

# The Rapid-Formation Model

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*Abstract:* The Rapid-Formation process is formally described and applied to establish the rationality of certain strictly described Biblical scenarios.

## 1. Introduction.

(Note: The technically described Rapid-Formation process appears between the [[[ and ]]] at the end of section 3. However, certain GGU-model concepts and notation appear throughout this article.) Prior to application of the rapid-formation model (RFM), a general idea as to the development of our universe is necessary. Once this is decided upon, then, if necessary, the model can be applied. For this presentation a major portion of the Eden Model (Herrmann, 2014a) is the major model considered.

The developmental paradigm (Herrmann, 1978-94+arxiv, 2006, 2013, 2013a, 2013b) is the descriptive pre-design aspects of the GGU-model that are produced as physical entities in a specific order by an instruction paradigm (Herrmann, 2013a). Step-by-step “3-D slices” of a “universe,” that may be composed of pure physical entities, physical and physical-like entities, only physical-like entities, or even be empty are termed as “universe-wide frozen-frames” (UWFFs). Each UWFF is itself designed in a step-by-step manner. The rapid-formation model is relative to the entire production of a universe.

For this article, the simplified notation  $*\mathbf{f}(i, j)$  represents a specific complete UWFF identified by the pair  $(i, j)$ . The UWFFs are usually produced during primitive sequence or observer time intervals, here denoted by  $*[c_i, c_{i+1}]$ , where  $i$  and  $i + 1$  are “hyper-integers,” which contain the integers. For fixed  $i$ , this interval is composed of the UWFF primitive sequence identifiers  $j$ . As these numbers advance in a step-by-step manner (i.e.  $0 < 1 < 2 < 3 < \dots$ ) the UWFF pre-designs  $*\mathbf{f}(i, j)$  develop and this yields an actual physical-system development (Herrmann, 2013a, 2013b). (Whether pre-designs or other GGU-model schemes are employed depends upon the application of the GGU-model processes.) Note that, for special purposes, such interval identifiers as  $i$  and  $i + 1$  are members of the hyper-integers and not integers. This does not alter the RFM mechanism nor its description.

For this Biblical application of the RFM, The Eden Model preserves the “no physical death” interpretation for the pre-Fall world. On the other hand, if Genesis 2:17 should be otherwise interpreted, then the RFM solves the day-four “starlight and time”

problem for a non-Eden development. The RFM applies to other less strict Biblical interpretations.

## 2. Physical-systems.

Certain Biblically mentioned physical-systems are created during the creation-days. For a strict (common knowledge) Genesis 1 interpretation, the Hebrew “Began to be” is translated “It was so.” This is the instruction that produces the previously described entities. The entities are being created during a particular creation-day relative to observer time.

It is suggested that Genesis 1 was first presented circa 1400 BC. The common observation at the time, as today, is that mature and fully functional plant and animal life developed from what are less complex entities. This is even the case for the observed behavior of Sunlight, Moonlight and the starlight. These observations are detailed in Herrmann (2014a). Physical-systems suddenly appear in mature and functional form within the UWFFs and develop via the progression of the UWFF. This produces all of the mentioned created entities.

Since the 1995 invention of the DVD, a strict Genesis 1 interpretation is better illustrated via computer-graphics imagery rather than the previous methods presented. A DVD has a much greater capacity to reproduce since it uses much less corrective information. Via a more intense form of data compression and presentation it produces much greater clarity. The data compression employed partially models the actual objects that are a basis for the GGU-model - the equivalent ultrawords. Further, one has greater control over the step-by-step presentation of the images. However, it can only partially reproduce the GGU-model’s step-by-step process. Indeed, no physical entity can fully reproduce such a process. This is a process that, in certain cases, cannot even be fully described via human languages; a process that cannot be experienced since it is not physical.

Consider a 3-dimensional imaging process and a large monitor screen. The screen is divided into two unmarked regions; a spherically bounded region R located at the center position, and a larger region S containing R.

In the beginning, there are no visible images in either location. Since in Genesis 1, the Sun is not formed until day-four, in this illustration, “ghost-like” images are used to indicate what occurs in the R-region prior to day-four. What is described is from a fixed viewpoint external to the R-region and the viewer uses the primitive sequence to sequentially order the step-by-step development. What follows are theological interpretations for GGU-model universe-generating scenarios. Computer-graphics are used to create a DVD. This DVD is loaded into a player and it begins to produce screen

images.

As the DVD plays, specific physical-systems appear during a specific creation-day. For systems other than the “stars” of day-four, over a rather small interval  $[c_i, c_{i+1}]$ , certain individual DVD images within the R-region, and, of course, the actual physical events, show rapid development *while all other physical-systems are placed in suspended animation. That is, they do not develop in any manner.* Day-four star formation depends upon whether one chooses the Eden or non-Eden models as discussed next in this article.

