

## PAPER B

### DESIGN OF A CLASSIFICATION SCHEDULE

(TRAINING IN  
LIBRARY SCIENCE 10)

S R RANGANATHAN  
A NEELAMEGHAN

Documentation Research  
& Training Centre  
Bangalore-3

Demonstrates the design of a classification schedule in an Analytico-Synthetic Scheme, using [1P] of (MC) Economics as the guinea pig. Discusses phased programme in classification design. Shows the application of additional sectorising digits when required.

[T] = Time Facet

T1 = Teacher 1

P1.....P7 = Pupil 1.....Pupil 7

#### 0 INTRODUCTION

We are now basing knowledge classification on a set of postulates. These postulates are of use both in classifying the subject of a document and in designing a scheme of classification. Designing a scheme of classification ultimately amounts to constructing the schedules for all the possible facets likely to be presented by subjects likely to arise out of each (BC) by attaching isolates to it. This should be done in respect of each (BC). In this paper we shall restrict the term "Design of Classification" to the construction of such schedules. In other words, we ignore, for the time being, the lay-out or the schedules of (MC), other (BC), and facets of (CI) of all kinds. The paper is based on the actual happenings in the class room of DRTC.

#### 1 CLASSIFYING

T1. We spent the first two months of this course on classification in the practical work of classifying, that is, in constructing the class number of a given subject. You classified according to the

#### CONTRACTIONS

- [1P1] = First Round First Level Personality Facet
- [2P] = Second Round Personality Facet
- (AD) = Alphabetical Device
- (AI) = Array Isolate
- (AIN) = Array Isolate Number
- (BC) = Basic Class
- (BF) = Basic Focus
- (CI) = Common Isolate
- [E] = Energy Facet
- (EI) = Energy Isolate
- (IF) = Isolate Focus
- (I) = Isolate Idea
- (IN) = Isolate Number
- (IP) = Idea Plane
- (IT) = Isolate Term
- [M] = Matter Facet
- [M1] = First Level Matter Facet
- (MC) = Main Class
- (NP) = Notational Plane
- [P] = Personality Facet
- [S] = Space Facet
- (SD) = Subject Device

nine steps associated with the Postulational Approach [E3]. According to this method, you first determined the (BC) of the subject. You then determined the Kernel Terms—whether explicit or implicit—in the name of the subject. Thereafter, you marked the Kernel Terms according to the five (FC)—PMEST—of one and only one of which each Kernel was a manifestation. You found that quite often there were two or more manifestations of each (FC). Then, with the help of the Principles for Facet Sequence [E4], you determined the Round to which each [E] belonged [E5]. Further, with the aid of the same principles, you also determined the Round to which each [P] and [M] belonged [E6]. Then you found that two or more [P] fell into the same Round. So also two or more [M] fell into the same Round. With the aid of the same Principles for Facet Sequence, you determined the Level of each [P] and of each [M] falling within the same Round [E2]. Similarly, you also determined the Levels of each [S] and of each [T] found in the last Round. This has been our pragmatic approach so far.

P1. - We have understood all this. We have also practised it.

## 2 DESIGN OF CLASSIFICATION

T1. - Let us next make an a priori approach. In this a priori approach, we shall not take up any particular subject and classify it. But we shall think of all possible subjects likely to arise by the attachment of various kinds of isolates to a particular (BC). What is the postulate on which the statement is based?

P5. - Consolidated Postulate about subject [E1].

T1. - These isolates are manifestations of any of the five (FC) occurring in any Round and in any Level. It is thinking of all possible subjects in this way that would help us in designing a scheme of classification. The pragmatic approach merely makes use of the schedules provided by the designer-- that is the classificationist. We now want to get a look at how the classificationist himself designs and

constructs schedules.

### 21 Status of Facet

T1. - In the pragmatic approach, we have acted on the implied assumption that facets belonged to a subject. They did not belong to a (BC). But at the heading of each chapter of "Part 2: Schedules" of CC, what do you find?

P5. - A Facet Formula.

T1. - What does this Formula consist of?

P1. - A Facet Formula consists of the (BC) and a succession of facets.

T1. - This produces the impression that the facets belong to the (BC). In loose language this leads people to speak of, say, the Facets of '(BC) Economics', the Facets of '(BC) History', and so on. This is a wrong expression. It implies a wrong idea. A Facet Formula merely indicates the possible facets which a subject, arising out of the (BC) concerned, may have. Thus, let us clinch the matter and remember it. A subject can present facets. It must have a (BC). It may also have any number of (IF). But the (BC) is nothing more than a single Facet--viz the Basic Facet of the subject. We cannot speak of the (BC) having (IF).

### 22 Two Uses of the Term "Facet"

T1. - There is another cause for loose thinking. This arises out of the term "Facet" being used to denote two different ideas.

221 The Term "Facet" as Applied to a Subject

T1. - When applied to a subject, what does the term "Facet" denote?

P1. - It may denote either the (BC) or anyone of the isolates into which the subject is analysed.

T1. - In this context, the term Facet may be taken to be a generic term to denote Facet Idea or Facet Term or Facet Number.

222 The Term "Facet" as applied to a Schedule

T1. - When applied to a set of schedules intended for use to classify a subject arising out of the attachment of isolates to a particular (BC), the term "Facet" means any one of the schedules in question. Each such schedule consists of a set of isolate numbers and their respective equivalent (IT). Behind each pair of (IN) and its equivalent (IT), lies the (II) represented by the (IN) and denoted by the (IT). Further, at the head of each schedule, an indication is given of the (FC) of which the isolates in the schedule are taken to be manifestations.

223 The Difference

P1. - Is the term "Facet" then a homonym?

T1. - Yes, exactly. In its first usage, the term "Facet" denotes either the (BC) or any one of the isolates of a subject - Isolate being the generic term to cover (II), (IT) and (IN). In its second usage, the term "Facet" denotes any one of the schedules of isolates given in a chapter or "Part 2; Schedules". In the first sense, the term "Facet" means a collection of many isolates, all of which can be regarded as manifestations of a specific Round and in a specific level, and each of which is eligible to be attached to the (BC) of its chapter, in order to get a subject. The isolates in each such collection are arranged in a systematic helpful sequence and are given their respective (IN) and (IT). They are ready for use. The collection is indeed a Schedule of Isolates. It may be recalled that the (AI) in each successive array within a facet, are derived on the basis of a single Train of Characteristics.

