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Things, States and Enablement

In the prelude to his discussion of statistical heuristic structure in Insight Lonergan discusses two types of processes, systematic and non-systematic. He discusses them in terms of insight since one of his goals is to have the reader grasp the inverse insight underlying the understanding of probabilities. My goal in discussing them is not to lay out statistical heuristic structure as he does in the beginning of Insight, but to understand the implications for understanding things, states and enablement. In general, enablement is possible because of the non-systematic. If we consider conscious performance, the body does not cause the performance but enables it to emerge so that the performance is partially its own cause. Put more straightforwardly, we make ourselves who we are. The self is both enabling and enabled. If we consider the subject as the part of the self that is the conscious operator, then we can consider the subject as enabled by the self. In turn, the subject as performer, actualizes the self, and, by implication, is self-actualizing. Since the self and the subject are both embodied a brief account of embodiment also will be provided.

States and the Non-systematic

A fully systematic process can be understood by a single set of insights where any state of the process can be determined from any other state. In a metaphysical context the mechanist determinism of Laplace meets this criterion since he claimed that given full information on any state and knowing all natural laws, he could deduce any future state. On some interpretations computers also meet the criterion since they run via sets of algorithms that determine the state at any one time. It Is questionable whether any actual process is fully systematic. In computers the process of translating application language to machine language via a compiler approaches it. Set rules, or algorithms, govern the translation, and each particular state is equivalent to the other. Knowing the state of machine language, the application language can be deduced and vice versa. I will save the question of why a computer is not fully systematic for later.

Conversely, a nonsystematic process cannot be understood via a single set of insights. All the parts of the process are not related to one another, though some may be. The nonsystematic process comprises an aggregate. Classical laws may be applied to understand the current state of the process but they must be mediated via insights into the concrete situation. For example, the values of the variables in a law expressed as a formula can vary non-systematically from state to state and need to be determined via particular measurements.

There are two types of sets of non-systematic processes, constrained and unconstrained. A constrained set is illustrated by a card game where the rules do not determine the particular states of the game but restrict what can be done from state to state as the hands are played. The constraint is that there can be no states which violate the rules and the rules form a relatively small finite set restricting the range of states.

An unconstrained set is illustrated by a situation that has a converging series of conditions for its emergence and a diverging series of situations for its consequences. An example here is the weather in a particular area.

In games of chance there are a converging set of conditions that result in limited outcomes. The probability of any particular outcome is determined by the number of possible outcomes of that type versus the number of total possible outcomes. The simplest example is a coin flip where there are two possible outcomes. The probability for heads is 50% as is that for tails.

In a coin flip there is a converging series of events that determines what the result will be, but there is no set of systematic relations that account for the differences in *sets* of converging series that yield a set of results. These form an aggregate. The inverse insight that underlies statistics is that these differences among the converging series make no difference. Because they do not the frequency of heads coming up will vary non-systematically around 50%. Because it varies around 50% as a limit, we can get the insight that the probability of either heads or tails is 50%. But because the frequency is not always 50%, but varies unsystematically, the probability is an ideal frequency. Also, since the frequency is ideal, in statistical sampling that yields a probable frequency, there also is a confidence interval that provides a range within which the real frequency likely occurs.

Probabilities are the positive intelligibility that issues from the inverse insight leading to statistical science. They are assigned to classes of events. Lonergan notes that "…the association of these probabilities with the classes of events defines a state, and the set of observed actual frequencies is a representative sample of the state." (p. 81, Insight) A state, then, is general and ideal and the actual frequencies are concrete and real.

Both probabilities and classical laws are abstract. Probabilities are abstractions from the non-systematic differences of ideal frequencies and actual frequencies. Classical laws abstract from the empirical residue, aggregates and the non-systematic. Because classical laws are abstract and general, they need to be applied via insights that grasp secondary determinations, or how they occur in concrete situations. These concrete situations are non-systematic. They are not deduced from the classical laws, rather they are partially understood via them. Reductionists and determinists overlook the insights required to apply classical laws missing the consequent understanding of a situation via both states and classical laws.

States and Things

Things can be in states in two ways. First, they can be an existent in situations which can be understood via statistical states. Second, they have states. We can have the state of things, like the population of trees in a forest and the state of the thing or its current disposition. The state of the thing would be determined by the actual frequencies of the relevant conjugates of the thing.

Things can include structures, either as parts or as the whole they are, as well as systematic processes. Just as classical laws are abstract, we can also think of structures abstractly and arrive at a definition similar to Levi Straus'.

> First, the structure exhibits the characteristics of a system. It is made up of several elements, none of which can undergo a change without effecting changes in all the other elements.
> Second, for any given model there should be a possibility of ordering a series of transformations resulting in a group of models of the same type.
> Third, the above properties make it possible to predict how the model will react if one or more of its elements are submitted to certain modifications. (Claude Levi-Strauss, Structural Anthropology, (Harper Collins, 1963) p. 279)

This would be a fully systematic structure. However, we also can consider structures as non-systematic when we consider their states. This brings us back to the question of whether computers are fully systematic. A clue is provided by state transition diagrams which can be used for testing programs. They specify inputs and the systematic processing that transforms them into outputs. This implies that a computer is an open system that may not determine the timing and type of inputs. With multiple types of inputs at different times the states of the computer comprise an aggregate or coincidental manifold and are non-systematic. Computer processing provides constraints that enable a multitude of states accounting for the flexibility of computers. A mundane example is that you can run Word and Excel at the same time. The computer does not determine the content of either of them. It provides programs that permit various contents to be determined by the user. It comprises a set of constrained processes some of which are related systematically to one another and others of which are not. Thus, a computer, like virtually all technology, does not determine, but enables, human action or performance.

