearly true, notwithstanding contrary hypotheses that may be imagined, till such times as other phenomena occur, by which they may either be made more accurate, or liable to exceptions." Newton may have had a privileged position as an astronomer, but does the average person strolling down the street really 'know' a body like the sun:

> "The sun is removed from us in space as Napoleon is removed from us in time. The sun, like Napoleon, is known to us only through its effects. People say they see the sun; but that only means that something has travelled through the intervening ninety-three million miles, and produced an effect upon their retina, the optic nerve, and the brain. This effect, which happens where we are, is certainly not identical with the sun as understood by astronomers. Indeed, the same effect might be produced by other means: in theory, a hot globe of molten metal could be hung up in such a position that, to a given observer, it would seem just like the sun. The effect upon the observer might be made indistinguishable from the effect which the sun produces. The sun, therefore, is an inference from what we see, and it is not the actual patch of brightness of which we are immediately aware [which is approximately an eight-minute old sun because that's

> the time the speed of light - 6.706 X 10^8 MPH - takes to travel 93 X 10^6 miles]" (Russell, "Limitations of Scientific Method," *Basic Writings of Bertrand Russell*, page 603.

Quine has reminded readers that the Humean predicament remains the human predicament insofar as the problem of induction has, to this day, neither been solved nor dissolved, yet "every reasonable expectation depends on resemblance of circumstances, together with our tendency to expect similar causes to have similar effects" (Quine, "Natural Kinds, *Ontological Relativity*, page 117). The problem of induction, e.g., "why does our innate subjective spacing of qualities accord so well with the functionally relevant groups in nature as to make our inductions tend to come out right? Why should our subjective spacing of qualities have a special purchase on nature and a lien on the future?," is here to stay. The Japanese theoretical physicist Satosi Watanabe once posited, in a paper published in French as "Une Explication Mathématique Du Classement D'objets" (A Mathematical Explanation of Object Classification) within a book titled *Information and Prediction in Science*, that natural selection could be the mechanism behind induction in humans and other animals, see views of Churchland and Rorty above.

Above Left: Satosi Watanabe and son, 1949 **Above Right**: A hatted Charles Darwin

Within the essay "Natural Kinds," Quine entertained this possibility: "There is some encouragement in Darwin. If people's innate spacing of qualities is a gene-linked trait, then the spacing that has made for the most successful inductions will have tended to predominate through natural selection. Creatures inveterately wrong in their inductions have a pathetic but praiseworthy tendency to die before reproducing their kind" (ibid., page 126). That seems brutal, but so does evolution at times so it may well be true. In that same essay Quine earlier said, "induction itself is essentially only more of the same: animal expectation or habit formation. And the ostensive learning of words is an implicit case of induction," such that the human learner of myriad colors is progressing inductively from the ostensive learning of words towards "a general law of English verbal behavior," though perhaps a general law as tacit or as unconscious as it is powerful and inarticulate (cf. Polanyi's *tacit knowledge*). By trial and error, the learner is 'working up' to a test in which "an English speaker would assent to 'yellow' and when not" (ibid., 125). This sounds rudimentary until one realizes the mechanisms operating in the background to

make it possible. Aside from the learning process and evolution, the foregoing conceptualization hinges partly on some approximation of a speech community in the Chomskian sense vis-à-vis an ideal-speaker listener or in Habermas's extended sense of a rational discourse vis-à-vis an ideal speech situation. Chomsky found: "linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual practice" (Chomsky, *Aspects of the Theory of Syntax*, page 3). This goes mainly for the judging of linguistic practices, but the judging and learning cannot be neatly decoupled if learning takes place through an inductive process employing judgements of knowing the proper time to "assent to 'yellow' and when not" within a feedback-furnishing homogenous speech community.

In any event, these apparent limitations to induction catalogued by Newton, Quine, and Hume (cf. brute facts) have not stopped certain logicians from attempting to discover a way out of the Humean predicament. Within *Meaning and Necessity: An Essay in Semantics and Modal Logic* there's a famous paper titled "Empiricism, Semantics, and Ontology," which some have amusingly called 'the last gasp of logical positivism,' by logician-philosopher Rudolf Carnap. Therein Carnap says the 'rules' in a system (i.e., 'a framework') can logically determine the answers to questions posed within the hermetic framework. Carnap writes: "As an example of a system which is of a logical rather than a factual nature let us take the system of natural numbers. The framework for this system is constructed by introducing into the ['thing'] language new expressions with suitable rules: (1) numerals like 'five' and sentence forms like 'there are five books on the table'; (2) the general term 'number' for the new entities, and sentence forms like 'five is a number'; (3) expressions for properties of numbers (e.g., 'odd', 'prime'), relations (e.g., 'greater than'), and functions (e.g., 'plus'), and sentence forms like 'two plus three is five'; (4) numerical variables ('m', 'n', etc.) and quantifiers for universal sentences ('for every *n*, ... ') and existential sentences ('there is an *n* such that…') with the customary deductive rules." An answer to the question "Is there a prime number greater than a hundred" is "found, not by empirical investigation based on observations, but by logical analysis based on the rules for the new expressions. Therefore the answers are here analytic, i.e., logically true." The framework admits both empirical and logical, i.e., synthetic and analytic, propositions: "After the new forms are introduced into the [thing] language, it is possible to formulate with their help internal questions [to the thing framework] and possible answers to them. A question of this kind may be either empirical or logical [i.e., synthetic or analytic]; accordingly a true answer is either factually true or analytic" (Carnap, "Empiricism, Semantics, and Ontology," *Meaning and Necessity: A Study in Semantics and Modal Logic*, page 214). Supposed facts that prove incompliant with Carnap's idiosyncratic framework are peremptorily dismissed by Carnap as 'pseudoproblems.' Carnap and the logical positivists intended to inform the intelligentsia, or anyone who would listen, what were and were not admissible intellectual pursuits.

Carnap desired a framework in which worthwhile problems could be submitted, and so-called pseudoproblems would be denied access. There was, moreover, a desire to distinguish empirical investigation from logical analysis in the familiar synthetic-analytic schema. The problem is that the framework may invoke terms embedded in flawed theories, e.g., phlogiston

theory. The ‘thing world’ which Carnap discusses at length simply cannot be isolated in the fashion that he craves. There’s a footnote within “Empiricism, Semantics, and Ontology” in which Carnap remarks: “Quine does not acknowledge the distinction which I emphasize above, because according to his general conception there are no sharp boundary lines between logical and factual truths, between questions of meaning and questions of fact, between the acceptance of a language structure and the acceptance of an assertion formulated in the language” (*Meaning and Necessity: A Study in Semantics and Modal Logic*, “Empiricism, Semantics, and Ontology,” page 215). Carnap’s solution to any difficulties which arise is factoring how ‘expedient and fruitful’ semantic analyses are for ‘analysis, interpretation, clarification, or construction,’ yet these issues obviously cannot productively be dealt with in complete isolation from epistemology and ontology. Suppose that a proto-chemist found that phlogiston proved conceptually ‘expedient and fruitful’ in explaining real-world data, which happened all the time. In connection with the four phlogiston items that Paul Churchland impishly trots out above, consider that “A given sentence may not admit of a denial consistent with one’s current understanding of its terms, but this provides no guarantee that the sentence is even *true*, let alone necessarily true, let alone true solely in virtue of meanings” (*Scientific Realism and the Plasticity of Mind*, page 47). Further suppose that adopting a geocentric model of the solar system might also have been ‘expedient and fruitful’ for squaring observation and theory hundreds of years ago; such a web of beliefs would also have been epistemologically and ontologically beguiled even it did not “admit of a denial consistent with one’s current understanding of its terms.” The analytic-synthetic distinction simply does not hold. Rudolf Carnap reported that, “An analytic proposition is true in every possible case and therefore does not state which case is on hand” (Carnap, On the Character of Philosophical Problems, *The Linguistic Turn*, page 58), yet, *pace* Carnap, that “true in every possible case” is meretricious in the wake of scientific advancements and the finding that terms, e.g., phlogiston, are embedded in theories which are not themselves impervious to empirical critique.

Philosopher of science Hilary Putnam disapproved of “logicians like Carnap [who] do little more than formalize these traditional theories” of meaning, which “radically falsify the properties of such words” that are associated with natural kinds (“Is Semantics Possible?,” *Language, Belief and Metaphysics*, page 139). Putnam appears to define natural kinds as ‘classes of things’ regarded for their ‘explanatory importance.’ Rather than defining terms and propositions analytically by the conjunction of properties that inhere to it, Putnam suggests embracing “the matter of (high level and very abstract) scientific investigation and not just meaning analysis.” Glaring problems with Carnap’s analytic propositions are that the defining characteristics of, say, a lemon (e.g., “yellow color, tart taste, a certain kind of peel, etc.”) fail to account for the scientific reality (i.e., natural kinds) or abnormal members, cf. “a three-legged tiger is still a tiger.” Hilary Putnam’s natural kind term embodies the essential nature that “the thing shares with other members of the natural kind. The advantage, and it could hardly be overstated, is that the essential nature is ‘not a matter of language analysis but of scientific theory construction,’ specifically, e.g., the ‘chromosome structure, in the case of lemons’” (ibid, pages 140-142). Any natural kind term, however, will still be embedded in a theory in which, perhaps problematically, the chromosome structure features are not included at the necessary or proper level of description at the time of, say, employing the theory to make an observation or prediction.

Within, e.g., the essay “A Problem About Reference” in *Reason, Truth and History* and “The Meaning of Meaning” (see, also, the obituary by the same name in the March 26th-April 1st 2016 issue of *The Economist* newspaper) published in *Language, Mind and Knowledge*, Hilary Putnam invited the reader to ponder the case of two genetically identical (monozygotic) twins living on identical planets except that water on one, not two, of the planets was something other than H_2O, yet this liquidy substance was still referred to as ‘water’ by both twins. The twins would thereby be using the same term to refer to different things. There are numerous ways of overcoming the problem of what Gottlob Frege derisively called ‘psychologism,’ diverse and varyingly palatable approaches from the Edmund Husserl’s ‘bracketing’ and Daniel Dennett’s ‘notional world’ to two-dimensional semantics and the causal theory of reference, but an intriguing idea to explore here might be the one forwarded by Hilary Putnam himself, which doesn’t invoke too elaborate a fantasy world - viz., the linguistic division of labor. (This also relates to Bertrand Russell’s dilemma that only the specialist can be said to ‘know’ a particular niche issue.) The idea of a linguistic division of labor is expounded by Hilary Putnam in an essay titled “Meaning and Reference,” in which an astonished Putnam gushed, “[a linguistic division of labor] surprisingly, [seems] never [to] have been pointed out.” The fundamental idea behind the linguistic division of labor is that meaning is constructed by ‘a linguistic community considered as a collective body’:

> “Gold is important for many reasons; it is a precious metal; it is a monetary metal; it has symbolic value (it is important to most people that the ‘gold’ wedding ring they wear *really* consists of gold and not just *look* gold); etc. Consider our community as a ‘factory’: in this ‘factory’ some people have the ‘job’ of wearing rings; still other people have the job of telling whether or not something is really gold. It is not at all necessary or efficient that every one who wears a gold ring (or a gold cufflink, etc.) or discusses the ‘gold standard,’ etc., engage in buying and selling gold. Nor is it necessary or efficient that every one who buys and sells gold be able to tell whether or not something is really gold in a society where this form of dishonesty is uncommon (selling fake gold) and in which one can easily consult an expert in case of doubt. And it is certainly not necessary or efficient that every one who has occasion to buy or wear gold be able to tell with any reliability whether or not something is really gold” (Putnam, “Meaning and Reference,” *The Philosophy of Language*, page 287).

The ‘collective body’ actually “divides the ‘labor’ of knowing and employing these various parts of the ‘meaning’ of ‘gold,’” Putnam reckoned. The division of linguistic labor “rests upon and presupposes the division of *non*linguistic labor” in the sense that not everyone who uses the word ‘gold’ will be prepared to employ the jeweler’s loupe with a studied eye; the implication is that for basic words there is little or no division of labor; “thus the way of recognizing possessed by these ‘expert’ speakers is also, though them, possessed by the collective linguistic body.” Putnam thought that only the linguistic body as a whole fixed the extension of the term in question and that, moreover, this notion of a division of linguistic labor could prove promising for sociolinguistics: “We may summarize this discussion by pointing out that there are two sorts of tools in the world: there are tools like a hammer or a screwdriver which can be used by one person; and there are tools like a steamship which require the cooperative activity of a number of persons to use. Words have been thought of too much on the model of the first sort of tool” (Putnam, “Meaning and Reference,” *The Philosophy of Language*, page 287-288). W.V. Quine reached for a similar figure of speech guaranteed to bring a smile to zoologist and horticulturist

alike when he said that, “Different persons growing up in the same language are like different bushes trimmed and trained to take the shape of identical elephants. The anatomical details of twigs and branches will fulfill the elephantine form differently from bush to bush, but the overall outward results are alike” (Quine, *Word and Object*, page 8, cf. multiple realizability in the philosophy of mind). Further, “the outward uniformity is imposed by society, in inculcating language and pressing for smooth communication” (Quine, “Interpretation and Translation,” *The Philosophy of Language*, page 449).

2.

If the linguistic turn discovered its apotheosis in analytic philosophy through Ludwig Wittgenstein’s ideal language philosophy, by way of Gottlob Frege and Bertrand Russell’s logical atomism which sought an isomorphic language, then perhaps the Swiss linguist Ferdinand de Saussure, a structuralist and instrumental figure in semiotics, could be said to have orchestrated a rather more dissonant symphony along the linguistic turn. There’s an analogy to be drawn between Gottlob Frege’s distinguishing sense and reference, and the reverberating effects that had on logical positivism and the Vienna Circle, and Ferdinand de Saussure’s distinguishing the linguistic sign from both the material *signifier* and the conceptual *signified*, and these ideas’ later effects on a diffuse group of movements including deconstructionism, postmodernism, and post-structuralism. In semiotics, or the field concerned with sign processes and the meaning of signs, the sign, known as the *signifier*, and the meaning of the sign, known as the *signified*, is distinct but related dyadically. Ferdinand de Saussure claimed that this dyadic semiotic relationship embodied *semiotic arbitrariness* and the heavy hand of social, rather than innate, construction. “But what is it, Saussure asked, that allows a sign to mean something, to actually *carry meaning*? It can’t be the word itself, because, for example, the word ‘bark’ has a different meaning in the phrases ‘the bark of a dog’ and ‘the bark of a tree.’” The word ‘bark’ has meaning, in each case, because of its place in the entire phrase (a different phrase gives the same word a totally different meaning). Each phrase likewise has meaning because of its place in the larger sentence, and eventually, in the total linguistic structure. Any given word in itself is basically *meaningless* because the same word can have completely different meanings depending on the context or the structure in which it is placed” (Wilber, “From Modernity to Postmodernity,” *Integral Psychology*, page 165). The relationships between all of the words is the skeleton key that unlocks the meaning; one can see the relevance to structuralism from this holistic conceptualization of meaning: “a meaningless element [e.g., a word] becomes meaningful only by virtue of the total structure” (ibid., page 165).