3 GENERALISED FACET FORMULA

T1. - In the a priori approach, the range of subjects arising out of a (BC) will have at one extreme the bare (BC) and at the other extreme a subject with any number of Facets which are manifestations of all the five (FC) in any number of Rounds

and in any number of Levels. The subject at the first extreme does not obviously require for its classification the help of any schedule other than that of (BC). For, its class is the (BC) itself. In this simple subject, no facet formula will arise. On the other hand, a subject at the other extreme will have to be represented by a facet formula such as the following:

(BC)  
 [1P1], [1P2], ... [1Pp1]  
 ; [1M1] ; [1M2] ; ... ; [1Mm1]  
 : [1E]  
 [2P1], [2P2], ..., [2Pp2]  
 ; [2M1] ; [2M2] ; ... ; [2Mm2]  
 : [2E]  
 ... ..  
 [xP1], [xP2], ... [xPpx]  
 ; [xM1] ; [xM2] ; ... ; [xMmx]  
 : [xE]  
 . [S1], [S2], ... ; [Se]  
 . [T1], [T2], ... ; [Tt]

This is the Generalised Facet Formula [P2].

P3. - Of what use can this be?

T1. - It enables you to comprehend the totality of the facets a micro-subject may have. You cannot comprehend it if you use ordinary words. The symbolic language, devised by us here, makes comprehension manageable. It makes also communication possible--with others as well as within oneself.

P4. - The comprehension of this formula itself is difficult.

T1. - Yes, I agree. But it is easier than the comprehension of the same in ordinary words (Laughter).

P1. - We have to accustom ourselves to the use of symbolic language.

P5. - We ought to, because, it leads to economy in thinking as well as expression.

31 Number of Facets

T1. - Well, you now count the number of facets contained in the Genera-

lised Facet Formula.

P4. - The number of facets will be

$$px + mx + x$$

T1. - Do you all agree?

P2, P3, P7:- That is correct.

P1. - No it should be:

$$P_1 + P_2 \dots + P_x \\ + m_1 + m_2 \dots + m_x \\ + x + s + t$$

T1. - Here, each of the numbers

$$P_1 \quad m_1 \quad x \\ P_2 \quad m_2 \quad s \\ \dots \dots \dots \\ P_x \quad m_x \quad t$$

may take any integral value quite independently of one another. How many will this amount to?

P6. - Very, very large number.

P1. - It may also amount to zero.

For, each of these digits may be given the value 'zero'.

### 32 Common Isolates

T1. - For the sake of definiteness and without loss of generality, we shall take the (BC) to be 'X Economics'. Will the isolates in each of the facets given in the Generalised Facet Formula be special to the subjects having Economics as the (BC)? Or do you think that the isolates in any of the facets will be common to subjects having any (BC) whatever?

P5. - [S] and [T] will be common.

T1. - [S] is a facet. So also [T] is a facet. Is it the facet that will be common? Or, is it any isolate in any of these facets that will be a common isolate available to be attached to any (BC)?

P5. - It is only the isolates that will be common isolates and not the facets.

T1. - What is the number of facets, each isolate in which will be a common isolate?

P6. - The number of such facets is:-  
s + t

T1. - Let us therefore exclude them in our further discussion about the designing of the schedules for "(BC) Economics". Can any one of you say why we may exclude them?

P7. - Because the schedules for [S] and [T] would have been constructed even before the construction of the special isolates for the different (BC) is taken up.

### 33 Special Isolates

T1. - Let us then confine our attention to the special isolates of "(BC) Economics". On the basis of the Generalised Facet Formula, what will be the possible number of schedules to be drawn for use in the classification of subjects having Economics as (BC)?

P5. - Each of the [P] [M] [E] will require a schedule.

P6. - Their total number can be written compactly as follows:

$$\sum_{n=1}^{n=x} \frac{n \cdot x}{n} + \sum_{n=1}^{n=x} \frac{n \cdot x}{n} + x$$

We have to recall that  $p_n$  is the number of [P],  $m_n$  is the number of [M] and  $x$  is the number of [E].

T1. - This can be a very large number. In designing a scheme of classification, will you construct all the schedules that may be required for any subject however complex and having Economics as (BC)? This is obviously difficult and impracticable. From your experience of practical classification how many facets do you find on an average in a subject?

P2. - Four or five facets.

T1. - Let us take it as 5 facets for macro-thought and 15 facets for micro-thought. Now, which would be the more pragmatic approach: To construct schedules which would currently be needed in classification work, or to construct schedules for all the possible facets implied in the Generalised Facet Formula?

P2. - The former method is more practicable.

T1. - P5 has said that each of the facets in a subject calls for a schedule. So, what is the total number of schedules needed for a (BC)?

P2. - This will be equal to the total number of facets we have assumed for macro-thought--that is, five facets.

T1. - Take chapter X of "Part 2: Schedules" in CC and count the number of schedules contained in it.

P2. - Three---viz [P], [M], and [E] cum [2P].

T1. - Is that all?

P1. - Four schedules -- [P], [M], [E], and [2P].

P5. - But "Specials" and "Systems" should also be taken into account as they are separate facets. In other words, they are separate schedules. That gives us six schedules.

T1. - Are you sure that there are no schedules hidden somewhere? Which particular facets are likely to give difficulty in this affair of hiding?

P2. - [R] and [M] give no trouble; "Specials" and "Systems" we have already taken note of.

P7. - [E] cum [2P] is tricky.

P3. - How?

T1. - What are the (IN) and the corresponding (IT) in [E].

P3. - (Writes on the black-board).

1 Consumption	5 Trade
2 Production	6 Financing
3 Distribution	7 Value
4 Transport	8 Management

T1. - Will you now write on the black-board the [2P] (IN) and the corresponding terms in the [E] cum [2P] schedule?

