9. Biological Life and Linguistic Information

All known functionality in biological life is **prescribed** and **controlled** through information.[96] Language(s) and grammar(s) are behind biological life. **Hubert Yockey**, the first person to apply information theory to biological systems and also a naturalist, wrote (emphasis added): "Information, transcription, translation, code, redundancy, synonymous, messenger, editing, and proofreading are all appropriate terms in biology. They take their meaning from information theory **and are not synonyms, metaphors, or analogies**."[97] By negating synonyms, metaphors and analogies, Yockey is affirming that biological life is driven by information and code in actual reality, in the real sense of the word. It is not an analogy or metaphor for computer code or a resemblance. It is in actuality, information laden with meaningful, coded instruction. Elsewhere Yockey wrote: "...we will resort to illustrating our points by reference to the properties of language. It is important to understand that we are not reasoning by analogy. The sequence hypothesis applies directly to the protein and the genetic text as well as to written language and therefore the treatment is mathematically identical."[98]

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[96] Refer to Abel, D. *The GS (Genetic Selection) Principle*. Frontiers in Bioscience. January 1, 2009. 14:2959-2969. Refer also to Stegmann, U. E. *Genetic Information as Instructional Content*. Phil of Sci, 72, 425- 443(2005); Dose, K. *On the origin of biological information*. Journal of Biological Physics, 20, 181-192(1994); Barbieri, *M. Biology with information and meaning*. History & Philosophy of the Life Sciences, 25, 243-254(2004); Yockey, H. P. *Information Theory and Molecular Biology*. Cambridge University Press, Cambridge (1992); Yockey, H. P. *Information theory, evolution and the origin of life*. Information Sciences, 141, 219-225(2002); Yockey, H. P. *Information Theory, Evolution, and the Origin of Life*. Cambridge University Press, Cambridge (2005); Wiener, N. *Cybernetics, its Control and Communication in the Animal and the Machine*. New York (1948).

[97] Yockey, H. P. *Information Theory, Evolution and the Origin of Life*. Cambridge University Press, Cambridge (2005) p. 6

[98] Yockey, H. P. *Self-Organization Origin of Life Scenarios and Information Theory*. Journal of Theoretical Biology 91 (1981), 16.

A body of research now exists dealing with the linguistics and grammar of DNA. Some useful papers include: "*The linguistics of DNA: words, sentences, grammar, phonetics and semantics*" published in the Annals of the New York Academy of Sciences,[99] which explains a six-level isomorphism denoting similarity in form and relationship between human language and cell language.[100] The author, Professor Sungchul Ji, states: "Biologic systems and processes cannot be fully accounted for in terms of the principles and laws of physics and chemistry alone, but they require in addition the principles of semiotics—the science of signs and symbols, including linguistics." Ji continues to explain in his paper that there are 13 characteristics of human languages and that DNA shares 10 of those characteristics. He also explains how cells are able to edit this language and also communicate with other cells using a language he calls "cellese".

In "*The Linguistics of DNA*" David Searls discusses strategies to construct "grammars" for genes.[101] In his book, "*The Grammar of Genes: How the Genetic Code Resembles the Linguistic Code*", Angel Lopez-

[99] Ji S. *The linguistics of DNA: words, sentences, grammar, phonetics, and semantics*. Ann N Y Acad Sci. 1999 May 18;870:411-7.

[100] The resemblance is as follows: 1) Alphabet—letters are the same as nucleotides, 2) Lexicon—words are the same as codons, 3) Sentence—strings of words are the same as gene sequences, 4) Grammar—sentence formation rules is the same as laws governing protein folding patterns according to sequence, 5) Phonetics—physiologic processes involved in expression of sound and voice is the same as expression of genetic information through input of free energy 6) Semantics—word and sentence meaning is the same as cell processes driven by genes.

