

Life's Information Systems (Apologetics Forum 8/22/14)



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3 Kinds of Information

- Information: other possibilities ruled out (contingent)
 - Functional: useful/purposeful/meaningful
 - Prescriptive: instructional/algorithmic choices
 - Shannon: reduction of possibilities or uncertainty (no functionality required)
- Examples of information using computer keyboard
 - Monkey randomly typing (high Shannon uncertainty)
 - Typing a document (high functional information)
 - Typing a recipe or computer program (prescriptive)
- Chemical & physical properties: determined by law and initial constraints, and are not information (no contingency)

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Topics for This Presentation

- Overview of information
- Overview of cell's computers & computer programs
 - Computer, coding systems, & algorithmic requirements
 - Required properties of nature for information storage
- Biological evolution's assumptions and problems
- The death of Darwinism
- Undirected naturalism's unanswered information questions
- Atheistic attacks and becoming equipped for battle

Interesting Observations

- ***"The mechanism of heredity by gene action is insufficient to explain observations... The algorithm must be written in some abstract language... No currently existing formal language can tolerate random changes in the symbol sequences"*** M. Eden "Inadequacies of Neo-Darwinian Evolution as a Scientific Theory," Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution, Wistar Institute, 1966
- ***"Each nucleus ... contains a digitally coded database larger, in information content, than all thirty volumes of the Encyclopedia Britannica"*** Dawkins, *Climbing Mt Improbable*
- ***"Biology is the study of complicated things that give the appearance of having been designed for a purpose."*** Dawkins, *The Blind Watchmaker*, p. 1
- ***"Although they claimed to be wise, they became fools and exchanged the glory of the immortal God for images made to look like man and birds and animals and reptiles."*** (Rom 1:22)

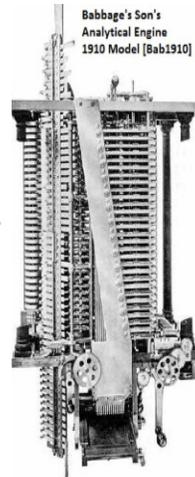
Life as Computer System?

•Mechanical computer designed 1837

•“The machine code of the genes is uncannily computer-like. Apart from differences in jargon, the pages of a molecular biology journal might be interchanged with those of a computer engineering journal.” Dawkins River Out of Eden, p17

•“*Human DNA is like a computer program but far, far more advanced than any software we've ever created.*” Bill Gates, *The Road Ahead*, p.228.

•“Life is basically the result of an information process, a software process. Our genetic code is our software.” Craig Venter, 2010 Guardian interview.



What is A Computer?

Necessary and sufficient requirements for a functional computer (mechanical, electronic, or biological) are

Input (or embedded data)

Memory and internal data transfer

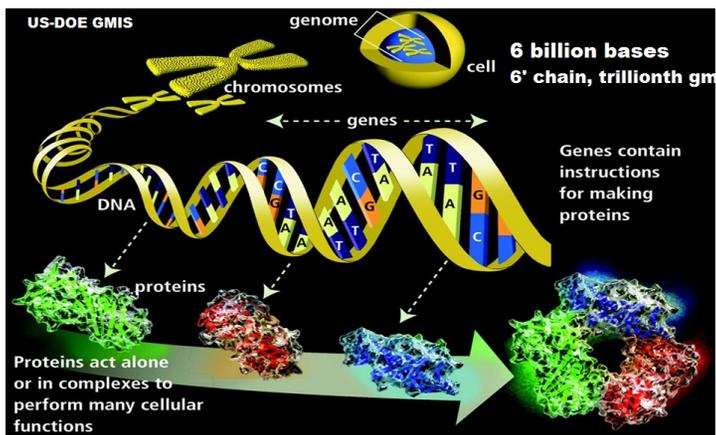
An instantiated algorithm (program)

Processing capability

Capability to produce meaningful output

- Electronic and biological computers have multiple components
- DNA/RNA can store program instructions to be executed
- Proteins can be processing and communication components
- Proteins and cellular controls are examples of output
- Biology is an information science since it's determined by the flow of information that controls the chemistry and physics involved (it's not complex organic chemistry)