P3. - (Writes)

1 Consumption
16 Standard of living
17 Economic conservation
176 Saving

2 Production		
26 Cost of production		
27 Resource		
271 Natural		
272 Industrial		
28 Management of production		
etc	etc	etc

T1. - Now, score out the (IN) which represent [E].

P3. - (Scores the following out):

1, 16, 176, 2 etc.

T1. - How do you regard all these as Energy Isolates?

P3. - Because "16 Standard of living" is energy. Similarly "17 Economic conservation" is also energy.

T1. - If each of the whole numbers 16, 17, 176 are energy (IN), what is the [2P] part of these (IN)?

P7. - All the one's in the first block and all the two's in the second block alone should be scored out. They alone represent the [E] part in the (IN).

T1. - Read out then the [2P] (IN) in the two blocks.

P3. - The (IN) 6, 7, 71, 72, 8 in block one and the (IN) 6, 7, 71, 72, 8 in block two are the (IN) in [2P].

T1. - Now examine carefully this [2P] part alone in each of the blocks. Wipe out the [E] (IN) as well as the [E] (IT) in each block. Write out only the [2P] schedule in each block. Compare the resulting schedules.

P3. - (Does as directed).

T1. - Is the schedule of [2P] for (IN) 1 in [E] the same as the schedule of [2P] for (IN) 2 in [E]? Or, are they different?

P3. - No. They are not the same. They are different.

T1. - Therefore, do you see that each (IN) in [E] calls for a separate and distinct schedule for its own [2P]? This means that each [2P] schedule, attached to the respective (IN) 1, 2, 3 etc of [E], should be counted as a different schedule. Now

find out the total number of schedules.

P2. - Twelve.

T1. - Have you taken note of all the schedules of [2P]? Will you read out the first and the last (IN) for each of the [2P] schedules?

P2. - (Reads out).

T1. - That gives seven schedules of [2P] alone up to (IN) "8 Management" in [E]. What about the schedules headed by the words "more concrete sector", "still more concrete sector", etc?

P2. - These give another seven more schedules.

T1. - Then, the total number of schedules you have counted so far is nineteen including "Specials" and "Systems", (Checks the CC schedules in part 2: Chap X for Economics). What about the [1P2] schedules for the isolate, "62 Banking", and "72 Taxation" in [P]?

P5. - The total number of schedules will then be 21.

T1. - You see that there are 21 schedules in CC for classifying a macro-subject having Economics as its (BC) although the facet formula given at the head of the chapter indicates only three facets. We had at the beginning agreed that for a macro subject, five facets will be sufficient. While you were correct about the number of facets in the subject, you were wrong in regard to the number of schedules in the chapter. You now realise that the number of facets in the facet formula given at the head of the chapter is not a true measure of the number of schedules given in that chapter.

#### 4 VARIATIONS IN THE NUMBER OF SCHEDULES

T1. - Now, tell me, should the number of schedules vary with the scheme of classification for the same (BC)?

P5. - The Universe of Knowledge "Economics" requires 21 schedules to comprehend fully the concepts in that universe. The number of schedules, therefore, should

not vary with the scheme of classification.

#### 41 Mischief of the (IP)

T1. - You mean that the (NP) has only to carry out the findings of the (IP). If the five facets in Economics require 21 schedules, this is due to the mischief of the (IP), and (NP) has only carried out the finding of the (IP).

P6. - Actually, the mischief is done by the classification scheme.

T1. - How?

P6. - Each classificationist understands or comprehends the Universe of Knowledge "Economics" in a certain way and accordingly constructs schedules for classifying that universe. Hence, the number of schedules will vary with the classificationist.

T1. - Probably I have failed to communicate to you adequately what I meant. I repeat that the mischief of calling for 21 schedules for classifying macro-subjects in Economics is created by (IP) and the (NP) has only carried out the finding of the (IP). The classificationist does not come into the picture. You are, therefore, talking outside the universe of discourse. It would be best if you will write out the propositions on the black-board.

P6. - (Writes)

- 1 The "mischief" is calling for 21 schedules in the chapter on Economics.
- 2 "21 schedules" means "21 sets" of (II).
- 3 "Isolate ideas" arise in the (IP) and not in the (NP) or in the classification scheme.
- 4 A classification scheme merely provides the (IN) required to represent the (II) represented by the respective (IT).
- 5 Therefore, the mischief has been created by the (IP) and not by the scheme.

T1. - In these propositions, the classificationist does not figure at all. If classificationist A constructs 10 schedules

and classificationist B constructs 15 schedules in the chapter Economics, it affords only a comparison of the comprehensiveness and the sufficiency of the two schemes and does in no way affect the findings that in the (IP) the chapter Economics requires 21 schedules. Therefore, when we say that Economics requires a certain number of schedules, it is the (IP) which calls for that many schedules. Hence the mischief is created by the (IP). In constructing the 21 schedules for Economics, the classificationist tries to represent in the notational plane the findings of the (IP). He is not thrusting into the chapter 21 schedules of his own free will or whim. If another classificationist provides only 10 schedules in his scheme, his scheme is defective. It cannot stand up to the demands of all the subjects having Economics as (BC).

P6. - I now follow the argument.

#### 5 CASE STUDY IN DESIGN

T1. - We shall now consider the steps in the construction of a schedule of classification for a subject. We shall take as a specimen a subject with Economics as its (BC). We have seen that the 21 schedules of Economics take care of [P1], [M1], [E], and [2P]; [2P] repeats a number of times—that is, different [2P] schedules are needed depending upon the (IN) in [E]. Therefore, [2P] is a differentiated facet. We may summarise what we have discussed so far by saying that, with reference to CC or any other scheme of classification, there is need for a schedule each for [P1], [M1], [E], and separate [2P] schedules for each isolate in [E], for the classification of a subject with Economics as (BC). Of these schedules, which do you think will be most frequently used in classification?

51 Choice of Facet for Case Study

P1, P2. - [E] cum [2P] schedule.

T1. - Which is the most complicated for construction?

P2, P7. - [E] cum [2P] schedule.