A thing is a unity, identity, whole. As a whole, a thing can be non-systematic in two senses. The first is that you cannot relate all the states to one another systematically. The second is that you cannot relate all the parts to one another systematically. Earlier I discussed how the first case can lead to the inverse insight leading to an understanding of probability. The second leads to the definition of the non-systematic whole. In a not fully systematic whole, everything is not related to everything else, but everything is related to something that is related to something else, so that all the parts do not need to be interrelated. This permits an aggregate of elements and relations that in turn constitutes the potency of the whole to perform in relation to itself and to the other, or what is not it, and to develop. Likewise, the whole can include multiple systematic parts such as the organs of the body.

Development is analogous to a constrained process while evolution is analogous to an unconstrained process. Both unfold via emergent probability. As Lonergan notes

> The fundamental element in emergent probability is the conditioned series of things and schemes; that series is realized cumulatively in accord with successive schedules of probabilities…. (p.290, Insight)

Concretely, development consists of a set of constrained processes where we can assign probabilities to each of the states of each of the processes, and theoretically, to the state of states which would be the state of development itself. The schedule of probabilities would regard the actualizable situations for each constrained process. In neo-natal development we can consider the state of each of the developing organs yielding the overall state of development. This is similar to a doctor telling you your state of health based on the state of each of your major biological systems. Organic development is the development of a non-systematic whole. The non-systematic aspect of human development is indicated by the fact that identical twins do not have identical brains.

Lonergan stresses the organic, psychic and intelligent as systematizers of aggregates; the psychic of the organic and the intelligent of the psychic. Each of these is associated with its own aggregate. What constitutes their unity or their interrelatedness?

On the organic level Lonergan has an elegant account of mutual self-mediation which illustrates the interrelationships of the organic systems. He distinguishes the immediate and the mediate. The effect is immediately related to its cause as, in a sense, being produced by it. The effect can then be utilized in another process. That utilization is a mediation of the effect. We can think of organic systems, then, as mutually mediating. One part of the body can produce biochemicals used by another part and vice versa. Now, if we consider the body, or any complex organism, as a set of active centers, then those centers can produce effects that are utilized in some manner by the other centers. Via mutual mediation a complex network of interrelationships among centers can be established. The question arises, are all of these interrelationships themselves interrelated. Is this complex a fully integrated system? In the case

of development, it appears that it is not. As a succession of levels of integration, the form of the organism at any one time is a higher integration of parts, which themselves can be integrations. In the discussion of development in Insight, this higher integration is characterized as a higher system which fulfills the two major roles of being the operator of development and the integrator at each developmental stage. Development is from lower to higher integrations. But it would appear that development for Lonergan is not fully systematic. First, the operator is an upwardly directed, but indeterminate, dynamism. Second, the operator as bringing forth the conditions for the higher integration "…provokes the underlying instability." (p. 490, Insight) The higher integration occurs not deterministically, but via the law of effect. "The law of effect states that the ground of functioning advances to a new ground of functioning where functioning occurs successfully." The higher integration is conditioned and is itself a de facto accomplishment. This indicates, at least implicitly, that it could be different. If the operator of development in moving from one stage to another is understood as assembling conditions and if these conditions come from parallel, unintegrated processes, then the operator is diffuse and non-systematic.

Intelligence can be systematizing in its achievement but may not be in its activity. Its activity is an aggregate of non-systematic processes. Attempts to answer a question can follow many paths. Events, or the conscious operations themselves can be in either a non-constrained or a constrained non-systematic process. Even a simple account of the simplest cognitive process is sufficient to show that it is not fully systematic. In general, Lonergan relies on integrations and systems to discuss the interrelationships between the organic, psychic and spiritual with the psychic being an integration of the organic and the spiritual of the psychic. However, with the person as a thing being a non-systematic whole and consciousness, insofar as it is a whole, being both systematic and non-systematic is there an additional integration to be had? The lack of system and the presence of an aggregate are evidence of potency. As a potency of the subject (and, by implication, the self) it is enablement. There are two points I want to make about enablement. The fact that we are embodied does not mean the body causes action a la an efficient cause. Rather it enables them. Since we are enabled to act and we act freely, the relationship between our actions and the enabling factors is non-reductive.

What is enabled is performance. Understanding performance takes us into action theory, which is a topic for another day. Action theory would account for the unity of human behavior, or for what unity there is; episodic human behavior. But here too, as always, we encounter aggregates of activity that may not be interrelated. How to make sense of all of this? As mutual self-mediation weaves together the organic, Lonergan uses the notion of a dynamic system on the move to interrelate cognitional and deliberative structure. The systematic aspects are not so much in the results as in the regular and recurrent operations which issue out into ranges of results, systems, transformed systems and still newer systems. As regularly and recurrently knowing and doing we can become methodical. As methodical we can become explicit to ourselves and realize that the unity of ourselves can be grasped via a heuristic metaphysics integrating the systematic and the non-systematic. That unity is provided by the operative structure of consciousness enabled via our embodiment.