INSIGHT
Chapter 4, section 2.5
Consequences of Emergent Probability
(CONT)

3. **"World process is increasingly systematic"—*later schemes build on earlier schemes.***
    a. Systematization is when schemes of recurrence emerge.
    b. **"Successive realization of a conditioned series of schemes of recurrence."** Scheme of recurrence, to recall, can build upon each other.
        i. Hence the schemes on planet earth brought about by relationships of the earth to the sun required first that the planet emerge in a planetary system around the sun.
        ii. The existence of oxygen producing algae, etc., brought about the recurrence of oxygen production in our atmosphere. This builds upon multitudes of earlier schemes of recurrence (including our planetary system, and the particular range of our own orbital around the sun). In turn, the emergence of cells and eventually organisms that use but do not "produce" oxygen came into existence. However, what is systematizing about them is not just the use of oxygen, but biochemical schemes that make recurrent events which otherwise would not occur, and yet which enhance the life of the organism. For example, the recurrent production of ATP via the emergence of Kreb's cycle is a scheme that requires the use of oxygen and glucose (hence glucose also needed to become recurrent as well).
    c. **"…and the further the series of schemes is realized, the greater the systematization to which events are subject."** --this is the real point of this consequence. It makes the point that the longer the universe continues to be, with its mix of the non-systematic and systematic, the increasingly systematic it becomes. This does not mean that everything throughout the universe suddenly becomes systematized. Remember, it means that only in locations where schemes have advanced, does the "increasing systematization" take place. Hence, there can still be large expanses of space and time not systematized. However, even if the whole did become systematized, as long as the processes did not become locked up in such a way as to prevent further schemes from emerging, we would still live in an universe that is aimed at becoming increasingly systematic.
4. **"The increasing systematic character of world process can be assured."—*later schemes have probabilities of emergence upon earlier schemes.*** Notice that this statement is not claiming that the world will develop in a specific determinate manner. Rather, it is a generic claim based upon a characteristic of statistical probabilities, namely that "actual frequencies do not diverge systematically from probabilities." When Lonergan takes this characteristic and raises the question about the furthest scheme that could emerge in the series, then with sufficient time

and numbers, the furthest scheme is "assured" to take place. Hence the assurance is not mechanistically based, but statistically based.

5. **The basic world situation is itself not an enclosed system. Rather "the initial or basic world situation is limited to the possibilities it contains and to the probabilities it assigns its possibilities."—*the initial situation involves a statistical distribution*** This consequence also results from the assumption that world process is a combination of classical laws and statistical laws, and that it is a combination of non-systematic and systematic process. It assumes that the initial situation is like all subsequent situations, not necessarily closed, but rather open and dynamic.
6. **"World process admits of enormous differentiation*."—many different types of events and of schemes have probabilities for emergence*.** This likewise is s statement of possibility, based upon classical and statistical laws. It is not a statement of fact. Yet, we all know that there is quite a bit of diversity in our world (at least descriptively) which makes gives some weight to the validity of his assumptions. With sufficient initial numbers, enormous differentiation is assured.
7. **"World process admits <u>break-downs</u>."—*Probabilities of survival are not absolute guarantees of survival.*** If the world were entirely systematic or mechanistic from the beginning, break-downs of schemes would be in reality just appearances of break-downs. Yet, break-downs do seem real. Organisms die. Atmospheric can change and never return. Stars can go out of existence. Planets can be destroyed. Economies can collapse. Health can deteriorate, and such deterioration can lead to death. Civilizations can fall apart and become something that only exists in history books. These of course are again facts that support what is merely a possibility for Lonergan based upon his assumptions, namely that the universe can be a combination of the systematic and non-systematic. Such a combination means that schemes only have a probability for survival, and can be destroyed. Either earlier schemes could collapse thus no longer supporting this scheme, or some new events and schemes could emerge that destroy this scheme.
8. **"World process includes blind alleys." –*probabilities of high survival results in locking up materials that hinders the emergence of new schemes and their events.*** Example include
    a. the inert gases (though one could argue that sometimes inert elements can be incorporated into larger schemes as well – as spacers, as fillers in windows, etc..);
    b. Evolutionary dead-ends in animals. One can raise the question about whether such dead ends are a result of binding up of materials. It may be that the situation simply was not correct, and thus did not lead to further development. However, technically, this would not be a dead end, but just a failure to continue developing, hence it would be a break down in development precipitated by a break down in schemes.
    c. Ecological dead ends. Some organisms may be such that virtually nothing else can make use of them or their "bio-products."
9. **"The later a scheme is in a series, the narrower is its distribution." –*based on the nature of conditioned series of schemes of recurrence.***

10. **"The greater the probabilities of blind alleys and break-downs, the greater must be the initial absolute numbers, if the realization of the whole series of schemes is to be assured." –*based on the statistical needs of assuring the development of later schemes in a conditioned series.*** Notice, this does not explain why such initial large numbers might exist, but just a requirement if development of the later and eventually fullest schemes are to emerge. It does contain a bit of an interesting quandary. On the one hand, the universe has this developmental character (Lonergan will develop this more precisely later in the book), and if that developmental character is to come about, initial absolute large numbers are required. The theory does not explain why such a developmental character of this universe exists (one with probabilities for emergence and survival of events and schemes), but rather, it assumes that it is a likely fact based upon the actual explanatory success of implementing classical and statistical heuristic structures.
11. **Statements about properties of emergent probability**
    a. **"The foregoing properties of world process are generic.**" Does not indicate the specific events and schemes that do exist in this world. That is the task of science. Yet, the lack of specificity does not mean that this theory of world process explains nothing. It gives the general features of this universe as a whole and of each aspect of it. Hence, every science can operate from this generic worldview, then fill out the details.
    b. **"The properties are relatively invariant.**" These properties will not change with the changing contents of a particular scientific discipline. Physics, chemistry, biology, sociology, etc., will not as such change these properties. However, a particular field may advance the classical and statistical heuristic structures, which might lead to a modification of these properties a bit. Then other fields might incorporate these more advanced heuristics (such as took place with various developmental theories of the universe).
    c. **"These properties are explanatory of world process.**" These properties are based on an intelligibility of world process. This is much like the understanding of the nature of a circle. It is based on a direct insight which is not descriptive and nominal, nor is it a type of efficient, material, or final causality. Hence it is an "**intrinsic**" or formal intelligibility.
    d. **This exploration of world process though generic does fit within the confines of empirical method.** Emergent probability and its properties fits within the canons of selection, relevance, parsimony, complete explanation, and statistical residues. Thus, it is a fully empirical science itself (="generalized empirical method"), and when sufficiently expanded, this will become the science of metaphysics (later in the book).