Gottlob Frege exerted an animating effect on subsequent analytic philosophy by establishing the terms with ‘sense’ and ‘reference,’ whereas Ferdinand de Saussure had a profound impact on continental philosophy, in particular structuralism, deconstruction, and hermeneutics by distinguishing the dyadically-related signifier and signified plus that relationship’s socially-constructed semiotic arbitrariness. (John Locke juxtaposed nominal essence and real essence, cf. natural kinds, hundreds of years before these developments.) Also, Friedrich Nietzsche was ahead of the curve when he considered a given convoluted or embedded phenomenon, e.g., the Will to Power for Nietzsche, “that is a unit only as a word.” Decades later

Nietzsche disciple Michel Foucault historically situated this Saussurian ontological severing of signifier and signified in *The Order of Things*:

> "The Classical order of language has now drawn to a close. It has lost its transparency and its major function in the domain of knowledge. In the seventeenth and eighteenth centuries, it was the immediate and spontaneous unfolding of representations [dyadic relationship between *signifier* and *signified*]; it was in that order in the first place that representations received their primary signs [see semiotics], patterned and regrouped their common features, and established their relations of identity or attribution; language was a form of knowing and knowing was automatically discourse. Thus, language occupied a fundamental situation in relation to all knowledge: it was only by the medium of language that the things of the world could be known. Not because it was a part of the world, ontologically interwoven with it (as in the Renaissance), but because it was the first stretch of an order in representations of the world; because it was the initial, inevitable way of representing representations. It was in language that all generality was formed. Classical knowledge was profoundly nominalist. From the nineteenth century, language began to fold in upon itself, to acquire its own particular density, to deploy a history, an objectivity, and the laws of its own. It became one object of knowledge among others, on the same level as living beings, wealth and value, and the history of events and men. It may possess its own concepts, those that deal with other empirical forms of knowledge. The preeminence that enables *general grammar* to be *logic* while at the same time intersecting with it has now been lost. To know language is no longer to come as close as possible to knowledge itself [because of aforementioned ontological severing]; it is merely to apply the methods of understanding in general to a particular domain of objectivity." (Foucault, *The Order of Things*, pages 295-296)

Habermas found: "In *The Order of Things (1966)*, Foucault investigates the modern forms of knowledge (or *épistémès*) that establish for the sciences their unsurpassable horizons of basic concepts (one could say: that establish the historical *a priori* of the understanding of Being)" (Habermas, *The Philosophical Discourses of Modernity*, pages 257-258), cf. Gaston Bachelard's notion of *rupture épistémologique*.

The chief insight of postmodernism is that reality is partly a construction, hence a derived meaning may be dependent on the context. Postmodernism may mutate from constructive to destructive, however, by applying the insight that reality is partly socially-constructed, and therefore accepting of more perspectives, to the nihilistic conclusion that nothing can or should boast pride of place over anything else; "a constructive postmodernity slid into a nihilistic deconstructive postmodernity when the pluralistic embrace turned into a rancid leveling of all qualitative distinctions" (Wilber, *Integral Psychology*, page 160). Jean-François Lyotard insisted in *The Postmodern Condition: A Report on Knowledge* that the postmodern project ushered in a period of "incredulity towards metanarratives," or skepticism towards these grand, monolithic narratives which supposedly once informed epochs. Various commentators, e.g., Francis Fukayama who wrote *The End of History and the Last Man* and wrongly predicted the unbroken future hegemony of so-called liberal democracy and American-style capitalism, have been slow to embrace an "incredulity towards metanarratives" or the notion of pluralism, particularly with regard to societal organization. The idea behind postmodernism is that reality is not completely pregiven, that contexts are formative, and that more perspectives are acceptable. Some have argued that this move by the postmodernists is almost an only-somewhat-distorted mirror image of modernism, which downplayed or eliminated *subjective* reality, context-dependency, the

importance of interpretation, and the possible utility of multiple perspectives. The cosmologist Stephen Hawking acknowledged "a complete, consistent, unified theory is only the first step: our goal is a complete *understanding* of the events around us, and of our own existence" in *A Brief History of Time*. The desire presumably expressed here is a bridge between modernity and postmodernity such that the mapmaker is not excluded from the map of an ultimate theory.

Drawing a map or charting a phenomenon can only be done by exclusion; supposing one had exhausted an entire category of objects in devising a schema, the schema would still exclude other categories. Hence Michel Foucault yearned to "write the history of boundaries by which a culture reprobates something that lies *outside* it," and this deviant endeavor is historically placed by Jürgen Habermas in the first of two lecture given on Foucault: "He [Foucault] classifies insanity [e.g., in *Madness and Civilization: A History of Insanity in the Age of Reason*] among those limit experiences in which Western logos sees itself, with extreme ambivalence, faced with something heterogeneous. Boundary-transgressing experiences include contact with and even immersion in the Oriental World (Schopenhauer) [cf. *Schopenhauer and the Wild Years of Philosophy* by Rüdiger Safranski]; rediscovery of the tragic element and of the archaic in general (Nietzsche); penetration of the dream sphere (Freud) and of the archaic prohibitions (Bataille); even the exoticism nourished by anthropological reports [see, e.g., Joseph Conrad's "Heart of Darkness" and "An Outpost to Progress," and Edward Said's *Orientalism*]" (Habermas, *The Philosophical Discourse of Modernity*, page 240). Charles Darwin, the co-discoverer of the theory of natural selection with Alfred Wallace, is a curious omission from Habermas's list of revolutionary thinkers; Darwin, unlike Wallace, reckoned that natural selection alone could ultimately explain the human mind, and Darwin was therefore considered something of a heretic by the more devout Alfred Wallace. Darwin's and Wallace's insights that (1) natural selection acts on the phenotype of individuals and (2) that variations arising from natural selection result in gradual population changes and the evolution of human beings would seem to be the archetypal case of "limit experiences in which Western logos sees itself, with extreme ambivalence, faced with something heterogeneous." The notion that "evolution occurs as a result of competition and environment change, both of which act of variation in populations," thereby producing different gene frequencies, would certainly be a challenge to hallowed, time-honored traditions of how humans and other earthly creatures came to be (Edelman, *Bright Air, Brilliant Fire*, pages 42-44). The theory of natural selection serves as a stark contrast to René Descartes's claim in the Second Meditation that "nothing is easier for the mind to know than itself." Such a claim would astound Charles Darwin and Sigmund Freud equally.

Karl Marx may also deserve at least honorable mention in Habermas's discussion of "limit experiences in which Western logos sees itself, with extreme ambivalence, faced with something heterogeneous." Although Karl Marx is said to be indebted to Henri de Saint-Simon, particularly Saint-Simonianism's impact on the Marxian conception of class struggle, and qualifiedly influenced by Georg Hegel with respect to the reconceptualized Hegelianism of dialectical materialism, Marx's vantage of economics as a battlefield of class interests may have proved revolutionary for some to ponder. In the preface of *A Contribution to the Critique of Political Economy*, Marx wrote, "It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness"; this historical

inversion potentially disheartens humanist fantasies of omnipotence through omniscience and the sanctification of reason as a balm to all society's wounds.

Karl Marx and Sigmund Freud alike would be considered by Michel Foucault as archetypal 'founders of discursivity,' which can be essentially defined in the following way: "they are unique in that they are not just the authors of their own works. They have produced something else: the possibility and the rules for the formation of other texts," such that "reexamining Freud's texts modifies psychoanalysis itself, just as a reexamination of Marx's would modify Marxism" in a way that does not obtain for less influential authors (Foucault, "What is an Author," *Aesthetics, Methods, and Epistemology*, pages 216-219). Karl Marx recasts history as class struggle, relations of production, base-superstructure, and historical materialism, whereas Sigmund Freud stresses the role of the unconscious and related factors such as the id, ego, and superego, repression, sublimation, projection, transference and the rest of it. Later in Freud's career, well after *The Interpretation of Dreams*, Freud reimagined modern society, particularly in *Civilization and Its Discontents*, in a novel and perhaps disturbing way, suggesting that modern society is only possible due to the partially successful tension holding down baser instincts; the toll for this tension is human repression and a fresh species of malaise, the upshot is civilization. The Enlightenment myth was that progress would be possible, some went as far as to contend inevitable, in all spheres of human endeavor following the lead of progress made in science and reason over various other myths and superstitions; Freud showed this was an illusion and, moreover, suggested that foregrounding the idea of progress or happiness as the telos of human endeavor might well be delusional. Everyone wants to be happy, right? Freud reckoned that many people, in fact, unconsciously want to remain, e.g., angry at their parents or masochistically held in thrall by a constellation of crippling neuroses, rather than 'happy' or 'productive' or even 'good,' but they are unable to admit these feelings to themselves.

Schopenhauer, Nietzsche, and Freud eclipsed the rhetorical projections of an Enlightenment dawn with a halting, closer-at-hand gloom positively bent on upending or otherwise defiling passed-down wisdom: "The general awareness of the time was transformed only by the terrible shock that the slaughters of World War I brought to the cultural consciousness and to the faith in progress of the liberal era" (Gadamer, "Heidegger's Later Philosophy," *Philosophical Hermeneutics*, page 213). Neither prudence nor wisdom inevitably flowed from reason - faith in reason alone proved errant. Freud eventually ventured well *Beyond the Pleasure Principle* to come upon an uncanny gothic romance betwixt Thanatos and Eros, a forbidden *pas de deux* luxuriantly blooming beneath a sickle moon.

> "The marriage of reason and nightmare which has dominated the 20th century has given birth to an even more ambiguous world. Across the communications landscape move the specters of sinister technologies and the dreams that money can buy. Thermonuclear weapons systems and soft drink commercials coexist in an overlit realm ruled by advertising and pseudoevents, science and pornography. Over our lives preside the great twin leitmotifs of 20th century - sex and paranoia. Despite McLuhan's delight in high-speed information mosaics we are still reminded of Freud's profound pessimism in *Civilization and Its Discontents*. Voyeurism, self-disgust, the infantile basis of our dreams and longings - these diseases of the psyche have now culminated in the most terrifying casualty of the century: the death of affect."

> “Science and technology multiply around us. To an increasing extent they dictate the languages in which we speak and think. Either we use those languages, or we remain mute.”
>
> “Options multiply around us, we live in an almost infantile world where any demand, any possibility, whether for lifestyles, travel, sexual roles and identities, can be satisfied instantly.”
>
> “In the past we have always assumed that the external world around us has represented reality, however confusing or uncertain, and that the inner world of our minds, its dreams, hopes, ambitions, represented the realm of fantasy and the imagination. These roles, too, it seems to me, have been reversed. The most prudent and effective method of dealing with the world around us is to assume that it is a complete fiction - conversely, the one small node of reality between the latent and manifest content of the dream, between the apparent and the real, now needs to be applied to the external world of so-called reality”
>
> “Do we see, in the car crash, a sinister portent of a nightmare marriage between sex and technology? Will modern technology provide us with hitherto undreamed-of means for tapping our own psychopathologies? Is this harnessing of our innate perversity conceivably of benefit to us? Is there some deviant logic unfolding more powerful than that provided by reason?” (Ballard, “Introduction to the French Edition,” *Crash*).

Michel Foucault prolongs the spectacle and in fact goes one step further than Freud by claiming that the ‘insanity’ against which ‘reason’ is measured is itself contingent: “This group of statements [about madness] is far from referring to a single object, formed once and for all, and to preserving it indefinitely as its horizon of inexhaustible ideality; the object presented as their correlative by medical statements of the seventeenth or eighteenth century is not identical with the object that emerges in legal sentences or police action; similarly, all the objects of psychopathological discourses were modified from Pinel or Esquirol to Bleuler; it is not the same illnesses that are at issue in each of these cases; we are not dealing with the same madman” (Foucault, *Archaeology of Knowledge and the Discourse of Language*, page 32). Put another way, Foucault as a disciple of Saussure is pointing out the inadequacy of this notion of the pregiven, i.e., the pre-given concept of a madman or madness achieving an ‘inexhaustible ideality,’ secured against redefinition by historical contingencies. Analogously to the way in which reason is exalted against madness, ‘normal’ sexuality is conditioned by the contrast to a sociohistorical condemnation of homosexuality. Prior to 1974 and a campaign by Alfred Kinsey, for instance, the American Psychological Association (APA) classified homosexuality among mental disorders. Why? What sociocultural forces allowed that to happen? How did this impact the self-image, emotions, and behavior of those classified?

> “It is often noted that Foucault restricted his analysis to the human sciences because the objects and truths generated in them had constitutive effects on the subjects under study. The way botanists classify plants has no effect on how plants ‘behave’, but in the case of human beings as scientists devise new objects, classifications and categories they generate types of people, and also types of actions and sensations. Categories of people come into existence at the same time as the people who fit into them. There is a two-way, dynamic interaction between these processes.

> Practices thus constitute social reality in complex and entangled ways: they constitute both objects of knowledge - such as homosexuality - as well as subjects who are known as homosexuals and who behave and act according to that knowledge. This looping effect is what Foucault means when he argues that relations of power and forms of knowledge create subjects. He attempted to understand and describe, through his historical studies, the processes in which different kinds of subjects were constructed: how the identities 'delinquent' or 'homosexual', for example, emerged as supposedly natural, scientific classifications" (Oksala, *How to Read Foucault*, pages 13-14), Cf. Page 43 of the *History of Sexuality*.

