

## PROVIDENCE, CHANCE AND FREE WILL

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The laws of Divine Providence would seem to leave nothing to "chance" since it is commonly known in the church that Divine Providence works into the least particulars. However, there is certainly the appearance of chance in the world around us both in nature and in the affairs of men. This appearance must somehow be accounted for and our view of nature made to agree with the teachings of the Word. This paper is divided into three parts. The first sets forth what I believe to be the most pertinent teachings found in the Writings on this subject; the second explains some of the background material of modern mathematics and physics that bears on this issue; and the third gives some applications and interpretations while pointing out some potential difficulties.

### **What the Writings Teach**

A brief perusal of Potts' *Concordance* shows that the Writings mention cause a good deal more than chance. Indeed, much of our thinking about and from the Word involves an underlying causal paradigm that seems essential to the most basic truths of the New Church. For example, much of the work *Divine Love and Wisdom* is devoted to explaining the concepts of discrete degrees and correspondences so that there will be an understanding of causes. A passage in the *Arcana* states the case:

The causes have also been told me, namely, that the causes of all natural things are from spiritual things and the beginnings of these causes are from celestial things; or what is the same, all things in the natural world derive their cause from truth which is the spiritual and their beginnings from good which is the celestial; and natural things proceed thence according to all the differences of truth and of good in the Lord's kingdom; thus from the Lord Himself, from whom is all good and truth (AC 2993).

Although the specific reference in the above number is to the vegetable kingdom, it is fairly clear that it applies to all of nature.

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This causal chain, from the Lord through the heavens to the earth by means of correspondences, is the "glue" that holds the created universe together and without which there would be mere chaos (see TCR 472).

What then of chance? Since the Writings present such a clear and compelling picture of the universe and the way the Lord created it and holds it together, what need is there for the concept of chance? Everything has a cause and that is that. However, there are two areas which call into question the "closed" system presented above. One is that man's spiritual behavior (and I believe his natural behavior in some measure) involves a strong component of free will. If man truly has free will then his behavior is, in some sense or degree, uncaused; otherwise his free will would be merely an appearance.

The other problem area is that of chance or luck. We cannot simply say that there is no chance, that all is order and thereby do away with the problem. Chance is certainly an appearance in natural and human affairs, and modern science and mathematics use chance or the laws of probability as an integral part of the descriptions of the world around us and the applications of those descriptions (laws) to the design of human and mechanical systems. Philosophically and practically the problems arising from the notion of chance will not go away. We will outline some of those probability laws and their applications below.

The Writings are fairly clear on the place of chance. For example:

I have often spoken with spirits about fortune, which in the world appears like chance, because men do not know whence it is; and because they do not know this, some deny that there is such a thing. When something happened to me which seemed to be by chance, I was told by the angels that it had happened because spirits of that kind were present; and that when it was a mischance, the sphere of spirits of a corresponding kind had prevailed. Moreover, evil spirits have found how to produce, by their arts, a sphere giving rise to misfortunes, which appeared exactly as if by chance. And it was further said that all things, nay, the leasts of all things, down to the leasts of the leasts, are directed by the Providence of the Lord, even as to the very steps; and when such a sphere prevails as is contrary thereto, misfortunes happen. They also confirmed the fact that there is no such thing as chance and that apparent accident, or fortune, is Providence in the ultimate of order, in

which all things are comparatively inconstant (AC 6493).

I once played in company a common game of chance with dice, and the spirits who were with me spoke to me about fortune in games and said that what is fortunate was represented to them by a bright cloud, and what is unfortunate by a dusky cloud; and that when a dusky cloud appeared with me, it was impossible for me to win; moreover by this sign they predicted to me the turns of fortune in that game. From this it was given me to know that what is attributed to fortune, even in games, is from the spiritual world; much more that which befalls man in relation to the vicissitudes in the course of his life; and that what is called fortune is from the influx of Providence in the ultimates of order, where it so comes forth; thus that Providence is in the veriest singulars of all things, according to the Lord's words, that not even a hair falls from the head without the will of God (AC 6494; see also SD 4562<sup>e</sup>).

