Gabriel Kent

Future Progress

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[notes]

On The Nature of Gravity as Information Compression

If one assumes the Universe is indeed composed of information and that indeed the Universe is processing that information through physical means then the major forces as defined by the science of Physics can be explained by what is expressed as Information Technology.

Specifically society has come to create technologies that address matter and energy as discreet finite units of Information; aided by this Information Technology, society has achieved the ability to simulate the Universe at a level of resolution that only the theories of Quantum Mechanics (QM) can describe accurately. While QM describes a Universe that is inherently probabilistic and not completely knowable, it highlights the very dynamical interactions of the Universe and addresses these interactions as finite operations. Further, these operations are conducted on finite units of the Universe such that the entire system appears to be processing. The appearance of Universal processing is so similar to what society has termed processing, that it was eventually proven to be one in the same; earning the name Universal Computation.

Universal computability is the ability of a system to conduct physical interactions to transform information in time such that the interactions of the system are consistent with the interactions of other such systems, in this way exhibiting universality. Since it has been proven these systems are in fact universal, to the extent of being consistent with the interactions of the Universe itself, then necessarily the major forces of the Universe can be expressed by Information Technology (IT), furthermore, as proven, IT has already expressed the fundamental forces of the Universe. In this way Physics has come to en-

code the Universe and IT has come to simulate the Universe.

SImulating The Universe

It has been proven that Quantum Computers (QCs) can efficiently simulate quantum mechanical operations that accurately describe the Universe at the atomic scale.

As first conjectured by Feynman and later proven and demonstrated by scientist worldwide, QCs can compute as the Universe computes. In context of the entire Universe it can be said that simulating portions of the Universe with QCs would create a type of redundancy in the Universe where a portion of it would be replicated as the QC performs the simulation. While QC users may not know the state of the QC while it simulates, since learning the state would necessarily disturb the simulation, it stands the users can induce the simulation at will and in doing so control a portion of the Universe at a very high resolution. While increasing the proportion of the Universe simulated increases the resources to efficiently achieve that simulation, the Universe is nonetheless being made to duplicate and simulate a portion of itself.

The more the Universe is copied from one place into another and then efficiently simulated, the more redundant the information in the Universe becomes; though in order for the information to become truly redundant it would require at least a universe of equal size and operation. In this way the simulated and the simulation reside within a probability of redundancy, whereas any interior of two equal universes would be redundant, with respect to the volume in which the universes reside, the universes themselves would not be completely redundant.

Simulating a portion of a universe with another portion within that universe will induce higher peaks of probable redundancy, yet it is not until the portions become fully redundant that the information in those portions becomes conserved as one portion.

Information Compression

In IT the act of conserving two sets of information by keeping one full set and trans-

forming the remaining set into a pointer to the full set to reduce the overall amount of information is known as Information Compression. The Universe, while conserving, is actually compressing information and necessarily that act of compression is the result of the four major physical forces (Strong/Weak Nuclear, Electromagnetic, Gravity) that govern the operation of the Universe. Therefore the detection and observation of the major forces is in part the detection and observation of Information Compression.

As IT compresses information by keeping one full set of information and replacing duplicating sets with pointers to that full set, the Universe transforms and stores information pointers as Entropy.

Information Pointers

As stated by the Second Law of Thermodynamics, Entropy of a closed system can only increase because the Universe tends to grow uniform which becomes increasingly compressed through conservation and thus the amount of information pointers increases. In this sense, the Second Law of Thermodynamics is interpreted to mean; the amount of unique information in a closed system tends to decrease while pointers to the decreasing unique information increase. This interpretation is consistent with the proof that Entropy is unknowable information because if the act of observing the pointer was possible, it would not contain the information it was pointing to and in the process would necessarily invalidate the pointer through interaction as it would no longer be compressed.

Further, the Law of the Universe to conserve is so extreme that coherent particles once made decoherent by observation of one of the particles will necessarily cause the other particle to display the opposite state as the first because the information has essentially been forced to decompress and as such cannot be observed as the same otherwise it would required that two particles remain in coherence.