T1. - Which is considered straight-

forward and simple schedule?

P5. - Systems and Specials.

T1. - Which comes next in respect of complication?

P5. - [1P1] schedule.

T1. - As a first step in the construction of the schedules, you will then naturally take up Systems and Specials, and [1P1], these being the easier ones. [2P], which is a differentiated facet, depends upon the (IN) in [E]. Viewed from the (IP), which is more wanted and comprehensible—[1P1] or Systems and Specials?

Participants. - Systems and Specials.

T1. - No. [1P1] is more wanted. It represents the favoured system. Literary warrant is greatest in the favoured system. This virtually means that it is greatest in [1P1]. On the other hand, literary warrant is very small in Systems and Specials.

The schedule of (CI) for [S] and [T] would have already been constructed for the scheme as a whole. Work is also under way to construct a schedule of Common Energy Isolates, applicable to any class. Special Energy Isolates needed for specific subjects would then be few and can easily be worked out with the aid of Seminal Mnemonics. Schedule of Common Matter Isolates applicable to all classes can also be drawn up. When this is done, Special Matter Isolates required for specific classes can also be easily arrived at. Similarly, Common Personality Isolates can also be drawn up for subjects belonging to any (BC). But the isolates in [1P1] will be different for different (BC). They will change from basic subject to basic subject. Also, in each basic subject fresh isolates will be required to accommodate subjects arising as a result of the expanding Universe of Knowledge. Therefore, the isolates in [1P1] will be the most numerous and the most important ones for enumeration. We shall proceed array by array in the construction of this schedule. Which array will you take up first?

## 52 Array Isolates of Order 1

## P3. - Array of order 1.

T1. - We should do it in the (IP), Verbal Plane, and (NP). We shall now work out the (AI) of order 1 in a subject with Economics as (BC). What does it mean to work out (AI) of order 1?

P1. - It means naming the isolate of the array and arranging them.

T1. - In other words, it means finding out the isolate terms and arranging them in a particular sequence. Naming is inseparable from the (IP). Each cultivated mind thinks out the isolates in its own way. I shall try this on you.

## 53 Demonstration of Ranking

[Each participant was asked to name (on separate slips) and rank the ten top men of India today. The slips were examined and each participant was asked as to what characteristic he had chosen to rank the entities (i.e. top men). The characteristics chosen by the participants were not the same. Some had subject of specialization as the characteristic, others chose position in Government, still others had mixed characteristics. Hence, more than fifty per cent of the names suggested were different with each participant.

Each participant was then asked to rank the ten important subjects. There was little difference among the participants in the preferred subject ranking. Because of the differences of opinion in the ranking of top men, it was necessary to combine the two characteristics—top men, and subject—to get a better consensus of opinion, a ranking of names that is more stable and represents the preferences of the majority of the participants.]

T1. - From this small experiment on seven cultivated minds, you note how opinion differs and how the different opinions can be reconciled statistically so that the preferences of the majority can be represented in the final choice. Now, in assigning a certain sequence to the isolates in a

schedule of classification, we take recourse to certain general principles which help us to recognise the various helpful sequences.

## 54 Reduction of a Region of Knowledge to a Finite Universe

T1. - What does the general process of classification imply?

P5. - The Universe of Knowledge is divided into a number of (BC). A (BC) can be further divided into facets by trains of characteristics. (BC) will then be the universe for division and the facets will be the classes which result from that division. We can take each facet as the universe for further division by a train of characteristics and the isolates thus obtained would be the entities of that universe.

T1. - You see that the process of division is exactly similar when you take the Universe of Knowledge as a whole for sub-division or a (BC) or even a facet. Therefore, all that is said for the general theory of classification is applicable to the division of (BC) or a facet. As a general statement we may say that the general theory of classification, which is developed for the classification of a finite universe, can be extended to the classification of an infinite universe. In schedule construction the universe concerned with is one or the other of the universe of isolates which we call a facet. At a particular moment, we can take it that the entities of such a universe are finite. In other words we can assume that the Universe of Knowledge of the past, the present and to a reasonable extent, the future to be virtually finite. Then, all the results in Part 1 of the Prolegomena are applicable to the universe of isolates, divisions, or classes.

Now what does the construction of a schedule in [IP1] imply?

P4. - It implies application of a train of characteristics for the division of the universe concerned. We have to find out the (AI) and rank them.

T1. - What is the principle on which you would rank them?



P5. - The arrangement should be helpful.

T1. - I would say that ranking implies arrangement of the isolates in a definite helpful sequence. It is not a random arrangement.

P7. - It is difficult to have a definite arrangement of the Universe of Knowledge.

T1. - It is indeed difficult when you consider the entire Universe of Knowledge including that of the entire future. You cannot name all the (A1) in that universe.

#### 55 Sensing of Helpful Sequence

But in respect of a finite universe you can have a particular helpful sequence. And, for our particular purpose we have taken the universe to be finite. In fact it is the recognition of this helpful sequence that is the most important and the first step in the ranking of the isolates. This sense of helpful sequence should be dominant in your mind. It is a way of finding out what helps us in the construction of a helpful schedule of classification.

#### 56 A Demonstration

For instance, when you are asked to name the important railway stations between Bangalore and Madras, you would say, Cantonment, Bangarpet, Jalarpet, Katpadi, Arkonam. Here, what makes you to name in this sequence?

P5. - I have in mind the gradual increasing distance between the station named and Bangalore.

#### 57 Principle of Helpful Sequence

T1. - You see, a particular principle helps you to name the entities involved. It is a principle which is dominant in your mind and it helps you to name the stations in a helpful sequence. This is true of ranking the isolates in any schedule also.

There may be several ways of ranking the isolates. In certain cases, a certain sequence may be more helpful than another type of sequence. When you have

recognised the various methods of arrangements, you can draw up certain general principles which indicate the pattern of each arrangement. These principles generally help us in schedule construction. When we have dealt with such cases which are amenable to these patterns of arrangement, difficult cases will yield easily.