Simplified Genetic Code for Protein Construction

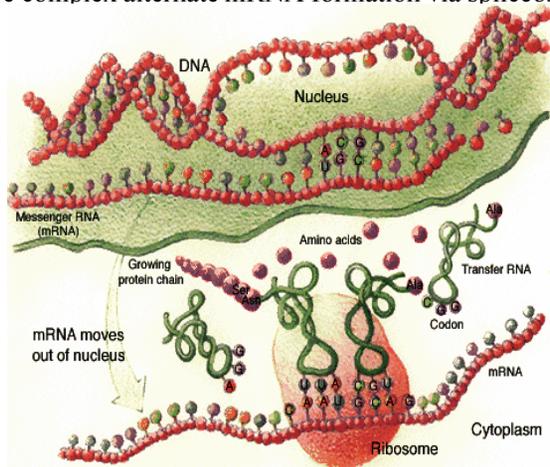


Simplified View of Life's Incredible Complexity

Life is “fearfully and wonderfully made” Ps 139:14

- 25,000 genes (many overlapping to produce >100,000 proteins)
- “A single gene can potentially code for tens of thousands of different proteins... It's the way in which genes are switched on and off, though, that has turned out to be really mind-boggling, with layer after layer of complexity emerging” Le Page, "Genome at 10," New Scientist, 6/16/10.
- Genome: Digital (base 4) self-correcting encoded information
 - Group of 3 1-of-4 bases (ACGT): $4^3 (= 64)$ possible codons
 - 20 amino acids for proteins redundantly codon-specified
- Information in 1 teaspoon of DNA: all people + all books
 - Information density is 1.88×10^{21} bits/cm³
- Even "simplest" organism's DNA has >150,000 nucleotides
- DNA, proteins, etc. must be fully-formed/functional
 - >2000 enzyme proteins enable reactions
 - Slowest non-enzymatic reaction would take a trillion yrs

Simplified DNA Transcription/Translation Process (more complex alternate mRNA formation via spliceosomes)



Algorithmic Prescriptive Information (PI) in Life

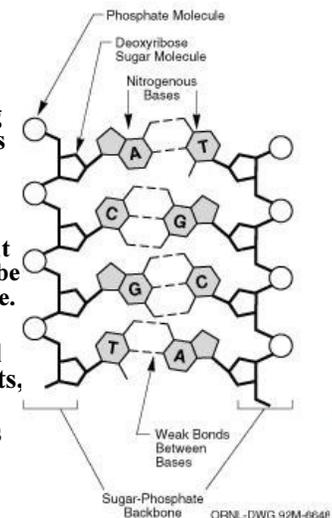
- DNA gene sequences are real computer programs
- Chance & law can't explain decision nodes (choice)
- PI is intrinsically formal, but implemented physically Abel, "The Biosemiosis of Prescriptive Information," Semiotica:174-1, 2009, p1-19
- A nucleotide can be in multiple prescriptions
- "No rational scientific basis exists for blindly believing in a relentless uphill push by mere physicality toward formal algorithmic optimization" Abel & Trevors, "Self-Organization vs Self-Ordering events in Life-Origin Models," Physics of Life Rev:3, 2006, p211-228.
- "The Origin-of-Life Prize® ... will be awarded for proposing a highly plausible natural-process mechanism for the spontaneous rise of genetic instructions in nature sufficient to give rise to life."

Information Systems in Life

- Genetic system is a preexisting operating system
- Specific genetic program set (genome) is application
- Enzyme-based computers read codon-based encryption codes with output to a computer-controlled factory (ribosome), for decryption and adding specified amino acid to protein chain
- In each cell, there are multiple OSs, multiple programming languages, encoding/decoding hardware and software, specialized communications systems, error detection/correction mechanisms, specialized input/output channels for cell component control and feedback, and variety of specialized "devices" to accomplish the tasks of life.

Amazing Chemicals of Life

- DNA backbone encodes the genetic prescriptive instructions used in the development and functioning of all known living organisms
- Life's unique elements: Hydrogen wouldn't exist if the strong nuclear force constant were larger, and if that constant were smaller, hydrogen would be the only element in the Universe.
- Carbon's bonds are stable enough to withstand harmful chemical and physical assaults, yet not so strong so as to prevent many different kinds of reactions.