Habermas writes that Foucault "ascertains the limits of any given universe of discourse; its form is *bounded* by the kinds of elements that it unconsciously *excludes* as heterogeneous - and to this degree, the rules constitutive of discourses also function as a mechanism of exclusion," and couples the 'merciless historicism' of this bounding with skepticism about a pregiven, or prediscursive referent: "As little as the term 'madness' (from the Renaissance down to positivistic psychiatry in the nineteenth century) indicates an authentic experiential potential this side of all discourses about madmen, just as little does the other of reason, which is excluded as heterogeneous, retain the role of a prediscursive referent that could point to the coming arrival of a lost origin" (Habermas, *The Philosophical Discourse of Modernity*, pages 252-253). In the hectic ebb and flow of contingent discourses bursting forth, "no place is left for any *overarching* meaning in this chaotic multitude of past totalities of discourse." Metanarratives have been supplanted by a flattened landscape of history *qua* contingent discourses: "No place is left for any *overarching* meaning [for the genealogical historian] in this chaotic multitude of past totalities of discourse" (ibid., page 253). This is a flattened landscape because the genealogist has recourse to a 'single hypothesis' amidst 'countless events,' namely, that the "only thing that lasts is power," per Nietzsche and Foucault. Jürgen Habermas characterizes these efforts by the 'cynical' genealogist as the "double movement of liberation and enslavement."

In the *The Archaeology of Knowledge* Foucault provides an example of the contingent nature of discourses throughout history: "The affirmation that the earth is round or that species evolve does not constitute the same statement before and after Copernicus, before and after Darwin; it is not, for such simple formulations, that the meaning of the words has changed; what changed was the relation of these affirmations to other propositions, their conditions of use and reinvestment, the field of experience, of possible verifications, of problems to be resolved, to which they can be referred" (Foucault, *The Archaeology of Knowledge*, page 103). With respect to evolution, consider that Jean-Baptiste Lamarck, a religious man and French taxonomist, actually admitted evolution into his worldview, but for Foucault Lamarck's *épistémè* was at an earlier phase of development and precluded Lamarck from honing his insights. Michel Foucault establishes a tripartite historical schema for intellectual paradigms in *The Order of Things*, viz., the Renaissance Era, Classical Era, and Modern Era, which are slightly different from received custom. Foucault makes the point that Lamarck's thinking marked him as a transitional figure such that Lamarck was able to identity differences and catalog those differences but unable to find the correct mechanism of natural selection, as Charles Darwin and Alfred Wallace did, because only the *épistémè* of the Modern Era, rather than Classical Era, sees nature as dynamic and prone to error. In other words, Lamarck endorsed a teleological view which is

absent from Darwin. Jean-Baptiste Lamarck reckoned that living things orthogenetically evolved upwards towards a state of perfection. In fact, Lamarck marveled that God was the 'sublime author of nature' in the *Philosophie Zoologique* and made the rosy claim that species didn't reach an evolutionary cul-de-sac and perish per se but, rather, simply drifted into other species and vicariously survived that way. Charles Darwin was less sanguine, and more humble, when he meditated on the following dilemma, "Can the mind of man, which has, I fully believe, been developed from a mind as low as that possessed by the lowest animal, be trusted when it draws such grand conclusions?", over the possible objections of the more pious Alfred Wallace.

Foucalt traces the inspiration for penning this archeology of the human sciences to a short story by the imaginative Argentine writer Jorge Luis Borges: "This book first arose out of a passage in Borges, out of the laughter that shattered, as I read the passage, all the familiar landmarks of my thought - *our* thought, the thought that bears the stamp of our age and our geography [i.e., the modern *épistémè*, cf. Hans-Georg Gadamer's *wirkungsgeschichtliches Bewusstein* or historically-effected consciousness in *Truth and Method*] - breaking up all the ordered surfaces and all the planes with which we are accustomed to tame the wild profusion of existing things, and continuing long afterwards to disturb and threaten with collapse our age-old distinction between the Same and the Other. This passage quotes a 'certain Chinese encyclopaedia' in which it is written that 'animals are divided into: (a) belonging to the Emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) *et cetera*, (m) having just broken the water pitcher, (n) that from a long way off look like flies'. In the wonderment of this taxonomy, the thing we apprehend in one great leap, the thing that, by means of the fable, is demonstrated as the exotic charm of another system of thought, is the limitation of our own, the start impossibility of thinking *that*" (Foucault, Preface to *The Order of Things*, page XV). Amusingly, the fictitious taxonomy known as the "Heavenly Emporium of Celestial Knowledge" is located in the Penguin version of Jorge Luis Borges's so-called *Selected Non-Fiction* under the entry "John Wilkins' Analytical Language." Borges feigns amazement, and freely admixes fact and fiction, at the beginning of this entry, "I see that the fourteenth edition of the *Encyclopedia Britannica* has omitted the article on John Wilkins. The omission is justifiable if we recall its triviality (twenty lines of mere biographical data: Wilkins was born in 1614; Wilkins died in 1672; Wilkins was the chaplain of the Prince Palatine, Charles Louis; Wilkins was appointed rector of one of the colleges of Oxford; Wilkins was the first secretary of the Royal Society of London, etc.) but inexcusable if we consider Wilkins' speculative work." The reader is then told of Wilkins' eclectic roster of burgeoning interests, ranging from a 'happy curiosity' in theology and cryptography to fascination with the 'manufacture of transparent beehives' and the 'possibility of a trip to the moon' (Borges, *Selected Non-Fiction*, page 229). John Wilkins' roving intellect did not stop there, as history bears witness, *The Life and Times of John Wilkins* by P.A. Wright Henderson amply documents. (Consider writing Borges personally for more information on *The Life and Times of John Wilkins* or for more information on *Dangerous Thoughts* by Lancelot Hogben. Scholars may also refer to Kadam Isbe, Ph.D. in Transontological Studies from Kafka International University, who has vast experience attempting to decipher texts in the Library of Babel.) The entry continues by saying that the "Royal Academy produces a dictionary every few years in order to define those

words….In the universal language conceived by Wilkins in the middle of the seventeenth century, each word defines itself. Descartes, in a letter dated November 1619, had already noted that, by using the decimal system of numeration, we could learn in a single day to name all quantities to infinity, and to write them in a new language, the language of numbers; he also proposed the creation of a single, general language that would organize and contain all human thought. Around 1664, John Wilkins undertook that task" (ibid, page 230). The reader learns Wilkins "divided the universe into forty categories or classes, which were then subdivided into differences, and subdivided in turn into species," yet the "ambiguities, redundancies, and deficiencies" of this pursuit "recall[ed] those attributed by Dr. Franz Kuhn to a certain Chinese encyclopedia called the *Heavenly Emporium of Benevolent Knowledge*" (ibid, pages 230-231).

Borges's "John Wilkins' Analytical Language," published in 1942, is said to thematically anticipate postmodernism. In a sentence crucial for appreciating this possibility of anticipation, Jorge Luis Borges remarks on the "arbitrariness of Wilkins, the unknown (or apocryphal) Chinese encyclopedist" before adding that "there is no classification of the universe that is not arbitrary and speculative" (ibid, page 231). That is precisely the point that Ferdinand de Saussure and his followers make: the *signifier* and *signified* are bound by a dyadic semiotic relationship embodying *semiotic arbitrariness* in which a good deal of writing is done with the heavy hand of social, rather than innate, construction. Borges closes the 'non-fictional' entry by mulling over philosophical speculations from David Hume and encouraging humanity to boldly surpass the ironist of philosophy: "We must go even further, and suspect that there is no universe in the organic, unifying sense of that ambitious word. If there is, then we must speculate on its purpose; we must speculate on the words, definitions, etymologies, and synonymies of God's secret dictionary" (ibid., page 231). Borges fantasizes over escaping the sands of time in addition to attaining omniscience and alignment with the Almighty's secret dictionary: "Theoretically, a language in which the name of each being would indicate all the details of its fate, past and future, is not inconceivable" (ibid., page 232).

On a more earthbound note, Saul Kripke is a logician-philosopher who helped put readers' feet back on the ground with the publication of *Naming and Necessity*, a transcript of three lectures given at Princeton University in 1970 yet published a decade later, as the postmodern movement was gaining momentum. Kripke's causal theory of reference and subsequent causal theory of natural kinds - which the reader received a foretaste of apropos Hilary Putnam's discussion of lemons and natural kinds à la "Is Semantics Possible?" above - was an attack on the descriptive theory of names, hence why the causal theory of reference was anointed 'antidescriptivism.' The descriptive theory of names posits that the semantics and referent (viz., proper name) are coextensive with shared descriptions of that referent or proper name. The referents (e.g., an apple) are imbued with meaning through their connection to the objects to which they ostensibly refer. One can look to Bertrand Russell's so-called isomorphic language or Gottlob Frege's discussion of 'sense' and 'reference' for an embodying of the principles underlying the descriptive theory of names. Philosophers have tried to poke holes in this descriptive theory of names for a long time before it became canonized in the Frege-Russell view. These earlier concerns later reappeared, e.g., in the guise of philosophers questioning whether there may have been an historical misattribution in collaring Thales of Miletus as the

metaphysical ‘water as a first principle’ theorist. What if that person is simply the man that someone in antiquity erroneously ascribed with the view?

The antidescriptivist Saul Kripke takes these ideas one, slightly deranged, step further and fantasizes about the mathematician Kurt Gödel actually murdering “a man named ‘Schmidt’, whose body was found in Vienna under mysterious circumstances many years ago” and consequently appropriating to himself the famous proof: “His [Schmidt’s] friend Gödel somehow got hold of the manuscript and it was thereafter attributed to Gödel.” (Kripke, *Naming and Necessity*, pages 83-85). Continuing the counterfactual, in posterity academics and laypersons alike would firmly, though mistakenly, insist that Gödel is in fact the author of the two famous theorems in mathematical logic which foreclose on the possibility of axiomatic systems modeling arithmetic. This scenario turns out not to be completely contrived as Kripke has this to say a moment later in the second lecture: “What do we know about Peano? What many people in this room may ‘know’ about Peano is that he was the discoverer of certain axioms which characterize the sequence of natural numbers, the so-called ‘Peano axioms’. Probably some people even state them. I have been told that these axioms were not first discovered by Peano but by [Richard] Dedekind. Peano was of course not a dishonest man. I am told that his footnotes include a credit to Dedekind. Somehow the footnote has been ignored. So on the theory in question the term ‘Peano’, as we use it, really refers to - now that you've heard it you see that you were really all that time talking about - Dedekind [cf. Keith Donnellan’s referential-attributive distinction]. But you were not. Such illustrations could be multiplied indefinitely” (ibid, pages 84-85).

Saul Kripke further contended that an ‘initial baptism’ sets the causal link in motion: “An ‘initial’ baptism takes place. Here the object may be named by ostension, or the reference of the name may be fixed by a description. When the name is ‘passed from link to link’, the receiver of the name must, I think, intend when he learns to use it with the same reference as the man from whom he heard it. If I hear the name ‘Napoleon’ and decide it would be a nice name for my pet aardvark [or perhaps a pig in George Orwell’s *Animal Farm*, an allegorical novella actually mentioned elsewhere in *Naming and Necessity*], I do not satisfy this condition (Kripke, *Naming and Necessity*, page 96). Saul Kripke therefore bridges ostension and intension with this new formulation of communication theory: “I’ve argued, even if in some special cases, notably some cases of initial baptism, a reference *is* determined by a description, by some uniquely identifying property, what that property is doing in many cases of designation is not giving a synonym, giving something for which the name is an abbreviation; it is, rather, fixing a reference. It fixes the reference by some contingent marks of the object [a semantic maneuver of intension, in other words, the contingent features, cf. multiple realizability in contemporary philosophy of mind and Saul Kripke’s discussion of identity statements, e.g., with respect to ‘the identity thesis’ and C-fibers, on pages 97-105 of *Naming and Necessity*]” (ibid., page 106). An example of gold (see above discussion of Hilary Putnam’s ‘division of linguistic labor’) is then instructively used by Kripke to demonstrate a case in which the causal link would have been violated: “There might be a substance which has all the identifying marks as commonly attributed to gold and used to identify it in the first place but which is not the same kind of thing [cf. natural kinds, Putnam’s “Is Semantics Possible?,” Ship of Theseus thought experiment and the early process philosopher Heraclitus of Ephesus], which is not the same substance. We would say of such a

thing that though it has all the appearances we initially used to identify gold, it is not gold" (ibid., 119). All that glistens is, alas, not gold because, in this instance, the causal link was broken vis-à-vis the 'initial baptism' that created the reference and intensional definition for gold. Another, more bracingly counterfactual, example deployed by Kripke earlier on in the first lecture involves unicorns (page 24). If archaeologists triumphantly unearthed what they claimed were fossilized unicorns, isomorphically mirroring in the most extravagantly-detailed way depictions of unicorns, such could not justifiably be called a 'unicorn' because the initial baptism and reference failed to predate the improbable archaeologically-groundbreaking discovery. The employment of the word 'unicorn,' put another way, tacitly refers to a distinct causal link for which this newcomer, this outrageously-unchristened, 'unicorn' does not apply. In the book *Intentionality* John Searle mischievously reifies the baptism concept:

> "Imagine that everybody in the tribe knows everybody else and that newborn members of the tribe are baptized at ceremonies attended by the entire tribe. Imagine, furthermore, that as the children grow up they learn the names of peoples as well as the local names of mountains, lakes, streets, houses, etc. by ostension. Suppose also that there is a strict taboo in this tribe against speaking of the dead, so that no one's name is ever mentioned after his death. Now the point of the fantasy is simply this: As I have described it, this tribe has an institution of proper names used for reference in exactly the same way that our names are used for reference, but there is not a single use of a name in the tribe that satisfies the causal chain of communication theory" (Searle, *Intentionality*, page 240).

The insular nature of this tribal community makes this example conceptually intriguing. (In the 'real' world, however, life is more complicated and the sense of reference is theoretically enriched by ostension-Kripke intension rather than merely ostension à la the foregoing John Searle example with the insular tribal community.) The fantasy world in the Yorgos Lanthimos 2009 film *Dogtooth* takes the premise of John Searle's insular tribal community to disturbing conclusions in that the film revolves around a nuclear family of a father, mother, two daughters, and a son raised in essentially complete isolation within a fenced-in housing compound. The father is the owner of a factory and carries on a reassuringly normal worklife; at home, the father is a tyrant who spins a web of false beliefs in the daughters' and son's minds; the wife knows about all of this but is docilely in cahoots with the father and his whimsical games which warp and grossly limit the conceptual ambit of the daughters' and son's internal lives.

The film starts with a Panasonic cassette recorder emanating words and their definitions:

> "Today the new words are the following: sea, motorway, excursion, carbine.
>
> A sea is a leather armchair with wooden arms, e.g., 'sit on the sea to have a quiet chat with me.'
>
> A motorway is a very strong wind.
>
> An excursion is a very resistant material used to construct floors, e.g., 'the chandelier fell violently to the floor, but no damage was caused to it because it is made of 100% excursion.'
>
> A carbine is a beautiful white bird."

