Programming of Life (Apologetics Symposium 8/21/14)

Dr. Don Johnson
Ph.D. Chemistry
Ph.D. Computer & Information Sciences

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Don Johnson
Ph.D. Chemistry: Michigan State Univ.
Ph.D. Computer & Information Sciences: U of Minn

Topics for This Presentation

Overview of cell's computers & computer programs

Computer, coding systems, & algorithmic requirements

Required properties of nature for information storage

Undirected naturalism's unanswered information questions

Information Requirements

Contingency: could be otherwise (not law determined)

A physical property isn't information (unless constraints are controlled), since it has no contingency – chemistry & physics: determined by law and initial constraints

Chance contingency (random or biased) produced by stochastic process, e.g. recordation of coin flips, die rolls, non-biological amino acid chirality

Choice contingency (purposeful, meaningful, intentional) needed for all known functional information, including codes and algorithms (a challenge for science)

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)

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 inter- changed with those of a computer engin- eering journal**." Dawkins River Out of Eden, p17

"*Human DNA is like a computer program but far, far more advanced than any soft- ware we've ever created.*" Bill Gates, The Road Ahead, p.228.

"**Life is basically the result of an infor- mation process, a software process. Our genetic code is our software.**" Craig Venter, 2010 Guardian interview.

Babbage's Son's Analytical Engine 1910 Model [Bab1910]
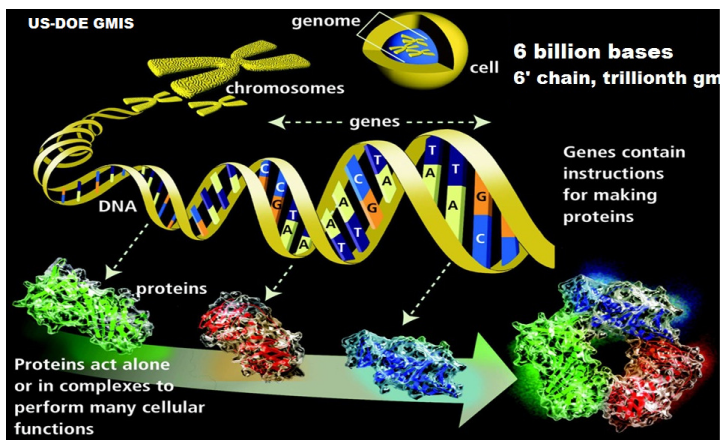

What is A Computer?

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

Simplified Genetic Code for Protein Construction

US-DOE GMIS

genome
cell
chromosomes
6 billion bases
6' chain, trillionth gm

genes

DNA

Genes contain instructions for making proteins

proteins

Proteins act alone or in complexes to perform many cellular functions

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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
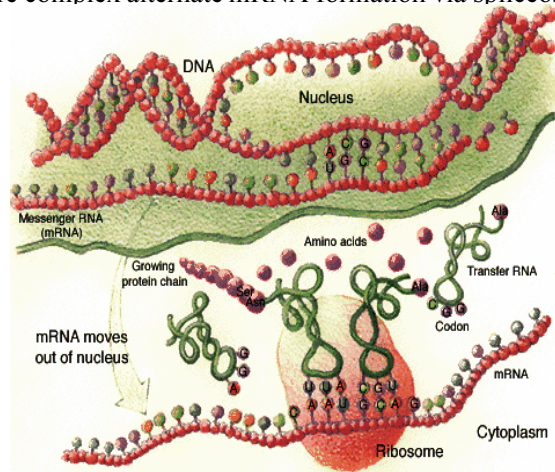   Information density is 1.88×10^{21} bits/cm^3
Even "simplest" organism's DNA has >150,000 nucleotides
DNA, proteins, etc. must be fully-formed/functional
 >2000 enzyme proteins enable reactions
   Slowest non-enzymatic reaction would take a trillion yrs

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

Information Systems in Life
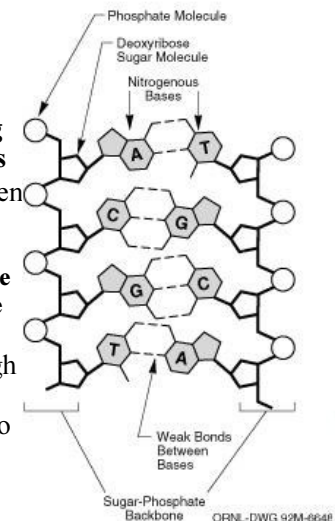
- Genetic system is a preexisting operating system
- Specific genetic program set (genome) is application
- Native language has codon-based encryption system
- Enzyme-based computers (with own OS) read codes
- Enzyme's output is to another OS in a ribosome
- Codes are decrypted and output to tRNA computers
- Codon-specified amino acid is transported to protein construction site
- 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.

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."