Thus, as the DVD plays, by sudden appearance and UWFF progression, the R-region is altered and displays the day-two through day-four non-star entities as described in Genesis 1. [Other aspects of the GGU-model applied to Genesis 1 can be found at the “beliefdvd” URL listed in the references.]

### **3. The Application to the Eden Model.**

The GGU-model is based entirely upon interpreting the symbols that appear within a mathematical theory (Herrmann, 1978-94+arxiv). Hence, it is a mathematical model. This implies that the model is highly rational in character and is constructed using the same methods employed to describe “scientific” cosmologies. Except for symbolic abbreviations, the mathematical methods used to verify the rationality of the RFM do not appear in this article. These methods use the only discovered mathematical processes that can compare God’s activities with those of His created. The basic set-theoretic object used is called a “nonstandard model” and, as done with all mathematical models, the results discussed here are a consistent interpretation for the mathematical symbolism employed.

Cosmologies need to be describable in terms of a physical language that does not include any mathematical expressions. The reason for this is that there are no such expressions within “Nature” itself. Nature transcribes neither the mathematical symbols nor numerical measures such as rest mass etc., upon any physical object. Nature has not decreed that mathematical methods must be employed. To properly describe actual physical behavior, one needs to apply a language that does not include mathematical representations. The mathematics must be translated into such languages. Using modern computer-graphics, these symbolic descriptions can usually be replaced by images. This includes an “ordered” presentation based solely upon a location on a DVD and the scanning laser pattern. From the standpoint of “virtual reality,” other human sensors can also be employed to aid comprehension. All of this sensory information is termed a “general” description and the basic GGU-model procedure models sequences of these general descriptions (Herrmann, 1978-94+arxiv, (Chapter 7)).

As indicated, the basic GGU-model procedure abstracts the most fundamental notion associated with the concept of a “development,” which, in this case, is defined as a step-by-step progression of physical events as described by a general language. Such progressions are abstracted in the form of mathematical sequences. Such a development has one representation, the “developmental paradigm” of modeled descriptions. These descriptions correspond directly to physical events via the “instruction paradigms.” These notions, the descriptions, the instructions and the corresponding physical events are combined when the term “event sequence” is used. With certain qualifications discussed after display (2) in the referenced article on fundamental processes, these descriptions can be considered as exact physical science representations; exact descriptions for physical events.

To emphasize the progression notion, the numerical order that yields a development is termed as a “primitive sequence” (previously termed “primitive time”) and each denoted moment in observer time is a “moment” in the primitive sequence. Importantly, moments within a primitive sequence need not correspond to moments in observer time. Further, the physical “interval” between two adjacent representations, if compared to observer time, is exceptionally small and, with possible exceptions, well below intervals that have any observable affect upon theory verified predictions. However, due to the predicted existence of “physical-like” events that require a higher-language to describe, then, necessarily, our comprehension of event sequence construction must remain partial. The event sequence notion should be considered as a type of “slightly imprecise” approximation, but an approximation that converges to exact behavior.

If today’s assumed physical laws are considered, then, for the Eden Model, additional features would need to be adjoined to such physical laws to ensure the continued existence of the necessary physical-systems required to sustain life. Relative to day-four, the Sun and Moon appear in the R-region and the day-three entities continue to develop in the R-region relative to observer (earth-rotation) time. The RFM states that during day-four an entire universe external to the R-region is formed in S. The Bible simply states that God “also made the stars.”

If the unknown external cosmology is one as presented today, then, due to limited speeds, light and particle propagate require observer time to expire before past events are revealed to us. This produces the day-four starlight and time problem. However, as a secondary day-four effect, the rapid-formation of the external universe eliminates this problem. This is accomplished for any speed-limited Eden cosmology in the same manner as any other rapid-forming physical-system.

*An entire external universe is step-by-step produced physically but instantaneously if viewed via an observer time measure during creation day-*

*four. Hence, from the viewpoint of the DVD illustration this is observed via a highly refined “pause and next” process.* While the external cosmology develops the pre-Fall Earth with its local environment is placed in suspended animation within a specifically identified UWFF until the development of the exterior universe reaches the appropriate moment in its development where such a suspension is not continued. No additional generation refinements need apply.

As implied by Genesis 3:24, for the Eden Model , there will be no evidence obtainable today as to any aspect of this Eden existence. There is no obtainable knowledge as to the methods God uses to achieve eternal life. This follows from the well known metaphorical (symbolic) use of the word “sward” such as in Heb. 4:12, Ps 57:4, Isa. 49:2. The “back and forth” phrase clearly signifies that every mankind path to such an existence is blocked. This is especially the case relative to any form of detailed knowledge that any evidence implies. The only knowledge we are given is the general knowledge that comes from the Biblical description. (Notice that the “tree” in the Garden is not the tree of life, but literally it is the “tree of the living” (Concordant Version). It refers to a “strong pillar.” In this case, it represents “eternal life.”)