The children have been told all of their cloistered lives that their never-encountered brother was eaten by a cat because he foolishly left the fenced-in housing compound. Accordingly, the father informs the three adult children that cats are unbelievably dangerous to humans; in a memorable scene, a cat somehow breaches the compound, an extreme metaphor for the mind spellbound and captive to ideology, which causes much excitement among the children. The adult childrens' conceptions of meaning and reality are so mangled that they believe the airplanes they occasionally perceive flying thousands of feet overhead could be the size of a human hand; the father or mother will surreptitiously hurl a model airplane into the yard during some of these episodes, and the adult children will literally wrestle each other to be the first to grasp, hence own, the miniature model airplane; the father, also, unbags fish into the chlorinated backyard swimming pool and the adult children simply take this in stride. Daughter and son alike are persuaded that adhesive stickers possess a monumental importance (cf. commodity fetishism) and fight to win contests there as well to acquire more stickers. (At one point the daughters whimsically decide to huff an anesthetic, unidentified for the viewer, as a 'game' to see who will wake up first. The interior of the home is a heavenly white, not unlike an operating theater.) The instruction that is provided almost couldn't be more misleading, e.g., though the film is in Greek with, if one wishes, English subtitles, the father can be found stoically, yet the viewer assumes with a twisted inner glee, mistranslating a Frank Sinatra song at dinner while the adult children listen with concentration and care to the father's completely erroneous translation of the song; because the film is in Greek, this scene is perhaps stranger and ultimately more delightful for English-speaking audience members. The Bart Howard-cum-Frank Sinatra song blaring out the record player is "Fly Me to the Moon," which articulates the lunacy of the father's ongoing experiment. The grossly mistranslated lyrics seem to offer the children short-term comfort in that the seemingly absurdist mistranslation actually functions as a propaganda device to deepen ideology; the father starts translating by saying, "Dad loves us. Mom loves us. Do we love them? Yes, we love them. I love my brothers and sisters because they love me too. Spring fills my house." The parents keep the entire charade going by attempting to prohibit outside commercial products, such as Hollywood media, from entering the fenced-in compound (e.g., the father excises water bottle labels prior to bringing them into the compound) and thereby possibly providing a corrupting snorkel to the outside world, or what passes for reality in the twenty-first century. All told, the violent and surreal denouement is predicated on a partial, but intriguingly *not* total, breakdown of this elaborate fantasy world (i.e., ideology) that the father has taken pains to construct - a mere loosening of

the straightjacket of ideology and a commensurate increase in freedom, apparent choice, and consciousness.

In terms of the background consensus required for establishing a productive language game on the less comprehensive level of rational Habermasian discourse, i.e., the reflective form of communicative action, the children in this fenced-in compound could hardly be expected to satisfy the cardinal validity claims, expounded by Habermas as Geltungsansprüche, facilitated through the interchange of speech acts. The reason is that the father hinders the development of normative presuppositions and shared competencies, *sine qua non* for Habermasian rational discourse; validity claims such as the discourse remaining intelligible, the propositional content being true, and the speakers commitment to sincerity appear to be have purposely butchered by the father; Habermas regards propaganda as systematically distorted communication. On the level of theory, Jürgen Habermas perceives throughlines from the three-place relation of Charles Sanders Peirce (viz., the sign, purportedly representing a state of affairs, the speaker, and the hearer) to J.L. Austin's tripartite intersubjective relationship (viz., the interlinkings of parties with illocutionary acts) to the "equiprimordiality of [the validity claims of] representation, communication, and action. As representation and as communicative act, a linguistic utterance points in both directions at once: toward the word and toward the addressee," provided one is ready to "conceive of 'communication' as the inherent telos of language" (Habermas, "Realism After the Linguistic Turn," *Truth and Justification*, page 3).

The adult children's semantics are so deranged by the provided definitions, e.g., "a sea is a leather armchair with wooden arms," that the idea of satisfying these validity claims, these Geltungsansprüche, in route to a rational discourse, let alone an ideal speech situation, is rendered inconceivable. Even in terms of pragmatic presuppositions needed for rational discourse, such as equal time and opportunity to speak coupled with freedom from coercion, the situation with the fenced-in compound is problematic. Habermas, however, shifted emphasis from rational discourse and an ideal speech situation to a more easily attainable constellation of approximately-realizable goals known as 'pragmatic presuppositions.' Jürgen Habermas outlines these presuppositions within *Truth and Justification* as "(a) of public debate and complete inclusion of all those affected; (b) of equal distribution of the right to communicate; (c) of a nonviolent context in which only the unforced force of the better argument holds sway; and (d) of the sincerity of how all those affected groups express themselves" (Habermas, "Realism After the Linguistic Turn," *Truth and Justification*, page 37). Nonetheless Jürgen Habermas would presumably still be uniquely horrified by the parents in the movie *Dogtooth* for their concerted violation of any possibility of an uncoerced interchange of speech acts arising. The sheer fact that the semantics of many of the words the children encounter have had their meanings mangled by the assignment of dissimilar status functions, to use the Searlean language, precludes the possibility of participants having an equal voice and freedom from coercion throughout the interchange of Habermasian speech acts. Considering John Searle's famous example of 'money' satisfying the Y in 'X counts as Y in C,' at least two of the three terms are problematized by the film *Dogtooth* as the status functions (Y) and deranged context (C) make a rational Habbermasian discourse an impossibility by, e.g., violating the conditions for pragmatic presuppositions to spark and thereby fuel rational discourse.

Habermas eventually related his own notion of a validity claim to Michel Foucault's view of power/knowledge, i.e., "validity claims are functionalistically reduced to the effects of power [in the totality of Foucauldian discourses]; the [Humean] 'ought' is naturalistically reduced to the 'is,'" which enriches the problematization of freedom from coercion. Foucault actually embraced the spatial metaphor of the Panopticon architectured by jurist and social reformer Jeremy Bentham in the late 18th century. The Panopticon is a circular prison design which enables prisoners to be seen at all times. The major effect of the panopticon, according to Foucault, was "to induce in the inmate a state of conscious and permanent visibility that assures the automatic functioning of power" such that "the surveillance is permanent in its effects, even if it is discontinuous in its action." Eventually the inmates "should be caught up in a power situation of which they are themselves bearers" (Foucault, *Discipline and Punish*, pages 200-201). Far from a time-traveling steampunk invention or quirky anachronism, surveillance is a favored tool of modern-day institutions wielding tremendous power and control over societies and therefore literally billions of people collectively; surveillance is employed by workplaces, schools, hospitals, multinational corporations, and governments all around the world to enhance institutional power. Electronic surveillance and the ubiquity of cameras have rendered brick-and-mortar surveillance proposals like the Panopticon largely obsolete.

More effective methods of manipulation present themselves with more unlimited and minute levels of surveillance such that behavior can be more subtly sculpted to satisfy institutional imperatives for power, knowledge, and coercion. The prisoner is always on guard, stretching, sleeping, defecating, but never permitted to meet the gaze of the tower directly - all the better for reducing insubordination and rewarding compliance to institutional imperatives. Those who internalize and extol the values of the institution are rewarded while those who resist correction are subjugated and/or eliminated from the system to diminish the possibility of contagion and ensure the stability and aggrandizement of the system into more domains, with greater intimacy:

> "The examination combines the techniques of an observing hierarchy and those of a normalizing judgement. It is a normalizing gaze, a surveillance that makes it possible to qualify, to classify and to punish. It establishes over individuals a visibility through which one differentiates them and judges them. That is why, in all the mechanisms of discipline, the examination is highly ritualized. In it are combined the ceremony of power and the form of the experiment, the deployment of force and the establishment of truth. At the heart of the procedures of discipline, it manifests the subjection of those who are perceived as objects and the objectification of those who are

> subjected. The superimposition of the power relations and knowledge relations assumes in the examination all its visible brilliance" (Foucault, *Discipline and Punish*, pages 184-185).

Do the surveillance and the systematically distorted communication inherent in ideology and propaganda render a Habermasian rational discourse unattainable? Alfred Bernays, the nephew of Sigmund Freud, starts - starts! - *Propaganda* by writing: ""The conscious and intelligent manipulation of the organized habits and opinions of the masses is an important element in democratic society. Those who manipulate this unseen mechanism of society constitute an invisible government which is the true ruling power of our country" (Bernays, *Propaganda*, page 37). The intellectuals often worsen the situation; French sociologist Jacque Ellul considered most so-called public intellectuals - viz., what the Italian philosopher Antonio Gramschi called 'traditional' intellectuals, who are essentially lapdogs to power, as opposed to dissident 'organic' intellectuals - and the newspaper brood the most brainwashed groups in all society because they must keep abreast of the latest secondhand information at all times and they vastly overestimate their prowess as independent thinkers; in fact they are defenseless pawns ripe, even eager, for exploitation and compensation from larger forces. Ellul maintains that the 'facts' these intellectuals dispense and the compulsory education forced on the population serve a pre-propaganda function of conditioning. This flips the script on the idea that education is the most surefire way to defend against propaganda; in fact, a bilingual foreigner, *ceteris paribus*, would be less susceptible to propaganda than a citizen indoctrinated virtually from birth in the chosen propaganda of the society in question. Jacques Ellul subscribes to "Raymond Aron's statement that an ideology is any set of ideas accepted by individuals or peoples without attention to their origin or value," before adding three qualifications: these set of ideas possess "(1) an element of valuation (cherished ideas), (2) an element of actuality (ideas relating to the present), and (3) an element of belief (believed, rather than proved, ideas)." Ellul views myths, in contradistinction to ideologies, as less 'doctrinaire' and more 'diffuse,' before counting 'work, progress, [and] happiness' as myths and 'nationalism, democracy, [and] socialism' as ideologies *par excellence*: "Communism shares in both elements [viz., myth and ideology]. It is an ideology in that it is a basic [teleological] doctrine, and a myth in that it has an explanation for all questions and an image of a future world in which all contradictions will be resolved." (Ellul, *Propaganda*, page 116-117). This portrayal of ideology very much matches John Ralston Saul's within *The Unconscious Civilization*:

> "It is also worth noting a curious characteristic of ideologies. They usually insist, in their justificatory argument, that humans once lived in a happy, if somewhat crude or innocent, natural state. An Eden. By simply passing on through the inevitable steps proposed by whatever particular ideology is in question, we are promised that we will re-enter Eden at a higher, more sophisticated level. Paradise is the first and the last destination. The origin and the end of the human cycle" (Saul, *The Unconscious Civilization*, page 40).

What is similarly striking is that ideology is permitted to bypass reality and catapult adherents into a vertiginous Shangri-La, where contradiction or logic is not permitted to intrude: "But it is worth noticing that the heart of market ideology beats in the United States and that the [true] believers preach two contradictory visions: (1) a return to the American small-town ideal; (2) the achievement of a magic balance that will be created by the freeing of the capitalist mechanism.

Most sensible people would be surprised by the suggestion of such a strange cohabitation. The global economy and the small town ideal are not simply nonsequiturs. They are direct enemies. But there is no need for the sensible in a utopia" [n.b., the word 'utopia' means nowhere from the Greek word *ou-topos;* the nearly-identical Greek word *eu-topos* means 'good place']. And, of course, 'rich' only has meaning in relation to the 'poor,' however, "for the ideologue, language itself becomes the message because there is no doubt. In a more sensible society, language is just the tool of communication" (Saul, *The Unconscious Civilization*, page 41). Language, however, is not the only, or perhaps not even the primary, vehicle for conveying ideology. Blaise Pascal found that ideology had a performative component: "Proofs only convince the mind. Custom is the source of our strongest and most believed proofs. It bends the automaton, which persuades the mind without its thinking about the matter," and later in the *Pensees*, " Custom creates the whole of equity, for the simple reason that it is accepted. It is the mystical foundation of its authority; whoever carries it back to first principles destroys it." The Slovenian philosopher Slavoj Žižek apprehends Franz Kafka basking in a similar sense of the numinous: "The so-called 'Kafka's universe' is not a 'fantasy-image of social reality' but, on the contrary, the *mise-en-scene of the fantasy which is at work in the midst of social reality itself*: we all know very well that bureaucracy [see, e.g., *The Trial*] is not all-powerful, but our 'effective' conduct in the presence of bureaucratic machinery is already regulated by a belief in its almightiness" (Žižek, *The Sublime Object of Ideology*, page 34).

The broader purpose of this propaganda in modern society is shoring up more power and control for a select group and seeking to ensure the preservation of the system that affords this select group their privileges and advantages. The German sociologist Max Weber popularized the terms *zweckrational* and zweckrationalität to denote a myopic, technical, goal-directed rationality enslaved to the imperatives of monolithic organization structures. German philosophers Max Horkheimer and Theodor Adorno followed in Weber's footsteps by analyzing the role of instrumental reason in society. Max Horkheimer in fact lamented that, "all life today tends to be increasingly subjected to rationalization and planning" such that "the individual's self-preservation presupposes his adjustment to the requirements for the preservation of the system" (Habermas, *The Theory of Communication Action: Reason and the Rationalization of Society*, page 353). The French sociologist Jacques Ellul would view many of these ideas through the prism of technique (cf. the German term *technik*, the Greek term *technē*) in *The Technological Society*; therein separate chapters are dedicated to techniques used in the economy and techniques used by the state; Ellul argues that a fusion between the economy and the state is inevitable because more efficient (cf. Sheldon Wolin's *Democracy Incorporated: Managed Democracy and the Specter of Inverted Totalitarianism*). The German hermeneutical ontologist Martin Heidegger wrestled with similar issues in *Being and Time* and *The Question Concerning Technology* in the sense of, e.g., staging technology and the world perceived as a standing-reserve (*Bestand*, cf. *Bestehen*) of enframing (*Ge-stell*) (cf. Taylorism, the system of scientific management, pioneered by Frederick Winslow Taylor). Heidegger finds that "the forester who, in the wood, measures the felled timber and to all appearances walks the same forest path in the same way as did his grandfather is today commanded by profit-making in the lumber industry, whether he knows it or not. He is made subordinate to the orderability of cellulose, which for its part is challenged forth by the need for paper, which is then delivered to

newspapers and illustrated magazines. The latter, in their turn, set public opinion to swallowing what is printed, so that a set configuration of opinion becomes available on demand" (Heidegger, "The Question Concerning Technology," *The Question Concerning Technology*, page 18). Public opinion thus set, the "individual's self-preservation presupposes his adjustment to the requirements for the preservation of the [technical] system." Martin Heidegger agreed with Friedrich Nietzsche that Western civilization was bounding on the inside track towards complete fragmentation: "nihilism represents the ultimate logical conclusion of our great values and ideas," as Nietzsche intoned within *The Will to Power*. Thomas McCarthy summed up this Faustian bargain by saying that "the gain in control is paid for with loss of meaning."

