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http://creation.com/more-or-less-information-/-has-a-recent-experiment-proved-creation

More or less information? / Has a recent experiment proved creation?

Photo by José A. Warletta, from www.sxc.hu

One of the most important creationist arguments concerns ***information***. Understanding this issue deflects many anti-creationist **equivocations**, **calling any change 'evolution'**. That is, no creationist denies that things change, and even **speciate**, but nearly all the cited changes do not involve the increase in information content required for microbes-to-man evolution, but go in the **wrong direction**. See one illustration: **How information is lost when creatures adapt to their environment**.

This week's feedback comes from Casey P who picked up from a website a vexatious question about how to define information. The evolutionist who first posed that question erred by presupposing a simplistic definition, while **Andrew Lamb**'s **reply** shows that there are more levels of information needed to understand its role in biology.

The **second feedback** addresses questions on a recent article about a research scientist whose work supposedly proves creation. However, **Jonathan Sarfati** had replied to a similar query in 1999 about the same phenomenon, and it is updated below.

How do we define information in biology?

Photo by Dacho Dachovic, from www.sxc.hu

I’m curious to know perhaps you could fill me in on this. Which one has the most information, and what exactly are these two sequences?

Sequence 1: cag tgt ctt ggg ttc tcg cct gac tac

gag acg cgt ttg tct tta cag gtc ctc ggc cag cac

ctt aga caa gca ccc ggg acg cac ctt tca gtg ggc

act cat aat ggc gga gta cca agg agg cac ggt cca

ttg ttt tcg ggc cgg cat tgc tca tct ctt gag att

tcc ata ctt

Sequence 2: tgg agt tct aag aca gta caa ctc tgc

gac cgt gct ggg gta gcc act tct ggc cta atc tac

gtt aca gaa aat ttg agg ttg cgc ggt gtc ctc gtt

agg cac aca cgg gtg gaa tgg ggg tct ctt acc aaa

ggg ctg ccg tat cag gta cga cgt agg tat tgc cgt

gat aga ctg

Thanks for your help here. God bless.

Casey P

Dear Mr P

Thank you for your email of 17 January, submitted via our website.

In response to creationist arguments about genetic information, some evolutionists disingenuously object that since there is no one measure of information content applicable to all situations, therefore genetic information doesn't exist! But even hardened atheists like the **eugenicist Richard Dawkins** recognize that DNA contains information. In fact there is a burgeoning new field of science called *bio-informatics*, which is all about genetic information.

With respect to the two sequences you presented, one would need to know their functions before it would be possible to consider making a comparison about which sequence carried more information. If their functions (assuming they were not just gobbledygook) were dissimilar, then it would be fairly meaningless to attempt a comparison of information content. For example if one was a genetic sequence coding for an enzyme, and the other a genetic sequence coding for a structural protein, then to ask which has the most information would be as meaningless as asking, say, 'which has more information—60 grams worth of apple or 60 grams worth of orange'.

If the meaning/function is similar, then an information-content comparison may be possible. Consider the following two sequences:

She has a yellow vehicle.
She has a yellow car.

Both are English sentences. The first is 25 characters long, and the second is 21 characters long. The first sentence has more characters, but the second sentence has more information, because it is more specific (cars being just one of scores of different types of vehicle), and **specificity** is one measure of information content. Specificity only relates to the *purpose* of the information, not to the way it is expressed or the size of the message when it is expressed in some particular way/language.

There are five levels of information content (after **Information, Science and Biology** by Dr **Werner Gitt**, information scientist):

- statistics (symbols and their frequencies)
- syntax (patterns of arrangement of symbols)
- semantics (meaning)
- pragmatics (function/result/outcome)
- apobetics (purpose/plan/design)

Specificity relates to the pragmatics or apobetics level.

"Gitt's Theorem 9 states that 'Only that which contains semantics is information'. Many evolutionists err by restricting information to the statistical level, or to 'Shannon information'."

Gitt's Theorem 9 states that 'Only that which contains semantics is information'. This is a crucial point. Many evolutionists err by restricting information measurement to the

statistical level, or to 'Shannon information'. So-called 'Shannon information' is not a measure of information *per se*, but merely a measure of the minimum number of characters/units needed to represent a sequence, regardless of whether the sequence is meaningful or not. Gobbledygook can have more 'Shannon information' than a sentence in English.

So, if the two sequences you presented were composed randomly, then it is highly unlikely that either contains any information. However, for argument's sake, I will assume that they may be meaningful, and compare them.

The two sequences both contain the same amount of statistical information, 240 characters worth, when represented in text.

Both sequences appear the same at the syntactical level, i.e. both consist of 60 spaced triplets composed of the symbols c, a, t, and g.