In establishing (A1) of order 1 you simultaneously name the isolates and rank them. Of these two processes, ranking--arranging in a definite helpful sequence--should come to the mind first, as it happened when you named the stations between Bangalore and Madras. Let us apply this process to the construction of the schedule of [IP1] for the (BC) Economics. What are the principles available to you for arranging the isolates in a helpful sequence?

P1. - (Writes on the black-board)[C]

- 1 Increasing quantity
- 2 Later-in-Time
- 3 Later-in Evolution
- 4 Spatial Contiguity
- 5 Bottom-Upwards
- 6 Left-to-Right
- 7 Away-from-Position
- 8 Clock-wise
- 9 Increasing Complexity
- 10 Canonical Sequence
- 11 Literary Warrant
- 12 Alphabetical Sequence
- 13 Increasing Concreteness
- 14 Increasing Artificiality

T1. - Of these 14 principles which would you resort to last?

P5. - Alphabetical Sequence.

T1. - Why?

P5. - Because it is not often the most helpful sequence for arranging subject.

T1. - The next two principles you would choose for application last would be Literary Warrant and Canonical Sequence. Principles 1, 2, and 3 are based on pre-determined conditions. You have to exercise your judgement in the choice of the remaining eight principles only. Try to

apply these principles to the schedule of Economics. [IP1] being the core and the most concrete part of the subject, we shall for the present apply the principles to the construction of (AI) of order 1 in [IP1]. Having got some principles for ranking the isolates, you must now find out the possible isolates in [IP1] of the subject with Economics as its (BC). How will you get at these isolates?

#### 6 MAP OF ECONOMICS

P7. - We have to map out the concepts in the subject Economics.

T1. - Yes. For that you must know what the subject Economics is concerned with. You must look up a good dictionary for definition of Economics.

P7. - (Reads out from Webster's New international dictionary). "Study of the way in which groups of people use resources to satisfy their wants."

T1. - We may then say that the subject Economics deals with the satisfaction of human wants with the aid of resources—services and commodities. Briefly the subject of study in Economics is about wants of man. Therefore, what should be the first isolate in [IP1] of Economics?

#### 61 Starting Point-'Want'

P5. - Want.

T1. - Want is inherent in man. Is it a concrete or an abstract concept?

P1, P4, P7. - It is an Abstract Concept

P2, P3, P6. - Doubtful.

P5. - It is a Concrete Concept.

T1. - How? You remember that only if you have for a concept in the (IP) a correlate outside the skin, we say that it is a Concrete Concept.

P5. - Because there is food, hunger is stimulated in us. Probably if no food is available, the human organism may adjust itself and may not feel hungry at all.

T1. - This is a mis-understanding of the term "correlate" outside the skin. For

instance, for the concept 'Tree' in the (IP) there is an object outside the skin with which our concept of the 'Tree' in (IP) can be correlated. On the other hand what is the correlate to 'Want' outside the skin?

P5. - Nothing. I now understand it. Now let us try to arrive at the isolates in [IP1]. What does the concept 'Want' make us think of?

P6. - Satisfaction of that want.

#### 62 Next Isolate-'Resources'

T1. - The concept 'Satisfaction' makes us think of 'With what shall the Want be satisfied?' That is, we think of the resources that satisfy the want. Now, check the principles you have just listed and tell me which is the principle you would apply in ranking 'Want' and 'Resources'.

#### 621 Ranking by the Principle of Later-in-Evolution

P6. - The principle of Increasing Concreteness.

T1. - No.

P3, P6, P7. - Later-in-Evolution principles.

P2, P5. - Later-in-Time principle.

T1. - How would you apply Later-in-Time principle here? Which concept is earlier in time—'Want' or 'Resources'? You must beware of the fact that the evolutionary sequence and time sequence run parallel to some extent and at a certain stage they part. To get a clearer idea of the two principles, consider the example:

- 1 Mosquito born today; and
- 2 A human baby born yesterday.

The mosquito is Later-in-Time as compared to the human baby in respect of its arrival in this world. But it is earlier in terms of evolution as a species of living organism. On the principle of Later-in-Evolution, which would now come first—'Resources' or 'Want'?

P6. - Want.

## 63 Isolate 3 - 'Communication'

T1. - What comes next to our mind?

P5. - The Resources that satisfy the Want.

T1. - In determining these Resources, you should think of a human society which is much less complicated than it is today. In the early days when the social organisation was a much simpler affair, what we would now consider as raw materials, say fruits, roots, milk, fish, and meat, (out of which a usable commodity is made) themselves would have been the consumable commodity. When a certain consumable commodity, say food, had been discovered by someone, he would normally communicate this information to his group so that the commodity can be procured for the use of his group. What does that imply?

P5. - It means communication of the information.

T1. - Yes. "Communication" is the next concept to evolve.

## 64 Isolate 4 - 'Transport'

When the commodity or the resource has been located, it may have to be brought to the dwelling. This implies, naturally, transport of the commodity. The means of transport of the commodity, may be anything from one's own back to a jet-plane. Therefore, 'Transport' is the next isolate to evolve.

## 65 Isolate 5 - 'Commerce'

There may be some commodity which you cannot get at all or is not available in sufficient quantity in your locality. There may be, on the other hand, an abundance of certain other commodities in your locality. To obtain commodities in short supply, those commodities which you have on hand in excess may be exchanged with other parties. What does that lead to?

P1. - Trade or Commerce.

T1. - Commerce, thus, is the next (A1) to evolve.

## 66 Isolate 6 - 'Credit'

In due course, the values of commodities exchanged may be reduced to a Common Denominator. Thus the concept of 'Credit' or 'Money' is the next stage in evolution of Economics.

## 67 Isolate 7 - 'Public Finance'

Control of the exchange and distribution of money by organised society is the next stage in the evolution of Economics. What does that mean?

P5. - Public Finance.

## 681 Isolate 81 - 'Insurance'

T1. - Public Finance may fail in certain cases and create inequalities, including inequality due to incidence of disasters. This necessitates protection against them. Such protection is secured by the device of Insurance which amounts to the distribution of the effects of disaster suffered by a person or small groups of persons over a larger, if not the entire section, of the community.