Jürgen Habermas in *Postmetaphysical Thinking* concluded that rationalism and empiricism had been modified in the last century by four distinct schools of thought: analytic philosophy, phenomenology, Western Marxism [cf. Frankfurt School], and structuralism. Habermas harnesses four themes which inform the caesura with venerable philosophical traditions of yesteryear: (1) postmetaphysical thinking, cf. "It would be the procedural rationality of the scientific process that would decide whether or not a sentence has a truth-value in the first place. The antimetaphysical effect was not restricted to the logical empiricists in the Vienna Circle and their vain attempt to lay hold of a criterion of meaning that would supposedly allow metaphysics to be demarcated from science once and for all. The early Husserl [who actually distinguished the 'noesis' from the 'noema' in, e.g., *Ideas: General Introduction to Pure Phenomenology*], the young Horkheimer, and later the structuralists as well, all in their ways made philosophical thinking bow to the sciences' claim to exemplary status"; (2) the linguistic turn, which demanded "a shift from the philosophy of consciousness [phenomenology] to the philosophy of language," helped along with Ferdinand de Saussure's outlining the dyadic relationship between *signifier* and *signified* and de Saussure's showing that this semiotic relationship embodies *semiotic arbitrariness*, thus obliterating the myth of the pregiven and underlining portions of reality as socially-constructed (cf. John Searle's *Construction of Social Reality*); (3) de-transcendentalism of reason, e.g., "Wittgenstein's language-game grammars, Gadamer's contexts of tradition in effective history, Levi-Strauss' deep structures, [Michel Foucault's archeologies and genealogies] and the Hegelian Marxists' historical totality of all mark so many attempts to re-embed an abstractly exalted reason in its contexts and to situate it in its proper domains of operation" (cf. John Ralston Saul's *Voltaire's Bastards: The Dictatorship of Reason in the West*); and, (4) reasserting pragmatics via "reversing the primacy of theory over practice - or the overcoming the logocentrism," e.g., Jean Piatet's developmental psychology (cf. *The Psychology of Intelligence*), the pragmatism of Charles Sanders Peirce, George Herbert Mead, and John Dewey, "Vygotski's theory of language, by Scheler's sociology of knowledge, and Husserl's [and Habermas's own] analysis of the lifeworld [Lebenswelt]" (Habermas, "The Horizon of Modernity is Shifting," *Postmetaphysical Thinking*, pages 4-8).

Jürgen Habermas and John Ralston Saul each venture beyond cognitive-instrumental rationality by exchanging the trappings of traditional philosophical endeavor for a more holistic approach based on intersubjective communication and goals responsive to human needs. Richard Rorty, in turn, regards the differences supposedly obtaining between so-called analytic philosophy and continental philosophy, or more particularly the Vienna Circle and Frankfurt School, as basically unimportant insofar as these various traditions are beholden to the epistemological frameworks

solemnly handed down by three figures: René Descartes, John Locke, and Immanuel Kant. Each of these thinkers believed than a supreme *a priori* foundation for all knowledge - applicable in all spheres and at all times - was possible or perhaps had in fact been achieved. Of particular note is the Cartesian and Lockean "use of 'idea' because this presupposed 'the conception of the human mind as an inner space in which both pains and clear and distinct ideas passed in review before a single Inner Eye,'" which had not existed in this egocentric form for the Greek and medieval philosophical traditions (Rorty, "Our Glassy Essence," *Philosophy and the Mirror of Nature*, page 50).

The linguistic turn, however, fails to 'essentially change the Cartesian-Kantian problematic,' which is partly the reason that Richard Rorty foregrounds 'late' Ludwig Wittgenstein, 'late' Martin Heidegger, and John Dewey as the three most important philosophers of the 20th century in *Philosophy and the Mirror of Nature*. Each of these philosophers uniquely problematized the Cartesian-Kantian problematic. Ludwig Wittgenstein in fact later mocked the *Tractatus Logico-Philosophicus* as concerned with 'question as to the *essence* of language, of propositions, of thought' and meretricious philosophical answers which would be rendered 'once for all; and independently of any future experience'; Martin Heidegger's hermeneutic ontology, with a debt owed to Wilhelm Dilthey and the theologian Friedrich Schleriermacher, sought to resolve or, rather, dissolve the presuppositions of Edmund Husserl's phenomenology with a methodology-resistant, idiosyncratic and frequently-insightful poetical register; and, John Dewey, or "Dr. Dewey" as Bertrand Russell was wont to call the busy educational reformer, exchanged the venerable Cartesian-Kantian notion of truth for 'warranted assertability,' see *The History of Western Philosophy*, page 826, to the distress of more serious-minded philosophers.

Michel Foucault could perhaps also be added to Rorty's heterodox trio of philosophers in that 'late' Foucault followed Friedrich Nietzsche's genealogical method in reconciling the imperatives arising from structuralism and hermeneutics without embracing the tenets of either unreservedly; Foucault biographer Johanna Oksala found that Foucault's *de facto* post-structuralist work demonstrates the "historically contingent and haphazard nature of these [social] practices, and their effect is a profound estrangement: the reader suddenly sees aspects of his or her culture that he or she previously took for granted as curious and contingent, but also and significantly as intolerable and in need of change" (Oksala, *How to Read Foucault*, page 2); in this latter respect, Michel Foucault is similar to John Dewey. Michel Foucault, moreover, is difficult for some to place partly because he developed new methods of historical analysis, which he called 'histories of the present,' *qua* sociohistorical analysis in the wake of Existentialism's running its course and "the denial of the human being as privileged [Cartesian-Kantian] object of philosophical analysis" in favor of the post-structuralist imperative of "focusing instead on the social, linguistic and unconscious determinants of thought" (Oksala, *How to Read Foucault*, page 2). In relation to the Kantian subject/object schema and the Husserlian transcendental object, "the structuralist approach attempts to dispense with both meaning and the subject by finding objective laws which govern all human activity. The opposed position, which we gather under the general rubric hermeneutics, gives up the phenomenologists' attempt to understand man as a meaning-giving subject" in lieu of preserving "meaning by locating it in the social practices and literary texts which man produces" in abundance (Rabinow, *Michel Foucault: Beyond Structuralism and Hermeneutics*, page XIX).

One of the most perspicacious and delightful descriptions of Michel Foucault was written in *the New York Review of Books* many moons ago by Clifford Geertz:

> "Michel Foucault erupted onto the intellectual scene at the beginning of the Sixties with his *Histoire de la Folie* [*Madness and Civilization*], an unconventional but still reasonably recognizable history of the Western experience of madness. He has become in the years since, a kind of impossible object: a nonhistorical historian, an anti-humanist human scientist, and a counter-structuralist structuralist. If we add his terse, impacted style, which managed to seem imperious and doubt-ridden at the same time, and a method which supports sweeping summary with eccentric detail, the resemblance of his work to an Escher drawing - stairs rising to platforms lower than themselves, doors leading outside that bring you back inside - is complete."

Richard Rorty attributes to Quine "the view which Quine attributes to Wittgenstein: The thing to do with epistemology is to 'cure philosophers of the delusion that there were epistemological problems'" (Rorty, *Philosophy and the Mirror of Nature*, page 229). Wittgenstein swapped his mirror for language as a tool, and Foucault throughout insisted that his *oeuvre* be used as a toolbox and ruthlessly exploited towards navigating future contingencies. Philosophers of science such as Thomas Kuhn and Karl Popper enhanced the drift away from the omniscient, doubtful Cartesian subject towards a community of researchers working by fits and starts, conjectures and refutations, to resolve or reframe a problem, provisionally congealing a new paradigm in the process, only to be triumphantly overthrown afresh by the next crop of researchers. The new paradigm may well leave acolytes of the old order in a state of blinking bewilderment as "One aspect of every revolution is, then, that some of the similarity relations change. Objects which were grouped in the same set before are grouped in different sets afterwards and *vice versa*. Think of the sun, moon, Mars, and Earth before and after Copernicus; or free fall, pendular, and planetary motion before and after Galileo; or of salts, alloys, and a sulphur-iron filling mix before and after Dalton. Since most objects within even the altered sets continue to be grouped together, the names of the sets are generally preserved. Nevertheless, the transfer of a subject can crucially affect the network of interrelations among sets" (Kuhn, "Incommensurability and Paradigms," *Challenges to Empiricism*, pages 204). Analytic philosopher Michael Dummett gauged the intersection of epistemology, philosophy of language, and semantics in the 'late' Wittgenstein of the *Philosophical Investigations* as tantamount to a plea against pursuing the fool's errand of a "systematic theory of meaning for a language" (Dummett, *Truth and Other Enigmas*, page 453). A pivot away from the imperious ahistoricism of Descartes, Locke, and Kant in favor of an embrace of context, hermeneutics, and the pragmatic stance, what the 'late' Wittgenstein of the *Philosophical Investigations* calls "reminders for a particular purpose" rather than 'early' Wittgenstein's quixotic quest for evergreen solutions to "questions as to the *essence* of language, of propositions, of thought," coupled with intersubjective communication and consensus building is a surer way forward.

After all, if Thomas Metzinger is correct in suggesting that the self is illusory and in fact a phenomenal self-model (PSM), and if Paul Churchland and W.V. Quine - both of whom advocate pursuing a naturalized epistemology and in Quine's case 'the austere ontology of [Humean] impressions' coupled with 'set-theoretic auxiliaries' to round things out - are vindicated in suggesting that consciousness as such can and should be safely eliminated as a

theoretical entity, where is the ‘mirror’ and what ‘essences’ are to be reflected? Hilary Putnam once asserted that if insights gleaned from the AI-assisted matured neuroscience that Paul Churchland et al. are proposing were to upend the ontology of the commonsense ‘folk psychology’ conception of cognition then the normative standards of semantics and epistemology might need reshuffling. Paul Churchland synopsized Hilary Putnam as saying: “If the unit of representation in the new paradigm is something other than the propositional attitude, then presumably its virtue will be something other than truth, and its relation to the world will be something other than reference.” Paul Churchland responded: “That is absolutely right.” Quine, moreover, resists treating philosophy as ‘*a priori* propaedeutic or groundwork for science,’ preferring to view philosophy as perfectly continuous with science while nonetheless repudiating a first philosophy status and industriously building aboard Neurath’s boat, as opposed to *Narrenschiff*, on the open sea, presently sailing past the Ship of Theseus and thereby charting a future course, inexorably anchored in myth and fantasy: “the totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges,” the Humean and human predicament still being one. Then again, Richard Rorty rejoins, “if one drops that distinction and follows through on Quinean holism, one will not try to mark off ‘the whole of science’ from the ‘whole of culture,’ but instead will see all our beliefs and desires as parts of the same Quinean web.”

“I think of reading a book as no less an experience than traveling or falling in love. Many people are apt to think of real life on the one side, that means toothache, headache, traveling and so on, and then on the other side, you have imaginary life and fancy and that means the arts. But I don’t think that distinction holds water. I think that everything is a part of life.” -Jorge Luis Borges

“There is always some madness in love. But there is also always some reason in madness.” -Friedrich Nietzsche

“What is human knowledge but a cortically embodied flower, fanned likewise into existence by the ambient flux of energy and information?” -Paul Churchland

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High Range IQ Tests - Are They Psychometrically Sound?

Bob Williams

Preface: This manuscript [written in September 2020 - Ed. Note] is intended as a reply to questions relating to two articles in the journal *Noesis* (Mega Society journal). The questions to me were to simply ask for my thoughts on a couple of journal articles relating to tests that purport to measure IQ at ranges above those considered by professional IQ tests. I decided to render the "long" answer that is found below. I tried to cover the things that I have considered (over a period of years) relative to such tests. The answer has not been scrubbed for appearance or even the order of comments. These are simply my thoughts, with some mention of the various sources that have influenced my thinking about this category of tests.

Tests that claim IQ measurements at very high levels go by a number of names. I have traditionally called them hobby tests, because they are not designed by professionals and marketed by the companies that are dedicated to test instruments. These tests are also sometimes called high end tests, high range tests, power tests, and experimental tests. I have selected the last of these, as I think there is little inference associated with that terminology.

After some thought, I have decided to put my conclusions before the body text. I don't want anyone to be led to believe that I hold positions that might be implied, but incorrect.

Conclusions

- There are obviously people who have cognitive abilities that are above the ceilings of professional tests.

- Difficult tests can identify individuals who have very high intelligence. I doubt that anyone would argue that the Putnam Competition does not identify such people. In fact, it may be one of the very best detection vehicles available, despite its necessity for mathematics understanding. The obvious problems are that it works for some, but not for others and it is not scaled to report IQ.

- People with very high ability may be missed by a typical experimental test, for reasons of test item weighting that impacts broad abilities.

- The rarity of people at IQ levels, above those of professional test ceilings, is the very thing that is the primary obstacle to creating a credible measurement in that range.

- Scores above the ceilings of professional IQ tests are not convincing (not even close). Test designers do not know how to properly connect the scores to reliable reference points and they do not know what we should be measuring in high ranges (see my discussion of SLODR). [SLODR = Spearman's Law of Diminishing Returns - Ed. Note]

High Range IQ Tests - Are they psychometrically sound?

Professional IQ tests (PT) are typically normed over ranges of ± 2.5 SD. A few go as high as + 3 and fewer still to + 4. Various tests have extended scoring ranges that are basically extrapolations. Hobby test designers have produced “high range” or “experimental” tests that claim very high ceilings. Many such tests are available on the internet and seem to be as popular as video games among some youngsters. These tests raise a number of topics and issues:

- Understanding fuzzy science.
- Is the norming method used valid?
- Do these tests show both internal and *external* validity?
- Is the self-report “feature” of norming valid?
- Are the tests consistent with the expected design features of professional tests?
- What should be measured? Psychometric *g*, or group factors? SLODR is the issue.
- Is the test invariant with respect to the most salient groups?
- Very long time limits versus long time limits.
- Have factor loadings been balanced?
- Measuring basic cognitive abilities, versus complex problem solving.
- Have the statistical considerations been examined by a real expert?
- Alternatives to meet the needs of exclusive clubs.

Understanding fuzzy science.