[101] Refer to: Searls, David B. *The Linguistics of DNA*. American Scientist, vol. 80, no. 6, 1992, pp. 579–591. Other papers include: Siu-wai Leung Chris Mellish Dave Robertson. *Basic Gene Grammars and DNA-ChartParser for language processing of Escherichia coli promoter DNA sequences*. Bioinformatics (2001) 17 (3): 226-236; Volker Brendel , Jacques S. Beckmann & Edward N. Trifonov. *Linguistics of Nucleotide Sequences: Morphology and Comparison of Vocabularies*. Journal of Biomolecular Structure and Dynamics, Volume 4, 1986 - Issue 1, pp. 11-21;

Garcia describes and outlines "a lot of striking formal resemblances the genetic code and the linguistic code hold in common."[102]

Following information theory models by Claude Shannon[103], Werner Gitt proposes five levels to information:[104] The first is purely **statistical**. This means a statistical analysis of the symbols (letters) that make up the contents on this page. The second is to do with **syntax**. This refers to the choice of symbols (alphabets, codes) and the rules that govern how these symbols are combined to make words and how words are placed in sentences. This relates to grammar. It relates to structural properties of information. The third deals with **semantics**, which is meaning. It is the message contained in the arrangement of symbols that follows rules. The fourth deals with **prescription** or **pragmatics**. This refers to instruction or description of desired actions. The fifth is **purpose**, or **teleology**, an end-goal, a result, an outcome. Information which has meaning, prescription and purpose can never be the product of the "laws of nature". It requires a source and sender which require knowledge and will.

Arrogant atheists have tried to discredit or refute these findings by claiming that DNA does not meet requirements for being considered a language. However, the research stands against their claims. They often misunderstand or misrepresent information and language theories—such as **Zipf's law** and **Claude Shannon's** model on the storage and transmission of data—as a means of discrediting these findings.

In their paper, "*Linguistic Features of Noncoding DNA Sequences*" Mantegna et. al. state in their abstract: "We extend the Zipf approach to analyzing linguistic texts to the statistical study of DNA

[102] Angel Lopez-Garcia. *The grammar of genes: How the genetic code resembles the linguistic code*. Frankfurt: Peter Lang, 2005.

[103] Claude Elwood Shannon was an American mathematician, electrical engineer, and cryptographer known as the father of information theory. His theories and models on the quantification, storage and transmission of information (data) led to the digital revolution.

[104] Refer to Gitt, W. *In the Beginning Was Information*. Master Books, 2007.

base pair sequences and find that the noncoding regions are more similar to natural languages than the coding regions. We also adapt the Shannon approach to quantifying the 'redundancy' of a linguistic text in terms of a measurable entropy function, and demonstrate that noncoding regions in eukaryotes display a smaller entropy and larger redundancy than coding regions, supporting the possibility that noncoding regions of DNA may carry biological information." From their research, they conclude: "Noncoding sequences show two similar statistical properties to those of both natural and artificial languages: (a) Zipf-like scaling behaviour, and (b) a nonzero value of Shannon's redundancy function R(*n*). These results are consistent with the *possible* existence of one (or more than one) structured biological language(s) present in noncoding DNA sequences".[105] Note that this paper is dealing with the noncoding regions of DNA and not coding regions of DNA whose language-like characteristic is not in dispute. This paper is showing that biological language(s) exist for regions that do not code for proteins and have other yet unknown regulatory functions.

There is a language behind life.

This poses a direct threat to the religious evolutionary fundamentalists. Just as they deny what is evident to sensory perception—the evident design and purpose in they see in things and for which they use unescapable teleological language—they are engaged in futile attempts to deny that there is **choice with intent** behind the underlying language of biological life.

DNA information exists, at its lowests level of structure, as **linear digital programming**. Biological life, or living organisms can only arise through **prior computation** and **decision-based halting**[106] in the running of genetic programs, identical to what we see in software

[105] R. N. Mantegna, S. V. Buldyrev, A. L. Goldberger, S. Havlin, C. K. Peng, M. Simons, and H. E. Stanley. *Linguistic Features of Noncoding DNA Sequences*. Phys. Rev. Lett. 73, 3169 – Published 5 December 1994.

[106] This refers to how programs are coded so that they are able to make decisions to stop running commands when they have been completed.

programs.[107] Genes are linear digital programs. They are edited and controlled by other linear digital programs.

All life is **cybernetic**. Meaning, it is based upon **communications** and **automatic control systems** that include algorithmic calculation and circuit integration.[108] Cell regulation and epigenetic factors[109] are digitally prescribed and controlled. Further, all known metabolism is cybernetic, it is programmatically and algorithmically organized and controlled.

[107] This should really be said the other way around. All the principles of software analysis, design and implementation are similar or identical to the programming systems behind life.