Origin of Life Observations

- **Could a Protocell Live and Reproduce Without a “Genome”?**
Reliable, yet evolvable, replication is fundamental to life
Cybernetically-controlled chemical metabolic networks are needed to admit and process fuel to harness energy for growth, reproduction, manufacturing, etc.
(from Johnson, “What Might Be a Protocell’s Minimal Genome?” in *The First Gene*, 2012)
- **“The origin of life remains one of the humankind’s last great unanswered questions, as well as one of the most experimentally challenging research areas.”** Miller & Cleaves, “Prebiotic Chemistry on the Primitive Earth,” in *Systems Biology VI: Genomics*, 2007
- **“The origin of life remains one of the most vexing issues in chemistry, biology, and philosophy,”** *Bioinorganic Photochemistry*, 2009, p109
- **“The challenge for an undirected origin of such a cybernetic complex interacting computer system is the need to demonstrate that the rules, laws, and theories that govern electronic computing systems and information don’t apply to the even more complex digital information systems that are in living organisms.”** Johnson, *Probability’s Nature and Nature’s Probability*, 2009/2010, p48.

Biological Evolution: descent with modification

- **Microevolution: small-scale genetic changes**
(proven observable fact accepted by all scientists)
- **Macroevolution: descent from common ancestor**
- **“Each successive change in the gradual evolutionary process was simple enough, relative to its predecessor, to have arisen by chance.”**
(*Dawkins, The Blind Watchmaker*, 1996, p43)
- **“If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down”** Darwin, *Origin of Species*, p154
- **“All our data suggests that small-scale evolution cannot produce the sort of large-scale change Darwinism requires.”**C. Hunter, *Darwin’s Proof*, 2003, p60

Problems not Usually Considered

- **Laws of Information rule out transfer of coded information from protein (20 symbols) to RNA (64 symbols). Life’s initial alphabet was at least that of codon alphabet (more complex couldn’t evolve).**
Harmful mutations limit life’s existence
current 60 per newborn human -- extinction in <10ky
Fitness declines by 1-2% per generation (1995 J. Theo.
Biol. Paper title: “Why have we not died 100 times over?”)
- **>300 generations would cause certain extinction!**
Each mutation causes a guaranteed net information loss in the genome (DNA), changing the prescriptive program
- **“Mutation is not an increase in true information content, rather the reverse.”** *Dawkins, Information Challenge*

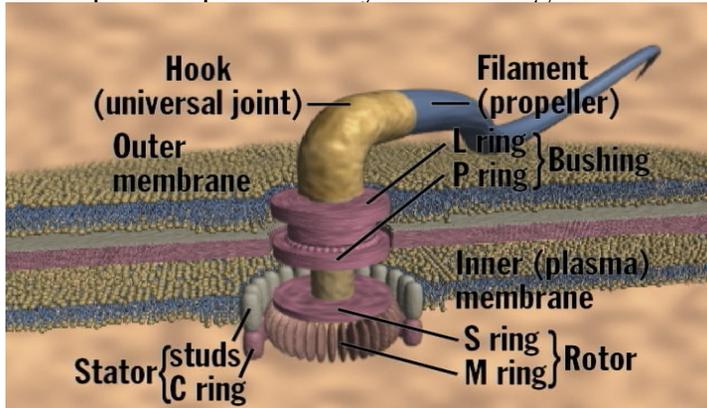
Can mutation Increase Information?

- **The simplest life has only 267,000 information bits, vs over 6 billion for Human DNA (simplest life is $10^{300,000,000}$ more probable than man)**
- **No mechanism to produce ANY net info increase**
New functionality offset by functionality loss, e.g.--
Single mutation causes sickle cell anemia
- **“We must concede there are presently no detailed Darwinian accounts of the evolution of any biochemical or cellular system, only a variety of wishful speculations”** Harold, *The Way of the Cell*, 2001, p205.
- **“The failure to observe even one mutation that adds information is more than just a failure to support the theory. It is evidence against the ... neo-Darwinian theory.”** (*Spector, Not By Chance*, p160)

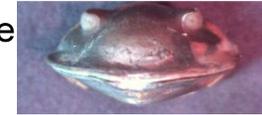
Bacterial Flagellum: Irreducibly Complex

48+ proteins (>30 unique): <1 in $10^{5,250}$ probability

Each protein produced by PI of an algorithm



Lowest Stratum Trilobite Eye



•Transparent calcium carbonate
 “Trilobites had solved a very elegant physical problem and apparently knew about Fermat’s principle, Abbe’s sine law, Snell’s laws of refraction and the optics of birefringent crystals.” Clarkson & Levi-Setti, “Trilobite Eyes and the Optics of Des Cartes and Huygens,” *Nature*: 254, 4/24/75, p663 - 667