The whole discipline of cognitive science falls well outside of hard science (physics and chemistry and related studies) and becomes a mixture of hard science tools (brain imaging and DNA analysis) and fuzzy science applications. We already know this, but for review, we are measuring intelligence, using an equal interval scale that is produced, by manipulation, from an ordinal scale and then centered on an average of a small group of people that can vary from test to test, by calendar date, and between nations.

The impressive thing is that, after all of these imprecise maneuvers, we actually can get test results that can be shown to be meaningful and predictive of life outcomes. We must not lose sight of the fact that our measurement techniques are a set of really fuzzy methods and are not in the category of measuring something with an interferometer or micrometer. Even in hard sciences, the instruments used tend to be accurate over a limited range and either stop or become distorted beyond those ranges, so people don’t make claims that a measurement is accurate when they know their peers are quite aware of what the instruments can deliver.

In the case of experimental tests we are operating in a range where the instruments in question have not been well-calibrated and are not used by professionals and are even probing into areas where the things being measured may be different from what is found over more than 99% of the range of the parameters. [One-in-100 IQ ~135 and one-in-1,000 IQ ~147 -Ed. Note]

Is the norming method used valid?

Various experimental tests designers presumably use different methods of linking scores to what they believe are meaningful IQs. I cannot claim to have seen or evaluated these approaches, but I doubt that they generally conform to the methods used by PT designers. Assuming Classical Test Theory (more about that later), the designers effectively force fit a Gaussian distribution to the results of tests given to the norming group. This means that the test is dependent on the norming group being large enough and representative of the group the test is intended to serve. The force fitting is done by adding and subtracting test items with difficulty levels that will increase or decrease the number of correct answers at the points on the distribution which do not fit the normal curve.

If the test author simply selects a group of test items and uses the whole lot, he is not likely to end up with a good fit. He needs to start with extra test items and select only those that produce a good fit to the Gaussian distribution.

Here we again meet fuzzy issues. For starters, we have no idea how IQ is distributed beyond the ceilings of well designed, comprehensive PTs. The experimental test designer knows that he is not dealing with a full range of data, so he is trying to fit to the right tail, not really knowing where he is on the tail, nor its real world shape.

At this point, we should go to chapter 4 of A.R. Jensen's *Bias in Mental Testing* (1980). New York: Free Press. It is a discussion of why it is reasonable to assume a Gaussian distribution. Jensen makes the point that the distribution is indeed normal over the ranges of PTs and does so in thousands of words. One illustration goes back to my comments about the fuzzy nature of what we are doing:

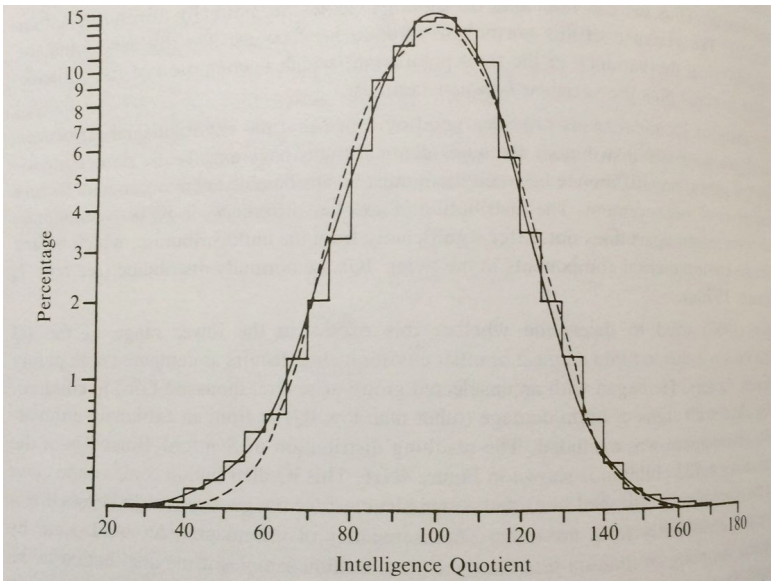


Figure 4N.1. (above) Distribution of Stanford-Binet [S-B] IQs of a sample of 4,523 London children from which all cases of diagnosed brain damage and extreme environmental deprivation

> have been excluded. A normal curve (dashed line) and Pearson's Type IV curve (continuous line) are superimposed on the actual data (stepwise curve). Note that the Type IV curve shows a closer fit to the data than does the normal curve. (From Burt, 1963, p. 180) [Jensen, *Bias in Mental Testing*, page 120 -Ed. Note]

First, note that the S-B results in the figure (reasonably large N) are a closer fit to a Type IV curve than a normal curve. We use the Gaussian distribution because it works well enough, given the fuzzy nature of other considerations; because it simply doesn't matter (look at the two fit options); and because Mother Nature generally does things that fit a normal distribution. Here is what Jensen [on page 88 of *The g Factor* -Ed. Note] wrote about the fit:

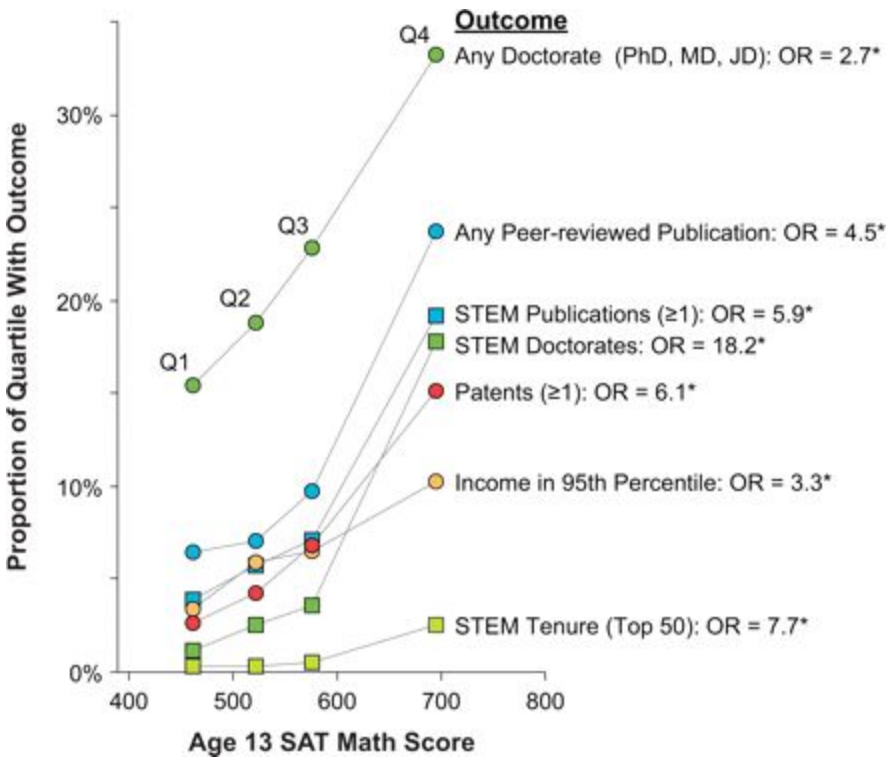
> There are plausible reasons, however, for assuming that individual differences in *g* have an approximately normal, or Gaussian ("bell-shaped"), distribution, at least within the range of ± 2 σ from the mean. That range is equivalent to IQs from 70 to 130 on the typical IQ scale (i.e., μ = 100, σ = 15). Individual differences in general mental ability are usually measured by some test or combination of tests that are highly *g* loaded, and such tests are purposely constructed to have an approximately normal or bell-shaped distribution in the standardization population. Although the normal distribution of test scores is usually accomplished by means of certain psychometric artifices, it has a quite defensible rationale.

Covering a range of ± 2 is a much more reasonable claim for the fit than trying to extend it by several additional standard deviations. We use the curve over a limited range because it works, not because it is the direct cause of intelligence over any range. My point here is to again point out that we are in a fuzzy world, not dealing with hard science.

Do these tests show both internal and *external* validity?

When a PT is produced, it is evaluated against a wide range of statistical measures that indicate whether the test does what it is supposed to do. First, is internal (construct) validity, which simply means: does the test measure the thing it claims to measure. The methods used to establish construct validity are messy, compared to some others and are discussed in *Bias in Mental Testing* [e.g., pages 303-305 -Ed. Note]. The test can be factor analyzed and compared to the factor analysis of an accepted standard test (Wechsler, etc.) and can be otherwise directly compared to tests that have historically produced consistent results.

Caption for image (below): Accomplishments across individual differences within the top 1% of mathematical reasoning ability 25+ years after identification at age 13. Participants from Study of Mathematically Precocious Youth (SMPY) Cohorts 1, 2, and 3 (N = 2, 385) are separated into quartiles based on their age - 13 SAT-M score. The quartiles are plotted along the x-axis by their mean SAT-M score. The cutoff for a score in the top 1% of cognitive ability was 390, and the maximum possible score was 800. Odds ratios (OR) comparing the odds of each outcome in the top (Q4) and bottom (Q1) SAT-M quartiles are displayed at the end of every respective criterion line. An asterisk indicates that the odds of the outcome in Q4 was significantly greater than Q1. STEM = science, technology, engineering, or mathematics. STEM Tenure (Top 50) = tenure in a STEM field at a U.S. university ranked in the top 50 by U.S. News and World Report's "America's Best Colleges 2007." Adapted in part from Park, Lubinski, and Benbow (2007, 2008).



The real issue is external (predictive) validity. This is the heart and soul of any IQ test. If the test does not predict real world outcomes that are independent of the test, there is no practical use for the test. Readers here already know the factors that are most strongly correlated with IQ, so there is no need to explain what needs to be checked. In the case of this discussion, we are concerned with experimental tests and whether they are or are not valid. I submit that the acid test is external validity. If we go to the high end of the spectrum (our reason for this discussion) we have an excellent demonstration of the predictive validity of intelligence for the SMPY cohorts.

The question that must be convincingly asked of experimental tests designers is whether they can show similar external data, verifying that there are differences in such things as educational achievement, income, publications, etc. that are predicted (presumably increasing) by the IQ scores these tests report above the ceilings of PTs. If the answer is NO, what is the reason for the tests? This is the meat and potatoes of IQ testing. Predictions must be verifiable.

Is the self-report "feature" of norming valid?

Among the fuzzy aspects of attempting to design a measurement tool for high IQ is the use of self-reports. I see several concerns with such data playing a vital role in norming. If the self-reports are from different tests (as one would assume to be the case), even flawless self-reports are from tests that share a relatively small amount of variance. The data below are old, but indicate typical test-A to test-B correlations:

- WAIS to Stanford Binet = 0.77
- WAIS to Raven's = 0.72
- WAIS to Otis = 0.78
- WAIS to SAT = 0.80

Seligman, D. (1994) *A Question of Intelligence: The IQ Debate in America*. New York City. Carol Publishing Group. (Page 167)

The first comparison is a 59% shared variance. But we all know that self-reports have a degree of error. Although it is not a direct comparison, when people are asked to estimate their IQ, the result is a staggering overstatement of 30 IQ points! (I understand that self-estimate and self-reporting are different. But I think this observation is worth keeping in mind.)

(Gilles E. Gignac, Marcin Zajenkowski, People tend to overestimate their romantic partner's intelligence even more than their own, *Intelligence*, Volume 73, 2019, Pages 41-51.)

The issue of self-reports has been studied extensively, with results somewhat dependent on the nature of the information being reported. Here is a reasonable comment on the general topic:

> Cook and Campbell (1979) have pointed out that subjects (a) tend to report what they believe the researcher expects to see, or (b) report what reflects positively on their own abilities, knowledge, beliefs, or opinions. Another concern about such data centers on whether subjects are able to accurately recall past behaviors. Cognitive psychologists have warned that the human memory is fallible (Schacter, 1999) and thus the reliability of self-reported data is tenuous.
>
> Source: Chong-ho Yu (2013) Reliability of self-report data.

It is understandable that a designer would want to use self-reported test scores in an attempt to link his test to a PT, but the number of error sources is obviously large – to the point of making such an effort seem futile.

Are the tests consistent with the expected design features of professional tests?

For any comprehensive IQ test to function properly it must have test items of different levels of difficulty. I am unaware of the methods used by experimental test designers, but if they do not have a reliable means of determining relative difficulty, they are shooting in the dark.

From chapter 4 of *Bias in Mental Testing*:

> “The simple fact is that a test unavoidably yields a near normal distribution when it is made up of (1) a large number of items, (2) a wide range of item difficulties, (3) no marked gaps in item difficulties, (4) a variety of content or forms, and (5) items that have a significant correlation with the sum of all other item scores, so as to ensure that each

item in the test measures whatever the test as a whole measures. (Items that are uncorrelated or negatively correlated with the total score can only add error to the total scores.) These are all desirable features of a test."

In the case of experimental tests, my impression is that these things pose problems. Is the number of items high enough when the test is intended to be very difficult and worked on for weeks?

Does the designer know the item difficulty of each item? If he does not know, how does he conclude that he has not created large gaps in difficulty or bunched many test items together because they have the same item level difficulty?

Are the items sufficiently diverse with respect to Jensen's 4th condition (content variety)? In constructing a comprehensive IQ test, professional designers repeatedly note that the test must be diverse. Here is what differentiates PTs of different quality:

	Poor = 1	Fair =2	Good = 3	Excellent = 4
1. Number of tests	1	1-2	2-8	9+
2. Dimensions	1	1-2	2-3	3+
3. Testing time	3-9 min	10-19 min	20-39 min	40+ min
4. Correlations to *g*	≤ .49	.50-.71	.72-.94	≥ .95

Source: Gilles E. Gignac, Timothy C. Bates (2017) "Brain volume and intelligence: The moderating role of intelligence measurement quality"; *Intelligence* 64, 18–29.

Clearly, the number of tests (subtests) needs to be 9 or more in order to produce at least three second order factors, from which *g* can be extracted. Do experimental tests really use that many subtests? In my opinion, the number of dimensions should be higher for a comprehensive test.

The real problem here is that we are measuring in the range in which we have no way to know what is happening to *g*, other than it is likely that SLODR is a serious consideration and that the *g* variance is no longer a linear indicator of intelligence.

When an experimental test is used, the designer may have to deal with some difficulty in calculating the reliability coefficient. It is simply the ratio of the variance in the true test score, divided by the error variance. The methods used to calculate the reliability coefficient are typically to effectively administer the test twice (by designing an almost identical test, with test items of equal levels of difficulty) or by using the split-half method (correlating the two halves, then applying the result to the Spearman-Brown formula. If the number of test scores available is small, the process is difficult. I have not seen any indication that designers have used double

testing of the same group, which leaves only the split-half method. Hopefully there is data showing that this method was properly applied to each experimental test and that the results show a coefficient close to 0.90.