[108] To help you understand the concept. Imagine extremely strict parents who prescribe (give orders and instructions) and control the activities of their children as a means of keeping the home in order: Get up at 7:00am, on the right side of the bed, right foot first. Wash (in a certain order), get clothed (in a certain order with a specific set of clothes for that particular day), make bed (in a specific way). Take breakfast... and so on. The start and finish of each activity is monitored and the status of all activities (due, in progress, complete) are constantly communicated. This is the meaning of cybernetic. The field of cybernetics studies communication and control systems in machines and living things. Emerging sciences such as biocybernetics, biomimicry undo all anti-design arguments, render them baseless and give teleological arguments a renewed, ferocious vigour.

[109] Epigenetics is the study of changes in organisms caused *by modification of gene expression* rather than alteration of the genetic code itself. This relatively new field refutes the neo-Darwinian, modern synthesis in which random mutations acted upon by natural selection account for all biological diversity. It indicates that adaptability and change are built in through prior design and features are simply switched on and off in response to external stimuli. An analogy is like an auto repair manual. It contains information about how to deal with a large number of scenarios. You would never need that information until a particular problem occurs. Then you go and access that information and execute it. That information was always there. The situation was already accounted for. The information was only "activated" at the time it was needed. This, along with the "junk DNA" claim being falsified, has created a huge problem for religious fundamentalists such as Richard Dawkins who have peddled the "selfish-gene" and "mutation-selection" idea for decades.

Functional information—that which has a purpose—can be **descriptive** or it can be **prescriptive**. When a letter is typed, its function and purpose is to convey descriptive information to a recipient. When code is written in a programming language, it is prescriptive information. Prescriptive information "expresses the decisions to be made and the criteria for the different execution paths", it "instructs or directly produces nontrivial function..." and "tells us what choices to make, or it is a recordation of wise choices already made" [110] It indicates **choice with intent** and must have a prior formal solution before implementation.

The cell is a hardware-software system that updates and rewrites its own software[111] in real time, in relation to events and stimuli. It is driven by information.

Information cannot come about without a knower having choice and intent.

As a display of their extraodinary levels of arrogation, pride and wanton disbelief, naturalists, atheists and evolutionists are trying to theorise and develop a *natural mechanism* for the emergence of functional information in the form of linear digital programming. The field of genetics has extended to include semantics (that which is concerned with meaning) and semiotics (the use of signs and symbols) and new terminology is being invented.

As an illustration, reflect upon what J. Barham writes in his paper "*A dynamical model of the meaning of information*": "The main challenge for information science is to naturalize the semantic content of information... For, any model of the meaning of information must be teleological; the only question is whether the teleology will be openly acknowledged or swept under the rug, and if acknowledged, how will it be naturalized. Non-equilibrium thermodynamics and

[110] See Johnson, D. E. *Programming of Life*. Big Mac Publishers. 2010. p. 8.

[111] Refer to: Bray, D. *Wetware: A Computer in Ever Living Cell*. New Haven, CT: Yale University Press (2009); Noble, D. *Evolution Beyond Neo-Darwinism: A New Conceptual Framework*. The Journal of Experimental Biology. 218(1), 7-13; Shapiro, J.A. *Genome System Architecture and Natural Genetic Engineering in Evolution*. Annals of the New York Academy of Sciences. 870(1), 23-35.

non-linear dynamics are the logical candidates for naturalizing teleology, and therefore provide the most promising foundation upon which to build a future information science."[112] In other words, we have to find a way to explain how *meaning* arises within information through natural means alone and this is called "information science".

What they are trying to achieve here with respect to information is similar to how they explain away design in biological life by claiming it is an illusion of design because of the alleged mechanisms they claim to have established. They are trying to justify the claim that prescriptive information is also illusory by developing a mechanism to explain how conceptual meanings can be generated through purely natural means, through the randomness of physicodynamic interactions **without choice with intent**. This is what they mean when they say "naturalizing teleology". It is an encrypted way of saying that nature has the ability to design and has end-goals and purpose in mind but at the same time it does not, it is all random, purposeless and meaningless. This is doublethink[113] and doublespeak and fooling with the minds of people. As we mentioned before, this is the underyling scam that is being run. Confer upon nature the attributes of the Creator and then encrypt the meaning through clever terminology so it cannot be easily deciphered and evaluated through common sense and basic reason.