Thus even those things that appear to involve "chance" have spiritual causes.

We have not yet defined the term "chance." Some writers use the term "chance" to mean uncaused. However, the only "uncaused" events that I can recognize are the free will decisions of men. We would not want to describe the choices that a man makes as he defines his eternal character as having anything to do with "chance." However, I believe those free will choices are the only "uncaused" events. This leaves chance without much of a home. Later on in this paper we will see that careful definitions of chance or random events will leave us with a valid philosophical notion which does not contradict anything the Writings teach.

### **Modern Science's View of Chance and the Laws of Probability**

Since we have shown above that the Writings really leave no room for chance, what good is it to study the scientific view of the matter? We will outline some of the key concepts and applications of probability theory and then try to bring the scientific view into line with what is taught in the Word.

Consider the experiment of rolling two dice and recording the sum of the numbers on the faces. If we assume that the dice are independent and the faces came up at "random" (that is, the faces are equally likely), then we can calculate, in advance, the likelihoods associated with each outcome. There are 36 possible combinations

of faces ( $36 = 6 \times 6$ ) which, by assumption, are equally likely. Only one of those combinations has a sum of 2, namely 1,1. Thus the probability of getting a 2 is  $1/36$ . There are two ways to get a 3: 1,2 or 2,1. Thus the probability of getting a 3 is  $2/36$ . We continue this to cover all possibilities. When these are graphed as in Figure 1 they make up the distribution for this situation. Note carefully the assumptions that have been made: That the two dice are independent, and that each face is just as likely to come up as any other face.

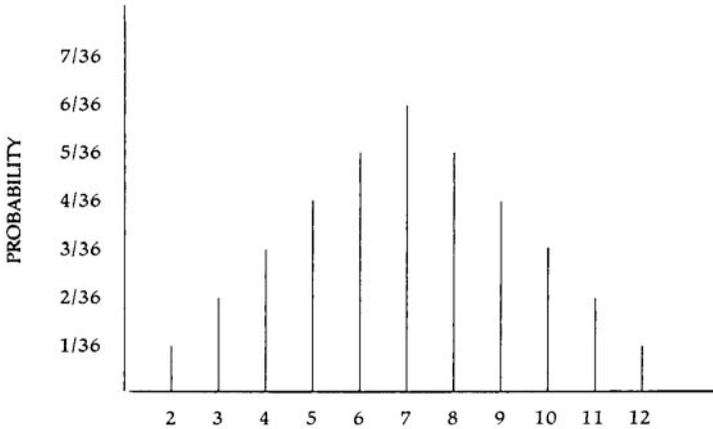


Figure 1

Based on these assumptions, we have derived the *a priori* probability distribution for this situation. If we do an experiment and roll the dice hundreds or thousands of times we will find (if they aren't loaded) that the *a priori* distribution agrees with the experimental outcomes. For example, a 7 will occur about  $6/36$  of the time. Furthermore, the more rolls that are done, the closer will be the agreement between the *a priori* and experimental distribution.

The description of the dice just given is typical of the way probabilistic situations are analyzed in modern science. The assumptions seem reasonable and there seems to be good agreement between the theory and the experiments. Such agreement tends to make us believe that the assumptions are true. But so far our assumptions don't say anything about "chance" events. We assume that the dice or anything else operate at random, which means that all outcomes are equally likely. At the macroscopic level, we can see that, in principle, we could analyze the forces, etc.

on the dice and, using the laws of physics, predict each outcome. Thus no real concept of chance is assumed. However, conducting the kind of analysis that would allow us to predict each outcome would be almost impossible to do in a practical way. Thus the probability laws are a major convenience. Historically, the laws of probability have been used that way with little thought being given to whether events were "really random" or not. In modern engineering practice it is known that certain errors will arise in various systems. These are analyzed using the laws of probability. That analysis is a very important part of system design in communications, computers, navigation, etc.