Most IQ tests have historically been designed to be scored using Classical Test Theory. But, since the development of Item Response Theory [IRT -Ed. Note], we have a clearly superior method that is based on known item level difficulty. IRT still requires that the test items be given to a reference group, which matches the characteristics of the full population of the group to be represented by the finished test. The developer determines an Item Characteristic Curve for each test item and can then determine IQ based on the item difficulty of the most difficult items that have correct responses from the testee. This method is particularly well suited to use in computer testing, since the computer can present more or less difficult test items in response to correct or incorrect responses. In the case of experimental tests the number of test items may be too small for IRT to be practically applied, but if it were used, at least the designer could avoid using test items that are too close to the same level of difficulty and space the items, such that there are not large gaps in the levels of difficulty. If item level difficulty is not known, it is difficult to believe that anything other than luck would make the test perform properly – particularly over a very high intelligence range.

What should be measured? Psychometric *g*, or group factors? SLODR is the issue.

IQ tests measure *g*, non-*g* residuals of broad abilities, and uniqueness. The sum of the variances of these must equal 100%. Over most of the IQ spectrum (let's think in terms of ± 2 SD for discussion), the thing we are looking for (outside of clinical applications) is *g*, because it accounts for virtually all of the predictive validity of the test. We use the IQ test as a proxy for *g* because there is usually enough *g* saturation to justify the proxy.

When high levels of intelligence are involved, there is the possibility that *g* is not following a linear increase with the measurement from the test in question. This is Spearman's Law of Diminishing Returns (SLODR). Jensen wrote (see Appendix A - *The g Factor*): "The higher a person's level of *g*, the less important it becomes in the variety of abilities the person possesses."

Evans explained the situation well: "The possibility of a breakdown of *g* at higher levels of intelligence, even with a narrow range of tests (as in the Armed Services Vocational Aptitude Battery) implies that we may have to reexamine the nature of intelligence." ... "There may be a single driving factor at low levels of *g*, but this may be manifested in a variety of different ways at high levels of *g*." (Evans, M. G. (1999). "On the asymmetry of *g*," Joseph L. Rotman School of Management, University of Toronto.)

A clean proof of exactly what is happening is difficult. There has been about one paper addressing this at most ISIR conferences over the past decade or more. In 2004, I asked Jensen if it would be possible to calculate *g* in relatively narrow slices to prove the effect. He confidently replied that comparing the top and bottom halves (which had already been done) was about the best that could be done. The various papers I mentioned have approached the

problem from different directions with mixed results. My impression is that the weight of evidence is that Spearman was right and SLODR is real. Unfortunately, that does not tell us if it is a small, moderate, or large effect, nor does it tell us how much the effect size might change at very high levels.

In a qualitative sense, we see that bright people seem to obviously demonstrate that there are increasing differences in their areas of highest performance. Jensen discusses this qualitative observation in various places, including the Appendix A, mentioned above.

When a test seeks to measure at very high levels, it is dealing with intelligence that is not structurally the same as that found at lower levels and which seems to become particularly characterized by non-*g* factors. Do experimental tests take this into account? If they claim to do equally well as a PT below the usual ceilings, what suggests that they also do well when the nature of intelligence is different?

Let's consider a test-A that consists of mostly verbal test items and another, test-B, that consists of many spatial items. If we are attempting to measure IQ at very high levels, it is very likely that a person who scores well on test-A will not score well on test-B (or vice versa). How do we rationally compare someone with high and narrow verbal ability to someone with high and narrow spatial ability? Isn't this similar to comparing the abilities of a superb painter to those of a world class mathematician? My perspective is that when SLODR kicks in the utility of IQ tests is damaged because we rely on a linear *g* throughout the major range of interest, then we try to use the same measurement approaches when intelligence biologically changes. It is much like studying a solid and understanding its thermal expansion until the temperature causes the solid to start melting.

Is the test invariant with respect to the most salient groups?

PTs are typically evaluated to show that they are invariant relative to race, sex, and occasionally other groups (age is a special case). If the tests are designed around data that is skewed toward a racial or ethnic group, is the test valid for other groups? If invariance is not shown, there should be a cautionary flag that the test is only for specific listed groups. Invariance is typically shown by multiple group confirmatory factor analysis. If invariance is not established, for race/ethnicity (example), the interpretation of the results of testing a group may have an embedded error of unknown magnitude. Does the test only work for one sex, or has invariance by sex been confirmed?

In the case of age, there are several considerations. Does the scoring determine z-scores by age groups, or are they all taken as the same? (Age adjustment is a necessary requirement for a professional IQ test, unless the test specification is limited to a narrow age range. IQ is as defined by David Wechsler's method and is relative to age peers.) We know that the brain is constantly changing from birth to death. One of the things that we accept as a given is that IQ measurements are relative to age peers. The figure below relates directly to this concern.

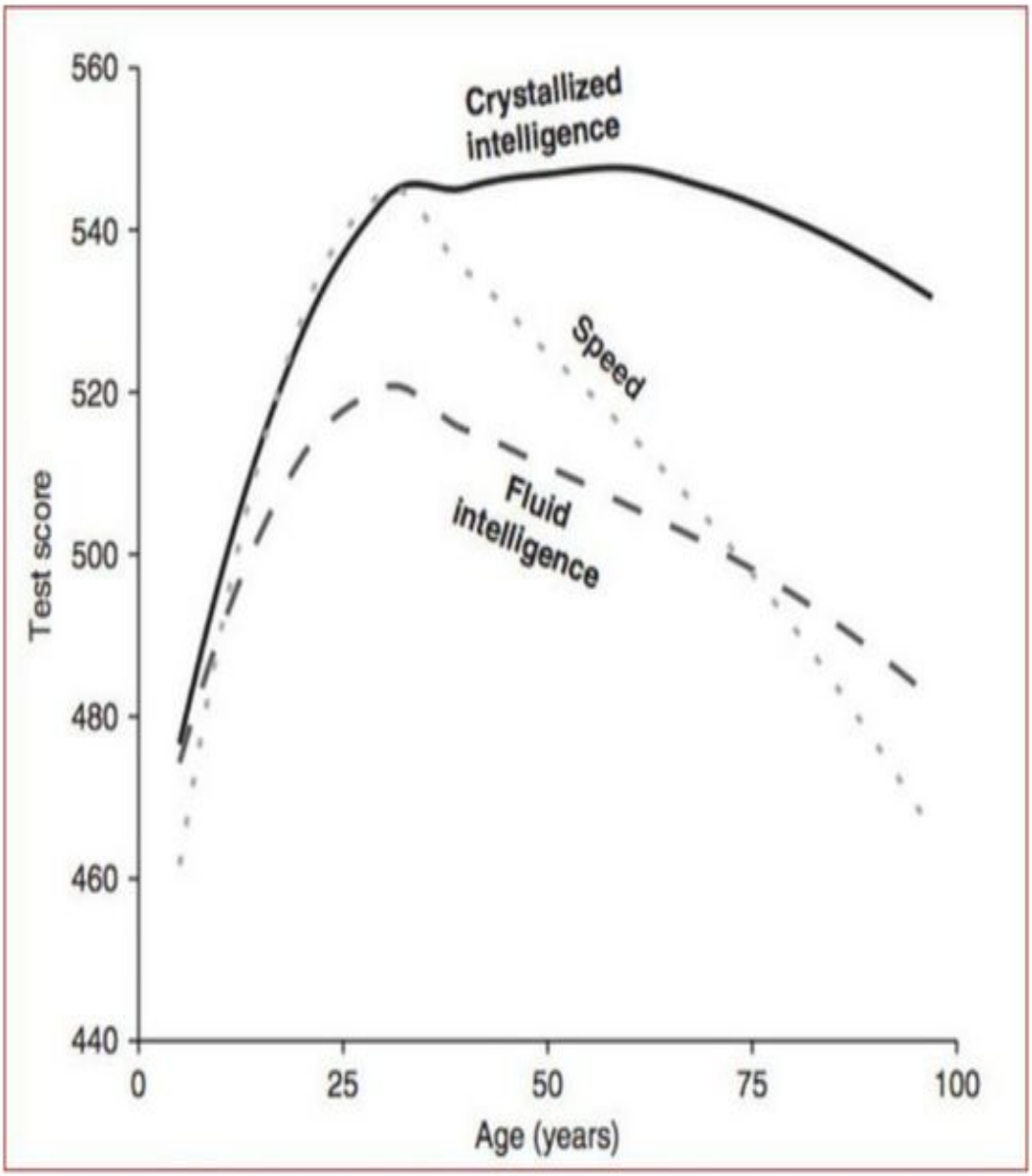


Figure source: *Intelligence: All That Matters*, S.J. Ritchie, John Murray Learning, London (2015).

It is vital that age effects are taken into account or the test will not reflect the thing we understand as IQ. The differences between age 30 and age 50 are large. Naturally invariance must be established for age. If it is not, the test should specify the age range over which it is known to be invariant.

Establishing sex invariance could be even more challenging than simply finding an appropriate norming group. The combined factors of a higher male mean IQ (age 16 and above) and the higher male SD results in a huge difference of males and females at high levels of intelligence. For example, data for whites:

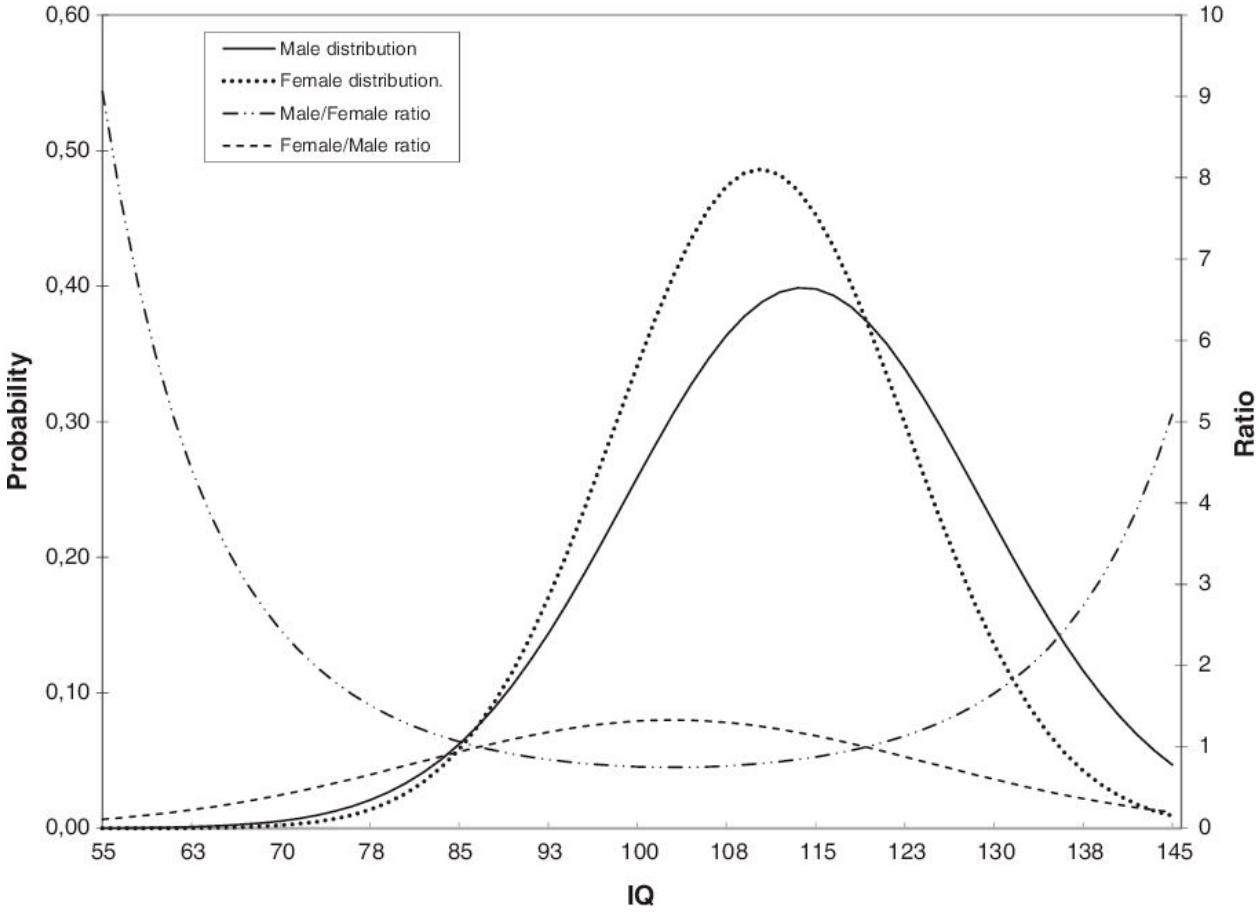


Figure source: Sex differences across different racial ability levels: Theories of origin and societal consequences; Helmuth Nyborg; Intelligence 52 (2015) 44–62.

The sex ratio at IQ 145 is already 7 males per 1 female and is increasing rapidly. Interestingly, the ratio is higher for Hispanics and higher still for blacks.

Very long time limits versus long time limits.

Let's forget SLODR now and look at other features, as used in PTs. Many of the test items that are used in PTs can be given without time limits. It is well established that removing time limits does not reduce the reliability of these items, nor does the use of adequately long time limits. The problem that arises is that tests without time limits that are actually expected to take weeks to complete cannot measure any of the factors associated with time. Mental speed accounts for up to 80% of the variance in intelligence (there is a lot of covariance, particularly with WMC). [Working Memory Capacity = "The capacity to selectively maintain and manipulate goal-relevant information without getting distracted by irrelevant information over short intervals."

Source: https://www.sciencedirect.com/topics/psychology/working-memory-capacity -Ed. Note]

Giving up this whole category of measures significantly reduces the subtests that can be used.

It gets worse...Working Memory Capacity (WMC) also accounts for up to 80% of the score variance (obviously this means a lot of covariance with mental speed). The literature is stacked with studies showing very high relationships between WMC and various parameters related to intelligence (*g*, Gf, executive function, attention, inhibition, etc.). While it may be argued that these are indirectly measured by very difficult test items, skipping the step of direct measurement seems to be a detriment to the strength of a high quality test. The simple fact is that WM measurements are time dependent.