In typical fashion, they create new terminology to encrypt their falsehood. Thus we have "teleonomy" – the attribution of teleology (purpose, end-goals, objectives) to natural processes.[114] This is

[112] Barham, J. *A dynamical model of the meaning of information*. Biosystems, 38, 235-41(1996).

[113] The acceptance of contrary opinions or beliefs at the same time.

[114] Refer to Pross, A. *On the chemical nature and origin of teleonomy*. Origins of life and evolution of the biosphere, 35, 383-94(2005) 44; Lifson, S. *Chemical selection, diversity, teleonomy and the second law of thermodynamics. Reflections on Eigen's theory of self-organization of matter*. Biophys Chem, 26, 303-11.(1987); 45. Pittendrigh, C. S. *Teleonomy. In: Behavior and Evolution*. Eds: A. Roe&G. G. Simpson. Yale University Press, New Haven, CN (1958).

stating in explicit conceptual terms, yet concealed through cryptic linguistic terms, that matter can understand meaning, can pursue end-goals and have purpose in mind.

This is the great scam that we have continued to outline in this work and it is what everything returns back to ultimately. They take attributes that belong to a creator—knowledge, will, intent, power, wisdom, purpose—and attribute it to matter, or nature, and then use cryptic terminology, semantic devices and sophisticated forms of deception to hide what they are doing such that even the most intelligent of people cannot penetrate the layers of deceptions, lies, trickery and subterfuge, let alone the layman.

The true and real difference then, once all the layers are peeled and we get to the crux of the matter, is whether "creation"—and of the type and complexity that is observed—comes through the attributes of knowledge, will, power and wisdom (purpose) or from pure randomness, through mere physicodynamic interactions.

The first position is an affirmation of reason and the foundation of all scientific inquiry which must assume that the universe and life are rationally intelligible and this can only be if they are designed to be that way. The second position is a revilement of reason and is based upon a prior conviction in and commitment to materialist philosophy.[115] Thus, the issue comes down to **choosing** between

[115] It is vital to distinguish between two definitions of science. **The first definition** of science is "observation, theorization, experimentation, collection of data, and making inferences and explanations with impartiality". This is a standard definition of science and the process it represents is one from which, in a modern-context, we gain an understanding of the material world that allows us to produce cars, washing machines, airplanes, medicine and so on and it includes investigating causes and effects and the special properties of things. This "scientific method" has been applied and harnessed to allow the beneficial interests of humankind to be realized and safeguarded through a gradual understanding of the system of interconnected causes and effects which are referred to as "nature" by materialists and "creation" by believers in God. This first definition of science presupposes and affirms order, regularity and rationality in the universe. The natural disposition of humans is

whether that which appears designed and purposeful comes about through self-creation and random, undirected, purposeless processes (chance) or through knowledge, will, power and wisdom. The **true empirical scientific method** will always prove the latter and will never, ever prove the former, which is but mere conjecture built upon **prior conviction** in materialist philosophy. This prior conviction—unproven and unsupported by the scientific method of inquiry—demands naturalistic explanations which are deductively argued from that previously asserted materialist philosophy. Thus, ideology came first, not the science.

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imprinted with this affirmation. Thus, non-conjectural, empirical science can never conflict with belief in God, keeping in mind that the human capacity to fully understand the reality of "nature" is severely limited. **The second definition** is "the explanation of all phenomena through natural, materialistic causes only". This is really a philosophical assertion, that only natural causes exist and this unproven assertion has been injected into scientific inquiry. Providing material explanations (of causes and effects) in the study of the world is not really an issue and does not clash with the Islāmic understanding of how the universe or life operate, since affirmation of the ways and means and causes and effects and of the inherent properties in things that collectively comprise the "natural causes" is established in the Qur'ān and Prophetic traditions. However, the real intent behind this second definition of science is to credit nature (physical law and random events acting upon matter) with an illusion of design that we allegedly observe when we explore and study life and the universe, and then to consider this to be the only "rational foundation" that must underpin all scientific enquiry and its conclusions. From here arises Richard Dawkins' "blind-watchmaker", "mountain of improbability" and the "nothing" of Lawrence Krauss and Stephen Hawking from which "the universe can and will create itself". It is here that we move away from empirical science based upon actual physical reality and instead to the land of fairy tales where that which exists only in the mind is made to appear real and actual through creative mathematical witchcraft and creative storytelling.