## 682 Resulting Schedule of Services

Thus, taking the evolutionary sequence of the development of the concepts in Economics what will be the ranking of the isolates in [1P1] of a subject with Economics as (BC)?

P6. -

- 1 Want
- 2 Resources
- 3 Communication
- 4 Transport
- 5 Commerce
- 6 Money (Credit)
- 7 Public Finance
- 81 Insurance

P5. - In the present CC schedule 'Want' and 'Resources' are not given as isolates.

T1. - Yes. But when I drew up these schedules I had left numbers 1 and 2 blank. God knows why? Now you can insert 'Want' and 'Resources' against these numbers conveniently.

P5. - We see that in arriving at the [A] for the schedule Economics you have applied the Later-in-Evolution principle though it is not obvious from these schedules.

T1. - You will also notice that we have so far named only the 'Services' that satisfy human wants. As a convention we treat both Commodities as well as Services, as of equal importance in satisfying Want. Having got the names of services what would the next step be?

#### 683 Commodities

P1. - We should now spell out the other Resources in detail.

T1. - This is exactly what is done in '8(A) Industry'. The term 'Industry' actually means economics of specific industrial resources or commodities. Canon of Currency requires us to use the term 'Industry'. Instead of 'Commodity'.

P7. - Why not we use the term 'Applied Economics' instead of 'Industries'?

T1. - The term 'Applied Economics' includes Services also. After 8(A) we should have only names of specific industries.

#### 7 USE OF 8 AS SECTORIZING DIGIT

P6. - In the first order array, the digit 8 is not used for any isolate term. Array of order 1 begins with "81 Insurance".

T1. - Here, a new sector is opened in zone 2. These are reserved for services. We have not named all the services. There are a large number of other services to be accommodated. You will observe this if you examine the Library of Congress schedule for Economics.

P5. - Why is 8 used as a sectorizing digit?

T1. - There is a useful trick in this. Can you tell me?

P6. - 9 is the usual sectorizing digit.

T1. - Yes, the sectorizing digit 9 in

zone 3 is reserved for 'Specials' which are usually obtained by enumeration, mnemonics being applied, to a certain extent, to obtain the divisions. For example, X9W Public Utility. But (SD) is not used in 'Specials'. You have noted that we need 'Specials' in Economics. The first claimants for zone 3 are 'Specials' and 'Systems'. We need (SD) to spell out the Industries. But if we use X9(A), X9(B)... for Industries, the various industries will come after the Specials namely 9A, 9B etc. Thus Commodities and Industries will be separated out, the Specials coming in between them like a wedge. It will violate the Canon of Filiality Sequence of Coordinate Classes [P1]. Also, we have to accommodate a large number of Services in 8. For these two reasons 8 has been set apart as an additional sectorizing digit. It opens up several sectors -- 81, 82... 88; 891, 892... 898; 89A, 89B... 89Y; 8A, 8B... 8Y; 8Z1, 8Z2... 8Z8; 8ZA, 8ZB... 8ZY; 8(A)... 8(Y); 8(1); 8(2)... 8(A); 8(B)... 8(Y). All this has been made possible by taking 8 as an additional sectorizing digit in [1P1].

#### 71 Advantage of 8 as a Sectorizing Digit

P5. - Why not use 91, 92.

T1. - The (AIN) according to your suggestion will be 91, 92... 991, 992... but you must stop short of 9A, 9B... because 9A, 9B... stand for 'Specials'. On the other hand if you use 8 as the sectorizing digit we have for the (AIN) the entire set 81, 82... 8A, 8B... 8(A), 8(Z)... This set is certainly larger.

We cannot as yet guess the future developments in [1P1] of Economics. It is possible that we may not be able to accommodate all the services in 91, 92... I had therefore used 81, 82... for this purpose.

P5. - Are we going to leave the sectors 91, 92, ... 991, 992 fallow?

T1. - Not necessarily. We may have some use for it.

P5. - Why not then declare 8 also as a sectorizing digit?

T1. - No, it is dangerous. One would

be tempted to declare any digit as sectorising digit. To treat any digit other than the last one of a species as a sectorising digit should be done in very special cases only, even then with great circumspection, and with sufficient reason as we have just seen in the case of 8 "Services" in [IP1] of Economics.

### 8 AIDS TO DESIGN WORK

Summarising, our approach to the naming and ranking of (AI) for a subject with Economics as (BC), we find that the various principles are only general helpful guides. What is needed further is a fairly good grasp of the subject itself and a flair—some sort of sixth sense of designing—to sense which isolate, goes into which sector, and an idea of telescoping to shorten the length of the (IN). My construction of the schedule for Economics was not exactly a matter of intuition; it was more allied to intellection. The superior intellectual ability which we call flair may be alright in the construction of a schedule of classification of macro-thought. But for Depth Classification of micro-thought, flair by itself may not be sufficient in all cases. What we need is operational research to find out the pattern or lay-out of development of various subjects. That will help us to choose the most helpful pattern which will meet future demands on the classification of those subjects.

#### 81 Phased Programme in Design Work

The design of a classification schedule depends on a phased programme. It should be phased in such a way as to be able to meet the present and as much of the future needs as practicable. A phased programme does not mean destruction of existing schedules. The master plan should be based on such principles and designed in such a way as to be flexible enough to meet future needs without damaging the existing structure. The classification should be invested with the capacity for a phased programme in the designing of the schedules.

Do you think that the capacity of a once-for-all programme and that of a

phased programme will be the same? Let us call the first type of programme as A and the second type B.

P2. - A's capacity will be greater.

P3, P6, P7. - B's capacity will be greater.

T1. - I must say that the boundary condition to the question is "At any time one should not design more than whatever is necessary and sufficient for the time being alone."

P4. - The capacity of B will be greater.

P5. - What is meant by capacity?

T1. - Capacity stands for designing capacity.

P5. - Then B will have greater capacity.

T1. - A phased programme requires greater capacity. Greater capacity means

- 1 Mental capacity to handle longer programmes; and
- 2 Greater knowledge of knowledge of successive phases of the programme.

Capacity in sense 1 is purely a native quality in the classificationist. To some extent this quality can be cultivated.

