

## **Chapter 2: Review**

**Heuristic Structure:** a way for anticipating the conscious activities that need to emerge in order to reach the objectives of the mind seeking to understand and know. So far, Lonergan has examine classical heuristic structures which seek to know the “indeterminate function to be determined”(known in implicit definitions), and statistical heuristic structures that seek probabilities from which actual frequencies diverge merely randomly. Both of these structures, in the end, abstract from the empirical residue, yet, in turning to the concrete occurrence of either correlations or verification of statistical probabilities, one must return to space and time, the continuum, and coincidental aggregates.

Probabilities to recall are constant proper fractions of classes of events from which the actual proper fractions of those classes of events diverge randomly.

Events are the act or occurrence of conjugate forms which are known via terms defined explanatorily in implicit definitions such that the terms define the relations and the relations the terms, and all is fixed by insight. Such acts or occurrences exist only in secondary determinations which exist in non-systematic processes.

## **Chapter 3: Review**

Introduction: The exploration of how the mind reaches its object successful will also reveal that it not only has a particular “way” (a heuristic order), but it also reveals that the mind, insofar as it knows this way, possess rules or canons guiding one along that way. Lonergan gives us a good generic definition of method in Method in Theology:

“A method is a normative pattern of recurrent and related operations yielding cumulative and progressive results. There is a method, then, where **there are distinct operations, where each operation is related to the others, where the set of relations forms a pattern, where the pattern is described as the right way of doing the job, where operations in accord with the pattern may be repeated indefinitely, and where the fruits of such repetition are, not repetitious, but cumulative and progressive.**” (Method in Theology, 4)

I suppose one could say the “red” part of the definition above is chapter 2, and the blue is chapter 3 in Insight, however, chapter 2 and 3 are not merely a generic account of method, but an account of specific kinds of methods, namely classical and statistical methods.

If you are aware of Lonergan’s later formulation of the transcendental precepts or beatitudes (be attentive, be intelligence, be reasonable, be responsible), these precepts are the “canons” of his broadest account of human self-transcendence, which he names transcendental method. In chapter 3 of Insight, one could say these transcendental precepts are specified for classical and statistical heuristic structures.

Remember, Lonergan notes, that all of this is not about developing a full account of the history and activities of science, but rather, the goal here is to understanding understanding and the general ways that understanding has perfected itself. Thus, in examining the precepts or canons of the empirical sciences, the goal is not just to manifest the unity of the methods in their relation to insight, but to manifest in that unity, insight itself so as to increase our understanding of understanding.

### 3.1 The Canon of Selection:

What it is?

Be Attentive: all correlations, hypotheses, laws, probabilities in the empirical science must have “distinct, sensible consequences”. (sensible consequences can be extremely subtle, and only known via complex technologies which themselves are based on complex theories eg. Electron microscopes, etc)

How it guides scientific inquiry:

Hypothesis, correlations, systems can be created without any restrictions, however without the canon of selection, many of these would not regard the real material universe. Hence, this canon, by saying that in some way, every theory, correlation, etc., needs to be brought back in relationship to something that can be detected via our senses, provides a boundary for the development of the natural sciences.

1. Note how “relations to us” and descriptive knowledge is not eliminated, however it is transformed from a description that arises within the interests of “concrete living” into the interests of the scientist seeking true explanation. In the scientific context description is transformed into scientific observation. Lonergan has a great description of this in 3.1.2.
2. Also note how this may lead to specializations in the sciences: eg. Empirical/experimental scientist and theoretical scientists.

As a note, this canon does not limit all knowledge, only a certain range of it. “Issues that cannot be settled by observation and experiment cannot be settled by empirical method, but it does not follow immediately that they cannot be settled at all.

### 3.2 The Canon of Operations

What is it?

“Just as inquiry into the data of sense yields insights that are formulated in classical and statistical laws, so inversely, the laws provide premises and rules for the guidance of human activity upon sensible objects. Such activity, in its turn, brings about sensible change to bring to light fresh data, raise new questions, stimulate further insights, and so generate the revision or confirmation of existing laws and in due course the discovery of new laws.”

What it does (as a principle):

1. cumulative expansion (horizontal finality)
2. construction (technological expansion, innovation, economic growth).
3. analysis of objects
4. cumulative verification
5. test of impartiality and accuracy of observations (quality control)
6. systematization (expands to new laws and seeks their integration with old)
7. higher viewpoints (vertical finality)

## Insight Chapters 2 and 3

Examples of uses of statistics that would be worth investigating,

3. Birth and death rates
4. rates of illnesses
5. murder and crime rates
6. rates of divorces and marriages
7. pregnancy rates and abortion rates
8. unemployment and employment rates
9. immigration and emigration rates
10. rates of visitors to a locality
11. income rates
12. electron clouds
13. rates of reaction (in chemistry)
14. probabilities of inheritance
15. rates of transcription and translation
16. rates of cell division
17. “radioactivity” (of various types of radiation)
18. metabolism
19. Rates of ATP production in the mitochondria (via Krebs’s cycle)

These are just a few examples where statistics are used. Examine each in terms of the following questions:

- 4 In terms of the “events” used and how these events are defined (descriptively, explanatory).
- 5 The relation of the events as defined to the underlying processes by which the events occur.
- 6 The classes of events used.
- 7 The comparison of one event to another in the same class. Is it truly coincidental?
- 8 The comparison of one class of events to another.
- 9 The meaning of idea frequency (probability) in this context.
- 10 The relation of actual frequencies to idea frequencies in this context.