*Sequences*  
A 0101010101010101  
B 10011011100100001011

Figure 2

Consider Figure 2. The two sequences shown appear to be of a different character. Sequence A has a very clear pattern to it, while sequence B has no discernible pattern. We tend to think of sequence B as being "random." Both sequences were generated by a computer and are repeatable. Thus there is nothing random (in the strict sense) about them. Sequence B was generated by a program called a pseudo-random number generator. An interesting property of these pseudo-random number generators is that the sequences they produce, of any desired length, appear to be random. Not only to the naked eye but to all statistical tests of randomness. Are they random? Of course not; they are generated by an entirely deterministic, albeit complex, machine.

Since these sequences appear random to all known means of testing them, the question immediately arises: Could we detect a truly random or chance-produced sequence if it occurred in nature? I think not, because it would be impossible to distinguish it from a pseudo-random sequence produced by a deterministic machine. These sequences are not mere curiosities, since any physical experiment can be viewed as giving rise to a sequence of numbers.

In modern quantum physics dealing with the nature of subatomic particles, probability theory plays a central role. Many physicists appear to believe that "chance in principle" occurs at that level rather than chance or randomness being a convenience as it is at the macroscopic level. Although the arguments are rather technical, I believe that "chance in principle" can be acceptable within New

Church thought by focusing our attention on the probability distributions rather than those hypothetical little particles. The probability distributions of the position and velocity of the particles do obey causal laws. If those distributions are regarded as "the veriest singulars of nature" (AC 6494) rather than the particles themselves, perhaps we can have a kind of "chance in principle" without contradicting the Writings. The entire subject of the nature of cause at the subatomic level deserves a much fuller investigation by New Church scholars.

### **Applications and Interpretations**

The Divine Providence works thus invisibly and incomprehensibly in order that man may in freedom ascribe an event either to Providence or to chance; for if Providence acted visibly and comprehensibly, there would be danger of man's believing, from what he sees and comprehends, that it is of Providence, and afterward changing into the contrary (AC 5508).

The psuedo-random number generator is an excellent natural illustration of the above. We can't really tell whether experimental outcomes are the result of "chance" or not. They are not (see above). But any man is in freedom to decide otherwise. There is a causal chain from the Lord through the heavens to man. The only deviations from the Divine Will are those caused by man's free choice. However, modern science makes use of the concept of random events in formulating and applying the laws of probability. These concepts are an enormous convenience and make many kinds of analysis possible that could not otherwise be done. The only area where "chance in principle" seems to be an issue is at the subatomic level in physics.

Apparently spirits do intervene in places where their actions can be "covered" by chance (AC 6494). But, as stated above, the throw of the dice could be worked out using the laws of physics, at least in theory. I suppose that if such measurements were being made, spirits would not intervene.

What is the nature of the interactions between the causal chains here in this world—the laws of physics for example—and the spiritual inputs or causes? Perhaps we can know very little about the specifics of these.

However, the New Churchman can have confidence that nothing that has been formulated or discovered by modern science

fundamentally contradicts anything in the Writings. Indeed, when properly interpreted, the laws of probability are one more confirmation that the Divine Will governs the universe.■

#### REFERENCES:

- Allen, E.F., "Chance in Modern Science," *New Philosophy*, January-March 1963, p. 187.
- Lindsay, R.B., and Margenau, H., *Foundations of Physics*, Dover Publications Inc., New York, 1957.

#### *LIFE AND DEATH DEFINED*

Every one may know that man is governed by the principles he assumes, be they ever so false, and that all his knowledge and reasoning favor his principles; for innumerable considerations tending to support them present themselves to his mind, and thus he is confirmed in what is false. He therefore who assumes as a principle that nothing is to be believed until it is seen and understood, can never believe, because spiritual and celestial things cannot be seen with the eyes, or conceived by the imagination. But the true order is for man to be wise from the Lord, that is, from His Word, and then all things follow, and he is enlightened even in matters of reason and of memory-knowledge (*in rationalibus et scientificis*). For it is by no means forbidden to learn the sciences, since they are useful to his life and delightful; nor is he who is in faith prohibited from thinking and speaking as do the learned of the world; but it must be from this principle—to believe the Word of the Lord, and, so far as possible, confirm spiritual and celestial truths by natural truths, in terms familiar to the learned world. Thus his starting-point must be the Lord, and not himself; for the former is life, but the latter is death (AC 129).