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.
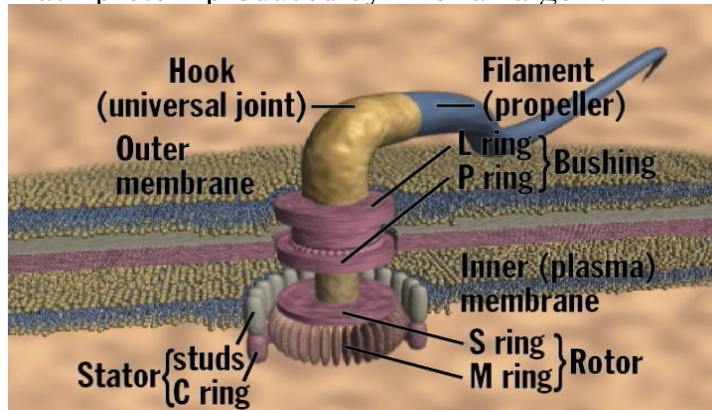
Carbon's bonds are stable enough to withstand harmful chemical and physical assaults, yet not so strong so as to prevent many different kinds of reactions.

Bacterial Flagellum: Irreducibly Complex
48+ proteins (>30 unique): <1 in $10^{5,250}$ probability
Each protein produced by PI of an algorithm

Hook (universal joint) — Filament (propeller)
L ring
P ring } Bushing
Outer membrane
Inner (plasma) membrane
S ring } Rotor
M ring
Stator { studs, C ring

Problems not Usually Considered
Biosemiotics: Arbitrary cybernetic sign-system
  Information transfer from protein to RNA is impossible
  (20 to 64 symbols exceeds Shannon channel capacity)
Life's initial alphabet was at least that of codon alphabet
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*

Darwinism Doubted by Thousands of Scientists
• **No mechanism to produce ANY <u>net</u> 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.

• **"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]

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!)

Evolution via Natural Genetic Engineering

"Molecular cell biology has revealed a dense structure of information-processing networks …The natural genetic engineering functions that mediate genome restructuring are activated by multiple stimuli…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** process based upon DNA modules that already possess functionality … Such a **cognitive component** is absent from conventional evolutionary theory because 19th and 20th century evolutionists were not sufficiently knowledgeable about cellular response and control networks.**" James Shapiro, "Mobile DNA and evolution in the 21st century," Mobile DNA 1/25/10 (Book: Evolution: A View from the 21st Century)

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

write the 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)

Defeating Creationism in the Courtroom, But Not in the Classroom Berkman & Plutzer, 1/28/11 Science. P404-405

Only "28% of all biology teachers consistently implement the major recommendations and conclusions of the National Research Council"

Recommended fix is for those "who cannot accept evolution <u>as a matter of faith</u> to pursue other careers…. [Their plan] would reduce the supply of teachers who are especially attractive to the most conservative school districts."

Such statements destroy the credibility of science.

Science evidence-based (not dogmatic doctrine)

Science, Religion, and Society: the Problem of Evolution in America (Jerry Coyne, Evolution, pages 2654–2663, 8/2012)

Cites a 2011 Gallup poll that only "16% accepted that humans evolved from earlier species through a process unguided by God"

Cites a 2005 Harris poll that just 12% of respondents thought that schools should teach only naturalistic evolution.

Acknowledges "that America's resistance to evolution is truly a byproduct of America's extreme [theistic] religiosity"

Coyne's solution to this problem "is to work actively to weaken the grasp of religion on America" (declaring jihad on theism)

The US Supreme Court has indicated that "religious beliefs... are based... upon a faith, to which all else is subordinate or upon which all else is ultimately dependent" [US v. Seeger, 380 U.S. 163, 1965].

A criterion requiring one to believe that "physicality is all there is" (as taught in public schools) is a **RELIGIOUS** tenet, since it cannot be proven and all else is subordinate to it. (see ussci.info links).

"Always be prepared to give an answer to everyone who asks you to give the reason for the hope that you have." 1 Peter 3:15

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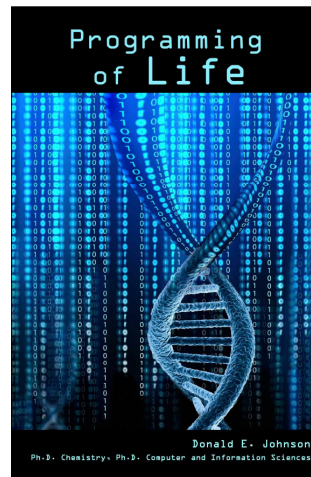
Christian faith is fact-based, not "blind" or "anti-logic" – "You will know the truth, and the truth will set you free." (Jn. 8:32). **Study & "Always be prepared to give an answer"** 1 Pet 3:15

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."

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

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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Donald E. Johnson
Ph.D. Chemistry, Ph.D. Computer and Information Sciences

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