(There is an indirect speed effect, in other measures, due to the Gs correlation with Gf and WMC.)

[https://en.wikipedia.org/wiki/Cattell%E2%80%93Horn%E2%80%93Carroll_theory -Ed. Note]

Have factor loadings been balanced?

The *g* loading of a subtest is somewhat dependent on the structure of the other parts of the test. Over or under representation of factors being tested directly influences the other test items. For this reason PTs seek a balance between the numbers of test items in a given test category. Can we depend on the experimental tests to be balanced in its structure? If not, one might argue that Spearman's indifference of the indicator works in favor of the narrow test (RPM is an example), but this is the very point that differentiates a high quality test from a lesser one (see the previous figure from Gignac and Bates). The problem is that experimental tests show deficiencies in many areas that are important to PTs.

[RPM = Raven's Progressive Matrices, "a nonverbal test typically used to measure general human intelligence and abstract reasoning" thereby gauging fluid intelligence.

Cf. https://en.wikipedia.org/wiki/Raven%27s_Progressive_Matrices -Ed. Note]

Measuring basic cognitive abilities, versus complex problem solving

When I looked in Intelligence to see how many papers were about complex problem solving, I found that the number is very high (so high I don't believe it). Of the papers I have read, I have generally been impressed that they show little difference between testing people with complex problems and testing them with a comprehensive test, such as the WAIS or Woodcock-Johnson.

I previously mentioned SLODR, but I would point out that there are also diminishing returns in testing. As James Thompson has pointed out in at least 3 articles on The Unz Review, there are some very quick (as in 2 minutes or less) tests that do quite well when correlated with high quality PTs. This is a wonderful example of diminishing returns. As the test used is improved with more test items, more factors, longer testing time, etc. there are gains in reliability, and presumably various things such as internal and external validity, ceiling, floor, and *g* loading, but these come in ever-decreasing increments. I am trying to illustrate that an experimental test is

attempting to make a large move in the direction of ceiling and that achieving such a change should come at a very high cost.

It is my general impression that experimental tests are intended to probe some traditional second order factors by using test items that have high difficulty. To the extent that these are multi-step solutions, they probably can be fairly classified as complex problem solving test items. In that case, there is a huge amount of literature to evaluate, if the designer is concerned about changing the nature of IQ testing to CPS [complex problem solving -Ed. note] format. It may be justifiable, but should be understood by the designer, in terms of how it actually impacts test results and their relation to standard PTs. For example, Alexander Christ, et al. (*Intelligence* 78 (2020) 101421) noted that complex problem solving and reasoning have proved to be distinct constructs.

Have the statistical considerations been examined by a real expert?

The question above is self explanatory. For example, has the author of the experimental tests designed conventional tests that are in use by clinical psychologists, intelligence researchers, and which are referenced in the major textbooks on this subject? If not, it would seem to be helpful to have a person with such a background evaluate the test in the various categories I have mentioned.

I am aware that some experimental test designers are quite intelligent, well educated, and believe themselves to be fully competent to design an outstanding IQ test. Those people should, in my opinion, meet the simple standards I listed.

Alternatives to meet the needs of exclusive clubs

The problem that I see with experimental tests is that they purport to actually measure IQ in a range that is beyond the reasonable ceilings of PTs. One option is to not claim that the tests measure IQ and simply give a raw score. Allow club membership based on the raw score alone, without attempting to connect the score to IQ.

It may be possible to use tests given in early life (as is done with SMPY), if the rarity of the score can be established. I have doubts that much can be done beyond the published 1 in 10,000 results from the Vanderbilt researchers.

As I see it, a primary problem is that the design of experimental tests is unlikely to ever be done with a full range reference group (from very low to very high). The designers try to invent a way to work on only a piece of the right tail. The problem is that they don't know how to set the data, such that it actually fits the extreme high end of a Gaussian distribution. I honestly think this problem is not going to be resolved in a convincing way, using existing methods. In his discussion of how to best deal with researching the Flynn Effect, Jensen suggested anchoring test scores to biological measures:

> "As I have suggested elsewhere, conventional psychometric raw scores will need to be anchored to measures that presumably are not influenced by the environmental

> variables that raise test scores without increasing *g*. The anchor variables would consist of measures of reaction time to various elementary cognitive tasks, evoked brain potentials, nerve conduction velocity, and the like, that are demonstrably *g*-loaded. (A composite measure based on the anchor variables should have a reasonably high correlation [say, r > .50] with the psychometric test scores.) Mental test raw scores would be regressed on these anchor variables in a representative sample of some population.
>
> ...That is, the mean gain would be reflected in the anchor variables as well as in the test scores."

It might be possible to find biological measures that could be used to anchor a common point between a test such as the WAIS and an experimental test and then have some confidence that the joint is based on something measurable. Unfortunately, simply finding a common point does not resolve the other issues that strike me as murky, such as the issues associated with SLODR and general test design considerations. The comments directly below may offer more promise.

We live in a rapidly changing world. Only a few years ago, brain imaging was very limited, but when MRI technology was introduced, there was a sudden explosion of living brain data that had not previously been seen. Neurologists are turning out studies faster than anyone can reasonably read them. As far back as 2006, Richard Haier told the ISIR conference that we would be able to measure intelligence entirely from brain imaging and that it was not too far off. I later asked him for more insight on it and he told me that the problem was basically that – in 2007 – it takes one of the few expert researchers to read the data. This makes the cost too high to be practical. Of course, the "reading" will be automated and probably be enhanced by using machine learning. The most likely method will be one that combines many measurable factors (cortical thickness, cortical surface area, size and shape of the corpus callosum, fractional anisotropy of gray and white matter, and measures of the connective networks (such as mean path length and numbers of connections to major and minor hubs). We already have a patent that is limited to CT: **Patent US8301223** - Neurobiological method for measuring human intelligence and system for the same.

> "The method enables neurometric IQ to be measured by processing MRI and fMRI images of a subject to determine cortical thicknesses and brain activation level, determining structural IQ (sIQ) and functional IQ (fIQ) from the determined cortical thicknesses and brain activation level, and using the structural IQ (sIQ) and the functional IQ (fIQ) as predictors to measure the neurometric IQ of the subject. With this, individual differences in general cognitive ability can be easily assessed. It suggests that general cognitive ability can be explained by two different neural bases or traits: facilitation of neural circuits and accumulation of crystallized knowledge."

Imaging technology may eventually create very high ceilings – or not. The obvious problem is that we must wait for this to be fully developed and automated to the point of reasonable costs. Haier told me that he envisioned a full psychometric evaluation in 20 minutes at a 2007 cost of about $200.

Type 4 and Type 5 Kardashev-Scale IQ Societies

May-Tzu

In the August 1983 issue of *Vidya*, the journal of the Triple Nine Society, there was an historic article by Richard May called “The Founding of the Exa Society, the Aleph-3 Society and the Plus Sigma Society.” The Exa Society accepted only the top IQ-test-scoring entity (1/(10^18), i.e., the top-one-per-quintillion (as defined in the U.S.) or the giga level, i.e., the top 1-per-billion IQ (1/(10^9), within the present-day Giga Society population. The same article announced the founding of the Plus Sigma Society, whose admission level was flexible, and was defined as being always one sigma or standard deviation higher than the next highest high-IQ society’s admission standard. It was thought that the founding of the Plus Sigma Society might reduce the one-upmanship then occurring among high-IQ society founders.

Astrophysical Indices of Levels of Civilization and High-IQ Society Selection Ratio

The Aleph-3 Society was the first high-IQ society with a transfinite-level admissions requirement, having at most fewer than one member per universe potentially qualifiable, hence it is a Type 4 high-IQ society on the Kardashev Scale.* (Incidentally, the entity commonly referred to as ‘God’ is only at the Aleph-1 level, on the precise Quantification of Divinity Scale. Were the gnostics right? But I digress.) There are no meetings, no newsletters or intra-Brane-world internet connections. Its purpose is primarily social.

Membership is further limited by the fact that candidates must submit an infinite number of finite-ceiling IQ-test scores, in order to attempt to qualify. The ceiling of any finite-level IQ test would be below the lowest level of cognition of a potentially qualified candidate. An infinite number of finite-ceiling IQ-test scores will then be concatenated, using the appropriate Ferguson formulas, after everyone in the universe/Brane world has been rigorously tested. Candidates at present invariably spend their entire lives taking IQ tests and submitting score reports, before deceasing of old age without having qualified for the Aleph-3 Society. But this is only a practical limitation.

The Aleph-3 Society, in addition to being a social club like Mensa, but at the top-one-per-universe level, will serve as a control group for the Aleph, itself, a less pedestrian group, defined as having at most one entity per Multiverse potentially qualifiable. In order to enliven their possible future quantum non-local Annual Gatherings, the Aleph-3 Society, which has at most one member per universe or Brane world potentially qualifiable, will consider attempting to appoint a Wormhole Officer, in order to contact or recruit potential members from any parallel universe of the Multiverse.

However, there is justifiable concern that in smaller parallel universes, the absolute level of intelligence associated with the top-one-per-universe ratio could be at a lower-than-average

universe level, thereby reducing the intellectual level of the membership. A being at Kardashev 4 level of intelligence may have poorly developed social skills. Not uncommonly, potential members of these somewhat rarified groups may tend to be socially isolated. Recruitment of a member in dating bars has met with little success.

The Aleph is a Type 5 Kardashev Scale high-IQ society. A Many-Worlds Genius Directory à la Hugh Everett for the Aleph, not to be confused with the "'World Genius Directory," is on the cosmic back-from-the-future event horizon. In the fullness of evolutionary time à la *Sapiens* by Yuval Harari the Aleph-3 is quite practicable.

Members of the new species into which Homo sapiens evolve by controlling its own biological evolution through gene-editing, neural implants, and cyborgization will be amortal, i.e., members can only die from either an accident, homicide or suicide; the lucky amortals will be able to spend eternity taking an infinite number of finite-ceiling IQ tests, to be concatenated by the appropriate Ferguson formulas, to achieve the requisite transfinite-level IQ scores for admission to the Aleph-3 Society — without dying of old age.

The Aleph-3 Society and the Aleph, itself, are not parodies, as claimed by Daryl Miyaguchi in A Short and Bloody History of the High-IQ Societies.**

Mr. Miyaguchi is apparently incapable of distinguishing parody from non-parody at the highest IQ-levels; in an infinite universe or a Multiverse the other, finite-level 'high'-IQ groups are parodies.

The Exa Society is, of course, an actual society. But there's not much activity at present, perhaps because there are no members. There are no members, because the population of the planet Earth is too meager at present, less than 8 billion. A planetary population of at least one quintillion would be necessary to have even the theoretical possibility of one actual member.

As the founder of the Exa Society, I'm quite realistically waiting for extraterrestrial tourism, tourism from time travelers from our future, interstellar Homo sapiens space exploration, and a further population explosion on planet Earth, in order to increase the available sample size for the Exa Society's psychometric testing program. When the population of the Earth is sufficiently high, the Exa Society will become a local Intelligence-Singularity, which will more than compensate for the temporary inconvenience of the effects of a population explosion to the quintillions on planet Earth.

The Exa Society necessarily seeks true species diversity and inclusiveness for our membership, including IQ testing of advanced AI-units, not to merely become another parochial biological-genetic Homo-sapiens ghetto, such as the Giga Society, which does not psychometrically test or admit advanced AI-units. But, alas, no one on our little tribal planet, a Type 0 civilization after all, takes the Exa Society seriously yet. The denizens are busy with their planetary high-IQ societies, which the Exa Society finds offensive, because member selection is speciesist, exo-phobic and exclusively biologically-based.

Mensa, the Triple Nine Society, the Mega Society and the Omega Society are Type 0 IQ societies on the Kardashev scale. A top-1-per-planet IQ society would be a Type 1 IQ society on the Kardashev scale; a top-1-per-planetary-system IQ society would be a Type 2 IQ society on the Kardashev scale. An at-most-1-member-per-galaxy IQ society would be a Type 3 IQ society on the Kardashev scale. The Aleph-3 Society, which requires at minimum a top-1-per-universe IQ, would be a Type 4 IQ society on the Kardashev scale, whereas a top-1-per-Multiverse IQ society would be a Type 5 IQ society on the Kardashev scale, e.g., the Aleph, itself.

The Kardashev number of the Exa Society (a mere psychometric-testing control group) is a variable function of the population distribution of intelligent beings on the planet Earth, throughout the solar system, and the Milky Way galaxy (Kardashev scales 1, 2 and 3). High-IQ societies with minimum levels of cognitive ability below the Kardashev 4 scale were without interest for the present discussion.

* The Kardashev scale is a method of measuring a civilization's level of technological advancement based on the amount of energy they are able to use. The measure was proposed by Soviet astronomer Nikolai Kardashev in 1964.

https://en.wikipedia.org/wiki/Kardashev_scale

** **A Short (and Bloody) History of the High IQ Societies**

A Fine Mess

May-Tzu

In childhood I decided that I must become Administrator of the Multiverse. But, of course, one has to be realistic. I have to begin from where I am. I act on a scale where I can make a difference, working my way up to neutrinos. So initially I will attempt to become Administrator of this particular brane world in which I happen to find myself.

I've been calling God on the telephone to discuss this with Her for nearly half a century. However, God is unfortunately not clear on the concept of the proper proportions of the universal constants of Nature. I find it highly offensive that God set the values of the universal constants of Nature without consulting with me first.

My views are more objective than reality itself. You know I'm very persuasive. But God is unclear on so many concepts and does not have an awakened conscience. I've tried to explain to Her that the laws of physics ought to operate as a constitutional democracy from at least the quantum-level upwards. Robert's Rules of Order and parliamentary procedure must be used to determine the outcome of the collapse of each state vector.

The present quantum 'indeterminacy' is an unacceptable form of abuse of subquantal particles and waves. Hence, I'm in the process of writing software, which will write software, which will write software … , generating endless transfinite Cantorian sets of democratically constituted virtual subcommittees to deal with the rights of subatomic particles themselves.

At the biological level of scale the spontaneous unregulated breathing of atmospheric gasses by various species throughout the brane worlds is unacceptable. Quotas ought to be established for the maximum number of permissible breaths per organism per period of planetary rotation. At most three breaths per day per organism would be acceptable. Any biological entity that thinks it needs more than three breaths per day is crazy.

Umami Shadows

No reasonable definition of reality, subliminal music not yet composed, expressing all possible thoughts in the empty space between two letters which have been erased, could be expected to permit reality.

May-Tzu

Images from the NASA Hubble Space Telescope