

**The Mathematics for Two statements Made in
The Fundamental Universe-Generating Processes
Article and an Event Sequence Clarification.**

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1. The Two Statements

Consider the material in [1]. The operator U can be considered as determined for the language L . In this case, the embedded operator is \mathbf{U} . An application of \mathbf{U} is independent from the application of the $\Pi_{P_{p(m)}}$. In (1) and (2) below, the \mathbf{H} is defined in Herrmann (2001). Let $N = \mathbb{N}$. For simplicity, if a developmental paradigm is a finite sequence, then it is extended to all of N by repetition. For the secular approach, where there is a “randomly” produced event sequence, the stated result for the sequence follows from the *-transfer of

$$\begin{aligned} \exists x((x \in \mathcal{T}^N) \wedge \forall z \forall y \forall v((y \in N) \wedge (v \in N) \wedge (z \in \mathcal{T}) \wedge (v = y + 1) \wedge ((y, z) \in x) \rightarrow \\ \exists p \exists w_1 \exists w((p \in \mathbf{H}) \wedge (w_1 \in \mathcal{T}) \wedge (w \in \mathcal{T}) \wedge ((v, w) \in x) \wedge \\ ((w, w_1) \in p) \wedge ((z, w) \in \mathbf{U}))). \end{aligned} \quad (1)$$

Statement (1) also applies to each of the defined (sub) physical-systems with ultrawords $W(k)$.

For the intelligent designed approach, let \mathbf{A} be any nonempty set of the designed standard sequences that generate defined physical-systems. Then the result for the intelligently designed approach follows from *-transfer of

$$\begin{aligned} \forall x \forall z \forall y \forall v((x \in \mathbf{A}) \wedge (y \in N) \wedge (v \in N) \wedge (z \in \mathcal{T}) \wedge (v = y + 1) \wedge ((y, z) \in x) \rightarrow \\ \exists p \exists w_1 \exists w((p \in \mathbf{H}) \wedge (w_1 \in \mathcal{T}) \wedge (w \in \mathcal{T}) \wedge ((v, w) \in x) \wedge \\ ((w, w_1) \in p) \wedge ((z, w) \in \mathbf{U}))). \end{aligned} \quad (2)$$

These statements can be further refined so as to locate the $x, z, w, w_1 \in \mathcal{T}$ and characterize the $p \in \mathbf{H}$.

2. Event Sequence Clarification.

The members of a developmental paradigm and, hence, a corresponding event sequence are taken from a totally $T_i = \{xW_i \mid x \in \mathcal{W}\}$. The set \mathcal{W} contains the

symbol string $|||$. This symbol has no physical content. Hence, for any physical system, and any i , the string of symbols $|||W_i$ can be interpreted as signifying that the particle physical-system has either not been formed as yet or has ceased to be formed as described. Since a universe is composed of physical-systems and all of their subphysical-systems, then a subphysical-system can be considered as not yet formed or ceases to be formed based upon how the system is defined at each moment in primitive time i . Not yet formed means that it is formed at primitive time $j > i$. Hence, using this interpreted meaning for the string $|||W_i$, each physical-system can be considered as generated by event sequences that correspond in primitive time.

If a universe has a physical beginning at a standard or, when coded, a nonstandard primitive time k , then, for comprehension, a developmental paradigm that corresponds to a physical-system that comprises such a universe at any $i \geq k$ can be considered as also “beginning” at k . Of course, this is but a model that mimics behavior and this description represents a process that we cannot otherwise comprehend.

Reference

Herrmann, R. A. (1993). The Theory of Ultralogics, (see on this website “Important Free Books In Math. and Science.”)

Herrmann, R. A. (2001). Probability Models and Ultralogics
<http://arxiv.org/abs/quant-ph/0112037>