Capacity in sense 2 implies ability to foresee the data likely to arise in the successive phases. The data will change from time to time. The capacity to sense the change is called "Statesmanship" in common parlance. It is called "Deerga darsan" in Indian terminology. Capacity in sense 2 helps the classificationist to:

- 1 Beware that things are not static, but will change; and
- 2 Sense the possible direction of change in the quality and quantity of data.

This analysis of design work leads to the following principles in the construction of a schedule of classification:

- 1 The design of (CI) schedules can be done more completely, than any of the other schedules, at any time.

- 2 The Personality Isolates change from subject to subject and in a subject from time to time. The [P] schedule will have to be drawn up for each subject and may need augmentation from time to time, and even redesigning occasionally. Designing capacity in sense 2 further directs that
- 1 [1P1] schedule should be done fairly thoroughly with provision for inter-polation and extra-polation to meet present and future requirements of the expanding Universe of Knowledge.
- 2 There should thus be a recognition of the need for adding to the isolates in [1P1] in the further phases of the programme. These schedules are not designed all at one time, but should be added to as and when the need is felt, i.e., when the literary warrant suggests.

In order to make the master plan of the scheme adequate to meet all the present and as much of the future needs as practicable without the necessity to redesign from time to time, the nature of the Universe of Knowledge, its development and structure should be thoroughly studied in respect of the (BC). We have seen that when graphically represented the development of the Universe of Knowledge presents alternating peak and trough periods, although the rate of development itself is gradually rising. In the study of the Universe of Knowledge with special reference to the design of classification it is essential to spot out the peak and trough periods. During the peak period, though comparatively short in duration, new seminal ideas are put forth which may result in certain basic changes in the structure of knowledge. During the comparatively longer trough period, however, although there is accumulation of facts and application of the seminal ideas of the preceding peak period, the

changes in the structure of knowledge will not be so violent. If the design of a classification schedule is sound in the phased programme there will be no need to alter the master plan in the current trough period in any (BC). An ideal master plan should be able to tide over the end of a trough period and the beginnings of the next peak period as well.

Classification schemes as late as 1900 were not able even to meet the first condition. UDC brought in the 'facet' concept. This concept is still in maturing process. We have not fully exploited its capacity.

The General Facet Formula (See Sec 3) given by the Indian School, is the nearest approach to the ideal master plan for meeting the needs of the trough periods and milder peak periods. The present facet pattern and facet formulae are able to cope up with the disturbances of average intensity. The more violent disturbances dislocate the filiiatory sequence and violate the Canons of Filiiatory Sequence. Future work should be directed to the designing of a master plan which will be able to stand the violent disturbances in the peak periods as well.

Now, to sum up, it is best to begin with the construction of the schedule for [1P1] of (AI) in order 1. The (AI) should be drawn up with the help of Principles of Helpful Sequence (See Sec 57) and the various devices. Certain modifications may be necessary in the later phases of the programme.

The same methodology is to be used for (AI) of higher order, treating each (AI) of the preceding array as the immediate universe. As an example of the latter process let us construct the schedule of (AI) for focus 1 Want of (AI) of order 1 of [1P1].

First let me ask our Economics friends whether the term 'Want' is a proper, accepted term.

P7. - Do you mean whether the term is current? If so, yes, 'Want' is a term currently used in Economics.

T1. - What about the term 'Consumption'?

P7. - If I go to the market and buy something, it is for Consumption.

T1. - Would you please find the definition of Consumption in the World book encyclopaedia?

P6. - (Reads out the definition) "... in economics means the use of goods and services for the satisfaction of human wants."

T1. - It is a good definition. For our purpose, Consumption means 'Satisfaction of a Want'. We have seen earlier that there is a chain of Services and Commodities which man needs to satisfy his wants. Similarly, there is a chain of Consumption too.

Now, to decide the sequence of Resources, Want and Consumption, you should apply one of the principles of Facet Sequence. Here, the principle Actand-Action-Actor-Tool, is almost obvious.

P5. - Actand is Resources; Action is Consumption; and Actor is Man.

T1. - There is only one Actor involved and that is man. It is not necessary to represent the Actor in the Class Number, just as we need not call our parents by their names. We have short names for them. It is not merely a question of endearment. The frequency with which children have to call their parents, necessitates that we have very brief and easily pronounced names for parents. Law of Parsimony is in complete agreement with this ethical tradition. In fact, most ethical principles are based on fundamental laws, such as Law of Symmetry, and Law of Parsimony. Now what are the (A1) of order 2 having the isolate 1 Want in the array of order 1 as their immediate universe.

#### 91 Quality as Characteristic

P5. - The sub-divisions are Necessaries; Comfort; and Luxury.

T1. - These sub-divisions are based on quality as the characteristic. These

types of Want are not permanent but depend on the context of time and environment. However, there are certain basic Wants which are necessities at all times; there are other Wants which will be Luxuries at all times; the confusion is in regard to 'Comfort'. It is better we write down our findings so far.

P5. - (Writes on the board)

- 1 Want
- 11 By quality
- 111 Necessaries
- 113 Comfort
- 114 Luxury

T1. - 'Necessaries' being basic, we assign it the digit 1; Luxury implies waste, so we assign it, the mnemonic digit 4. You have the Numbers 2 and 3 in between to accommodate Comfort. Which will you choose?

Participants. - 3

T1. - Why?

P5. - The number 3 represents normal function. Comfort has something to do with normal functioning of a system.

T1. - Are there any other characteristic for division of Want?

#### 92 Social Group as Characteristic

P5. - Want can be classified as Individual, Family, Group, Community, Zonal, Natural, International etc wants.

P6. - These seem to be demographic divisions.

P2. - Wants can be grouped by Age and Sex.

T1. - Actually it would amount to dividing by social groups. Social groups can be divided as in [IP] of Y Sociology.

#### 93 Time as Characteristic

T1. - Can you think of any other characteristic which is particularly relevant to Economics? I will give you a further suggestion—can Want be divided by Time?

P7. - You mean something like Wants

of the 16th Century, Wants of the 17th century, etc?