•“These lenses optimize both light collecting and image formation **better** than any lens...that optical physics has ever been able to formulate.” N. Eldredge, “A Trilobite Panorama in Eastern North America,” *Fossils Magazine*: 1, 1976, p58-67

•“The design of the trilobite’s eye lens could well qualify for a patent disclosure.” R. Levi-Setti, *Trilobites: A photographic atlas* (2nd edition), 1993, p58

•Each protein for collecting/processing lens material is PI result

Sudden Appearance and Fixity of Kinds

“according to their kinds” (Gen 1)

- “Most of the animal phyla that are represented in the fossil record first appear, ‘fully formed,’ in the Cambrian... The fossil record is therefore of no help with respect to the origin and early diversification of the various animal phyla.” Barnes, Clow & Olive, *The Invertebrates*, 2001, p9–10
- “It is as though they were just planted there, without any evolutionary history.” Richard Dawkins, *The Blind Watchmaker*, 1996, p229
- The fossil record supports creation with:
 - Multitude of life in the oldest fossil-bearing rocks
 - Fixity of species over “eons” of time
 - NO transitional forms, though claimed – e.g. Tiktaalik
 - 10 million years older tetrapod found! *Nature* (463), 2010, p43-48

Life: “fearfully and wonderfully made” (Ps 139:14)

- “The complexity of biology has seemed to grow by orders of magnitude... Biology’s new glimpse at a universe of non-coding DNA has been fascinating and befuddling... the signaling information in cells is organized through networks of information rather than simple discrete pathways. It’s infinitely more complex.” E. Hayden, “Life is Complicated,” *Nature*, 4/10, p664-7
- <2% of the genome codes for protein, the rest was considered to be “Junk DNA”
- “Creationists might spend some earnest time speculating on why the Creator should bother to litter genomes with untranslated pseudogenes and junk tandem repeat DNA.” Richard Dawkins, “The Information Challenge,” 2004
- 30 papers published In Fall of 2012 shows KNOWN function of >80% of DNA (it’s NOT junk!)

Intelligent Design vs Creationism

- ID “holds that certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection. Through the study and analysis of a system's components, a design theorist is able to determine whether various natural structures are the product of chance, natural law, intelligent design, or some combination thereof.” (Discovery Institute Website)
- Creationism holds that the Bible is true, and science must conform to the facts presented in the Bible, with any disparity due to incomplete human understanding.

Science Needs to Provide Plausible Mechanisms to Explain **How did nature:**

- write prescriptive programs needed to organize life's metabolism?
- formally solve life's other complex problems and write the programs?
- develop the operating systems and programming languages?
- develop the arbitrary protocols for communication and coordination among the thousands (or millions) of computers in each cell?
- develop alternative generation of prescriptive messages using techniques such as overlapping genes, messages within messages, multi-level encryption, and consolidation of dispersed messages?
- defy computer science principles by avoiding software engineering's top-down approach required for complex programming systems?
- produce complex functional programs without planning by randomly modifying existing algorithms?
- simultaneously modify multiple such programs to result in the production of irreducibly complex structures?

(from “Programming of Life” -- www. programmingoflife.info)

Darwinism Doubted by Thousands of Scientists

- “Natural selection is not a mechanism, it's the process by which the results of evolution are sorted.” Bruce Runnegar, p188 of The Altenberg 16: An Exposé of the Evolution Industry, 2010 (Mazur)
- “Stunningly, information has been shown not to increase in the coding regions of DNA with evolution. Mutations do not produce increased information... the amount of coding in DNA actually decreases with evolution” [Abel, “The GS (genetic selection) Principle,” Frontiers in Bioscience , 1/1/09, p2959-2969]
- “One of the traditional objections to Darwinian gradualism has been that it is too slow and indeterminate a process to account for natural adaptations, even allowing for long periods of random mutation and selection ... **natural genetic engineering** ... employs a **combinatorial search** ... Such a **cognitive component** is absent from conventional evolutionary theory” James Shapiro, “Mobile DNA and evolution in the 21st century,” Mobile DNA 1/25/10 (Book: Evolution: A View from the 21st Century)