If the pre-Fall Eden features are not included, then a different and more complex day-four external universe generation is necessary. Such a rapid-forming external cosmology would, generally, follow the pattern described next for the Eden Model’s alterations in the behavior of physical-systems that are necessitated by the Fall of Adam and Eve.

[[[Using simplified notation for a \*developmental paradigm, let  $*\mathbf{f}_1^q(p, 0)$  be a UWFF that contains only a selected portion of a previous UWFF that is to remain unchanged during rapid-formation. The index  $(p, 0)$  is that of the actual UWFF  $*\mathbf{f}^q(p, 0)$  that occurred and contains  $*\mathbf{f}_1^q(p, 0)$ . For each  $q$ , there are various pre-designed \*developmental paradigm  $d_\lambda^q$  that have the UWFF  $*\mathbf{f}^q(p, 0)$  at the primitive sequence moment  $(p, 0)$ . In order to maintain the presence of  $*\mathbf{f}_1^q(p, 0)$  during rapid-formation, it occurs at every primitive sequence moment  $(p, \lambda)$  within each of the previous miniscule intervals  $[c_j, c_k]$ . Hence, as each  $*\mathbf{f}_1^q(p, 0)$  is produced there will appear to be no observer time passage relative to the entities it may contain. The selected pre-designed  $d_\lambda^q$  has at the “appropriate  $(p, 0)$ ” a UWFF that contains  $*\mathbf{f}_1^q(p, 0)$  and, as the primitive sequence continues to progress the  $*\mathbf{f}_1^q(p, 0)$  no longer appears at the  $(p, \lambda)$  moments. The pre-design development, with the selected cosmology, then progress in the usual manner and each UWFF includes the consistent development of the selected portion contained in  $*\mathbf{f}_1^q(p, 0)$ .

**The RFM is NOT dependent upon any specific cosmology.** The above

special pre-designed \*developmental paradigms directly correspond to instruction paradigms and the corresponding event sequences. The observer time relative to rapid-formation, that is such time as physically measured within the development, has no affect upon  $*\mathbf{f}_1^q(p, 0)$ , which could be described as being in suspended animation.]]]

#### 4. The Fall and the Eden Model.

Continuing the Eden Model description, at the moment when God cursed the ground, rapid-formation via the application of an entire GGU-model scheme (Herrmann, 2014b) occurs. From that moment, as the our universe develops, the special UWFF “no death” feature has been removed. Further, there is the rapid-formation of a different external universe that does not contain any information relative to the pre-Fall Eden portion.

After the Fall, an external universe’s formation can display any developing cosmology that corresponds to what we perceive today and that satisfies a selected S configuration. The outer edge of S need not be the boundary for a universe. One way to form a universe requires the field external to the R-region to be activated. This “field” is a dense collection of ultra-propertons (originally termed “subparticles”) or combinations (Herrmann, 1978-94+arxiv). These do not form a quantum field but form a field in the sense that ultra-propertons and combinations exist at every spatial point. If one assumes that Nature merely requires that certain relations between adjacent members of an event sequence satisfy physical laws, then an event sequence can be constructed as a universe progresses. This construction corresponds to the application of the best possible unification  $\bigvee_w \mathcal{C}$  for the collection  $\mathcal{C}$  of all physical laws and accepted physical theories (Herrmann, 2004). However, for this theological interpretation, such a step-by-step generation is not used and the development merely verifies physical laws and tested theories.

The Eden cosmology need not have the light and particle propagation problem associated with today’s physical entities. Via the necessary “participation model,” this can also be how future events are presented. However, as mentioned, most present theories state that the entities that appear to give information about physical events that occur throughout the universe require observer time to prorogate. In this case, “observer time” is specifically measured time. Thus, under the physical laws as perceived today, the events scientifically observed from earth are assumed to be events that have previously occurred. Hence, ostensibly, cosmologies accepted by the atheistic and many liberal Christian communities could not have been created during a strict creation-day time-frame for they appear to violate a strict Genesis 1 interpretation, an interpretation that requires ancient starlight to appear first during day-four.

Since, at present, the usual cosmologies accepted by atheistic or some liberal Christian communities do not solve the starlight and time problem, it would be rather significant if there is a mechanism that yields any known cosmology and does not violate the strict day-four requirements. For both the post-Fall environment and those creationary models requiring our present day universe to essentially be formed during creation-day four, the time dilation secondary effect of the rapid-formation process satisfies the starlight and time requirement.