T1. - That is only addition of Time Facet. It is not a division of Want based on a characteristic with a stronger 'bond' to Want.

P5. - Can we classify Want as Immediate Want, Deferred Want, Posterity Want etc?

T1. - Yes, exactly.

P7. - I doubt if Want admits of such a division.

T1. - Yes, it can be divided, as we shall presently see. Let us write down all the divisions we have got so far. What is the mnemonic digit for social group?

P5. - Seven.

T1. - Yes. What are the divisions?

P5. - (Writes)

17 By social group

171 Individual

172 Family

(Further divisions as in  
[1P1] of Y sociology)

T1. - What is the mnemonic for Time?

Participants. - [No reply for a few minutes]

TJ. - Mnemonics have to become part of your mental working process. You have to live with them. There is no short cut. At least look up the CC schedules and see if any number is suggestive.

P5. - I shall put down 6.

T1. - That is right. Now, what are the divisions by Time factor?

P5. - (Writes)

16 By time factor

161 Immediate want

163 Deferred want

166 Posterity want

T1. - By what terms would you denote these three types of Want? What is the term for immediate want, say, want for the next ten years?

P5. - We call it Saving.

T1. - Yes.

P6. - Can the terms be Spending, Saving and Hoarding?

P5. - These correspond in a way, to effects created by Want. Can the cause be taken for the effect and vice-versa?

T1. - These kinds of Wants are dependent on man's emotions. For instance, Posterity want is filial emotional Want.

P6. - Spending, Saving and Hoarding, which are based on emotion are they not methods of satisfying Want?

T1. - No, for instance, to satisfy old age Want we have Provident fund, Pension, Insurance etc. Is there any other characteristics by which Want can be divided?

94 Standard as Characteristic

P1. - By environment?

T1. - Is not that taken care of in Y Sociology? You will find it in the schedule. I will give you a clue in regard to another characteristic for sub-division. We often judge a nation by the number of telephones or radios in use, amount of cloth consumed, and so on.

P5. - You mean by Standard of Living?

T1. - Yes. Another quasi-isolate, therefore, is Standard. What is the mnemonic digit for it?

P5, P6. - 5

T1. - Standard can be of various levels.

P5. - Low standard, Normal and High.

P6. - These are, of course, relative terms in common usage.

T1. - So we have to provide for them in the schedule. Let us have the complete schedule for want.

95 Schedule for Want in Full

P5. - (Writes)

1 Want



- 11 By quality
- 111 Necessary
- 113 Comfort
- 114 Luxury
- 15 By standard
- 151 Low
- 153 Normal
- 158 High
- 16 By time factor
- 161 Spending
- 164 Hoarding
- 165 Saving (Capital formation)
- 166 Posterity
- 17 By Social group
- 171 Individual
- 172 Family  
(Further sub-division as in  
[1P1] of Y Sociology)

## 96 Examples

T1. - Construct the Class Number for National Saving.

Participants. - X165-1738.

P7. - When should we use Phase Relation and when Superimposition?

T1. - Rules for Superimposition Device make this clear. Construct, for instance, Class Number for "Savings influenced by national needs."

P1. - X165 Qr 1738

T1. - Arrange the two numbers you have constructed.

P1. - X165 Savings  
X165 Qr 1738 Savings influenced  
by National needs.  
X165-1738 National savings.

## 97 Division of Resources

T1. - Similarly, you can work out the isolates for '2 Resources' in [1P1] of Economics. What are the possible isolates?

P1. - We can have

- 2 Resources
- 21 Natural resources
- 22 Near-natural resources
- 23 Service resources
- 26 Industrial resources

P5. - But Natural resources may come under Agricultural Resources, Animal Resources etc. There will then be cross classification.

T1. - Are not Agricultural Resources, Animal Resources, etc, taken care of by X8( )? To avoid cross classification what will you do?

P5. - We should not have any sub-division in 21. Only documents treating of Natural Resources in general will be assigned this number. Particular types of Resources will receive class number in X8( ).

T1. - Yes. Now, there is a very important Resource which you have overlooked. Its potentialities have been fully recognised in the last one or two decades only. This is Human Resources. In placing Human Resources in its proper sequence in the schedules it should not get mixed up with other 'Resources'; Secondly, among the various concepts of Resources, it is the latest to evolve. Where will you then place it?

P5. - To satisfy the first condition we can place Human Resources either at the beginning, that is, at 21 or place it at the end after 8(Z)—that is, at 91, 92 etc.

P1. - Since we have applied the Principle of later-in-Evolution in the ranking of isolates in [1P1], we should place Human Resources in 91, 92... because it is the latest concept to evolve.

T1. - You will recall that earlier you questioned the advisability of leaving 91, 92... fallow (Sec 71). Now you find that Human Resources can be conveniently fitted in that sector.

P1. - What will be the divisions of Human Resources?

T1. - Human Resource is 'Labour Resource'. So the isolate in Human Resources will be the same as those we now have in [2P] after the (E1) 9 'Labour'. Our concept of Economics was not clear in the earlier years 'Labour'—that is, 'Human Resource' was treated as an isolate in

[2P]. From Human Resources we draw 'Labour' (used in the general sense and not in the restricted sense of manual labour). The isolate '9 Labour' in [E] really denotes 'Personnel Management'. This is an (E1). But the isolate '91 Human Resource' is a (P1) in round 1 itself. Documents dealing with Personnel Management cannot be put here. It is only other studies of Human Resources that will have to be accommodated in 91. This distinction is now very vague and nebulous. It needs further investigations. What has been stated above is not the only cause for uncertainty in the place to be given to 'Human Resources'. Another claimant for it is just appearing in the horizon within the region of Sociology.

P5. - Who is that?

T1. - That claimant is called 'Demography'. It started with the statistical study of population as to births, marriages, deaths, health, etc. It originally confined itself to physical conditions. But now it is extending its sphere to the intellectual conditions, intellectual stratification, and even to the use of the 'Human Resources' by society. The investigation about the plac-

ing of 'Human Resources' in a scheme of classification should take this newly emerging factor also into consideration.

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