Atheistic Scientists' Religious Attacks

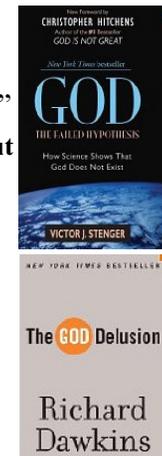
Sam Harris: “Letter to a Christian Nation”

Christopher Hitchens: “God is Not Great”

Richard Dawkins: “The God Delusion”

Victor Stenger: “God, the Failed Hypothesis”

- “Defeating Creationism in the Courtroom, But Not in the Classroom,” (Berkman/Plutzer, Science, 1/28/11)
Those “who cannot accept evolution as a matter of faith to pursue other careers... [Their plan] would reduce the supply of teachers who are especially attractive to the most conservative school districts.”
- Science, Religion, and Society: **the Problem of Evolution in America** (Jerry Coyne, Evolution, pages 2654–2663, 8/2012)
“America's resistance to evolution is truly a byproduct of America's extreme [theistic] religiosity”



Be Prepared for Battle

- For our struggle is not against flesh and blood, but against the rulers, against the authorities, against the powers of this dark world and against the spiritual forces of evil in the heavenly realms. (Eph 6:12)
- The battle is the LORD's (1Sam 17:47)
- Therefore I stationed some of the people behind the lowest points of the wall at the exposed places, posting them by families, with their swords, spears and bows. After I looked things over, I stood up and said to the nobles, the officials and the rest of the people, "Don't be afraid of them. Remember the Lord, who is great and awesome, and fight for your families, your sons and your daughters, your wives and your homes... Those who carried materials did their work with one hand and held a weapon in the other" (Neh 4: 13-14,18)

Useful ID References

Probability's Nature and Nature's Probability, Don Johnson (2 versions: 2009 Lite/2010 revised Scientists')
Programming of Life, Don Johnson, 10/10, Video 8/11
The Privileged Planet, Gonzalez & Richards, 2004
Darwin's Black Box, Michael Behe, 1996
Signature in the Cell, Stephen Meyer, 2009
Darwin's Doubt, Stephen Meyer, 2013
Uncommon Dissent, William Dembski, 2004
arn.org, intelligentdesign.org, uncommondescent.com, scienceintegrity.org (PDFs available at www.4iam.org)

Creation/Biblically-based References

answersingenesis.org, creation.com, icr.org, reasons.org
The Case for A Creator, Lee Strobel, 2006
I Don't Have Enough Faith to Be an Atheist, Geisler, 2004

Goals of This Presentation

Science supports the insights in the Bible

All life is filled with incredible functional complexity

Darwinism lacks any proven scientific basis and is dead

The Bible IS reliable and can be trusted – "All Scripture is God-breathed and is useful for teaching..." (2 Tim. 3:16)

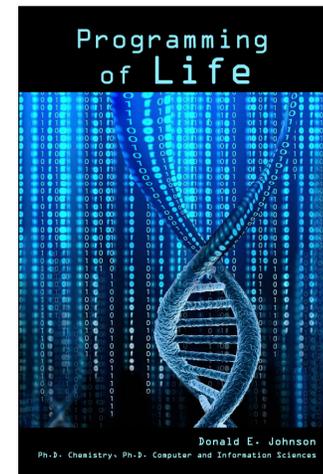
"The God who made the world and everything in it is the Lord of heaven and earth." Acts 17:24 (evangelism)

Christian faith is fact-based, not "blind" or "anti-logic" – "You will know the truth, and the truth will set you free." (Jn. 8:32). Study & "Always be prepared to give an answer" 1 Pet 3:15

Our knowledge on any subject is limited – "Now we see but a poor reflection as in a mirror." (1 Cor 13:12).

The world is blind to many truths (Rom. 1:18-32, 1 Cor. 1:18-2:16) – "They exchanged the truth of God for a lie."

POL highlights the informational aspects of life that are usually overlooked or ignored in chemical and biological evolutionary. Each cell of an organism has thousands (or millions) of interacting computers reading and processing digital information using algorithmic digital programs and digital codes to communicate information. Most scientists have been attempting to use physical science to explain life's information domain, a practice which has no scientific justification. For more info see www.djpol.info and video at www.programmingoflife.com



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