At the semantic level, I recognize that these letter triplets are the same as ones used to represent triplets of DNA bases that code for particular amino acids. Since all 64 possible triplets have a meaning in the DNA code, and since neither sequence contains any of the three 'stop codes' (taa, tga, tag), it follows that both sequences could be regarded as having the same amount of information at the semantic level, since, if processed by the appropriate genetic machinery, both sequences could probably produce a segment of protein 60 amino acids in length.

However, when it comes to the pragmatics level, as far as I can determine (being unable to locate these sequences in a gene library such as **NCBI's Entrez Nucleotides**) both sequences apparently carry the same amount of meaningful information—zilch.

At the apobetics level, I have no idea what outcomes would result from processing of the two sequences. Conceivably, at one extreme, they could result in production of an enzyme that kills the cell, or even a toxin that kills the organism to which the cell belongs. At the other extreme, they could (for all I know) prevent aging, thus extending the lifespan—I have no idea. Indeed, one of the most intractable problems in molecular biology is computing the final protein configuration from an amino acid sequence (see a **current project**).

Note also that each creature has its own unique set of cellular machinery, so the outcomes that result from the reading of these genetic sequences could be very different depending on which organism's genetic machinery reads them. For example the genetic sequence found in the HIV virus is harmless when read by the cellular machinery in ape's cells, but ultimately lethal when read by human cellular machinery—very different outcomes at the apobetics level from the same genetic sequence. Also, there are some organisms with slightly **different genetic codes**, so the same *semantic* information would be read differently resulting in different *pragmatic* and *apobetic* information.

The final protein configuration that results from a particular DNA sequence is mainly determined by cellular machines of a type called *chaperonins*, which influence protein folding. Without chaperonins, an important protein might mis-fold into a deadly prion. This is the likely cause of the fatal brain conditions Creutzfeldt–Jakob disease and **bovine spongiform encephalopathy** (BSE) aka mad cow disease (see also **Did God create life? Ask a protein**, and **Discoveries that undermine the one gene → one protein idea**).

I hope this helps. We have many articles on our website on the issue of information in living organisms. They can be found listed under the topic '**Information Theory**' in the **Frequently Asked Questions** index on this website.

Yours sincerely

Andrew Lamb
Information Officer

Related articles

- **How is information content measured?**
- **New plant colours—is this new information?**
- **Is antibiotic resistance really due to increase in information?**
- **That depends on what your definition of 'information' is**
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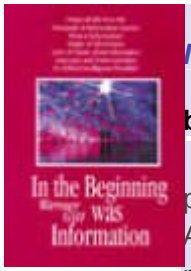

In the Beginning was Information

by Dr Werner Gitt

What does the migratory flight of the golden plover have in common with a postcard? What is the common factor between a computer program and hieroglyphics? And what property is shared between the processes taking place in living cells and the message of the Bible? The distinctive common quality in all these cases is information. In this book the current materialistic representations of information are criticized, and a new model for the origin of life is derived. (High School–Adult) 256 pages.

Does recent science really prove that God spoke the world into existence?

Photo by Vanessa Fitzgerald

world into existence: Student's scientific documentation offers evidence of biblical account' from *World Net Daily*, 11 February 2007. Interestingly, in 1999, Brenda from Canada had asked about a newspaper article on the phenomenon referred to in the WND article, and whether an experiment would be helpful to creationists. Dr Sarfati's reply below applies equally to this article which reports on just that sort of experiment:

The particular experiment you mention is a phenomenon called *sonoluminescence*. It would probably be quite difficult to do without a proper laboratory. More importantly, although it might illustrate the theme of God speaking light into existence, the connection should not be pressed too hard.

First, the important thing about speech is its *information* content; sound waves are just the medium which carries the information. Similarly, writing is primarily the information carried; the ink molecules are just the carrier. The same information could ride on magnetic patterns in a computer hard drive, radio waves, etc.

“The most important thing is not that God spoke light into existence, but that God spoke it!”

Second, the most important thing is not that God **spoke** light into existence, but that **God** spoke it! We could say 'let there be light' as many times as we like, or perform the most elaborate sonoluminescence experiments, but we could never create light from nothing. Note also that when God spoke, the waters gathered in one place; He spoke again, and vegetation sprang up instantly. We couldn't do that with any sound.

Finally, we can never stress enough that our starting point is **Scripture**, the written Word of One who was there and knows everything and never errs or lies. Science is the ever-changing theories of fallible humans who weren't there. Thus we should never try to *prove* the Bible with science (as opposed to using scientific arguments to show that the Bible is totally *consistent* with all true science), because that would mean that science becomes our final authority.

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