At the moment the “curse” is announced, the material in the R-region is put into suspended animation. In this form of suspended animation, as the universe changes in its development, there is no change in the R-region. The realization operator for the R-region simply produces an identically designed R-region. Thus, alterations of each R-region physical-system, of any kind, cease. Since this includes photons, then, for this illustration, as the exterior-universe develops the R-region appears ghost-like. There is, in all cases, a relative position where the post-Fall Earth and its local environment is to reside.

As an illustration for this DVD formation, as the DVD plays, push the pause button. Now each time you push the “next” button another UWFF appears. The R-region portion does not change during this process. (With a few exceptions, the significant “unseen” portions of these images may require a deeper knowledge of the interpreted mathematical model since these unseen portions are compared to the “seen” portions.)

Prior to the Flood, the post-Fall Earth with its local environment retains young earth evidence. This second application of the RFM has a different feature than the first application. The participator aspects of the GGU-model are maintained throughout its application to the Biblical scenario. To maintain God’s statements as being true relative to modern perceived physical laws, it is required that there be many types of participator and cosmology dependent pre-designed “ancient earths, with their local environments,” represented by members of the paradigms. Further, we have the Earth and its local environment, where Adam and Eve will now reside, an Earth that now includes physical death. At the instant the second rapid-formation concludes the very next R-region repeats the previous one. However, all succeeding R-regions now begin to show the presence of physical death. This, of course, comes about by pre-design in the developmental paradigm case.

Thus, over one or more rather small intervals,  $^*[c_\alpha, c_{\alpha+1}]$ , the GGU-model has moments in the primitive sequences that allow for ancient cosmology determined earths and their local environments to development. The pre-Fall Earth with its local environment, without the Eden cosmology, is in an “out of time phase”  $(\alpha, \lambda)$ -UWFF

relative to a developing ancient earth with its local environment that comprises an  $R'$ -region and an exterior cosmology. (The value of the  $\alpha$  depends upon the exterior cosmology chosen.) For the Eden Model, this yields another form of rapid-formation. As indicated, the special UWFF is identified by a special predicted pair  $(\alpha, \lambda)$ . If the rapid-formation processes is greatly slowed down so as to be observable, then the  $(\alpha, \lambda)$ -UWFF would momentarily appear to “flash” on the monitor. In recent times, this is somewhat comparable to methods that yield a form of “subliminal perception.”

As the universe develops, the fixed realized R-region appears as well as the now developing and realized  $R'$ -region that contains a developing ancient earth with its local environment that is consistent with the exterior universe’s physical requirements. Thus, if such a rapid-formation is observed as a DVD presented view, then, as before, the changing UWFFs would indicate a changing exterior universe and non-changing R-region. In general, each member of this type of event sequence represents an entire universe at a primitive sequence moment. Relative to the succeeding UWFF, when the suspended animation ceases, the realized pre-designs have the R-region residing in the  $R'$ -region’s position. These progressing R-regions slowly display behavior that yields the now “physical death” feature. However, again for consistency, there are developmental paradigms and corresponding instruction paradigms, where the  $R'$ -region continues its development. (Note: Due to the participator mechanisms, there is actually a vast number of designed developments of both types.)

For the GGU-model, physical laws do not generate a universe. Hence, there is no inconsistency if various physical laws that are satisfied during the development of the R-region through a moment in observer time, do not entirely correspond to those that are observed after that time. This consistency is maintained if at any moment in observer time, the R-region physical laws unite so as to display those we observe today.

Clearly, we can only observe finitely alterations in region S. Moreover, for the general GGU-model which is physical law independent, if one considers each DVD “frame” (each specific screen image) as the alterations progress, then the observer time between alterations can be much smaller than employed in quantum theory for any detailed description for behavioral changes. The fact is that such a quantum theory restriction is but a philosophic stance accepted by many who employ this theory. This quantum theory restriction and our inability to comprehend how infinitely many primitive sequence events can take place during a finite observer time period are irrelevant for a proper GGU-model interpretation. GGU-model mechanisms yield special types of “subquantum” behavior. This is further discussed in the “processes” article (GGU.pdf) as referenced below.

Of significance is that the RFM is employed at a moment during The Food and



this has produced what we perceive today. Indeed, since the RFM is not dependent upon the actual cosmology it produces, then any cosmology chosen by today's science-communities satisfies the Eden Model. The Eden Model Flood scenario is discussed elsewhere (Herrmann, (2014a))

One aspect of the RFM is that it eliminates any unnecessary physical processes that are needed to "shield" the R-region from the hostile environment that exists during the development of a universe exterior to R. Then the process satisfies the Biblical requirement that an exterior universe be formed at a moment during day-four.

## 5. Other Applications.

It is enough to state that the RFM can be used for other purposes. However, this article is concerned only with its use to produce the Eden Model and to show that any science-community selected cosmology that corresponds to observable data cannot be differentiated from The Eden Model.

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