COMPOUND SUBJECTS IN BIOLOGY AND AGRICULTURE: A Quantitative analysis of facets.

M A Gopinath, Harishankar Chakravarty* and V Rama-devi* *Documentation Research and Training Centre, Indian Statistical Institute, 31 Church Street, Bangalore 560 001.*

Presents quantitative data on the facet analysis of compound subjects in the field of Biology and Agriculture. The sample for study is drawn from the annual volumes of British National Bibliography. It is found that there is an increase in the complexities in facet dimension and speciator-dimension in the compound subjects in 1981.

1 Introduction

Development in the Universe of subjects has to be assessed from time to time in order to design and develop vocabulary control device such as classification schemes, subject headings and thesauri. In particular, it is necessary to collect data on the incidence of facets and speciators incident in the compound subjects. For this purpose, it is necessary to investigate on the following aspects:

1. The number of facets in each of the subjects go in with a basic subject;

2. The frequency of incidence of different kinds of facets; and

3. The sequence of the facets helpful to the majority of the speciators in the different subject fields.

2 Scope of the paper

In this paper, quantitaive data on the incidence of facets and speciators in compound subjects of natural sciences namely Biology and

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* Students of DRTC course (1982–84).

Agriculture were collected and faceted analysed. The data is collect-
ed for the two time epochs 1961 and 1981. Purpose was to find the
changes incident in facet structure of compound subjects in Biology
and Agriculture. Further, the scope of documents selected for analy-
sis is restricted to English language books listed in the annual
volumes of the British National Bibliography for the years 1961 and
1981. The method of analysis of the subjects is as suggested by
Ranganathan (1).

3 Data consolidation and presentation

The data obtained from the facet-analysed compound subjects in
sample were consolidated on the following basis:

1. The number of facets incident and the number of documents
    in each group;

2. The category of facets and the numbers of documents in each
    group;

3. Distribution of the incidence of speciators in each of different
    facets in the compound subjects studied in the sample.

The consolidated data is prescribed in the form of tables and infe-
rences are presented in the form of annotation in this paper.

4 Number of facets in compound subjects

The study of incidence of compound subjects of different facet
dimensions (2) indicates the depth of the subjects. Such as assess-
ment would be helpful in revising the schedules for these subjects in
schemes for classification. The following tables present details of this
facet dimension in Biology and Agriculture respectively.

The following table 1 presents the distribution of documents by
number of facets incident in compound subjects in Biology for the
period 1961 and 1981. It also presents the percentage of incidence
for the respective years.

TABLE 1.   Document scatter by Number of facets in compound subjects in Biology

No. of facets	Number of documents			
	1961	Percentage	1981	Percentage
1	35	22.01	113	29.19
2	55	34.59	134	34.62
3	49	30.81	94	24.28
4	13	8.17	37	9.56
5	5	3.14	6	1.55
2	6	1.25	3	0.77
Total	159		387	

The following table 2 presents in distribution of documents by number of facets incident in the compound subjects in Agriculture for the period in 1961 and 1981. It also presents the percentage of incidence for the respective years.

TABLE 2.   Document scatter by Number of facets in compound subjects in Agriculture

No. of facets	Number of documents			
	1961	Percentage	1981	Percentage
1	2	1.28	3	1.33
2	25	16.02	16	7.11
3	62	39.74	62	27.55
4	50	32.05	70	31.11
5	10	6.41	49	21.77
6	2	1.28	21	9.33
7	4	2.56	3	1.33
8	1	0.64	1	0.44
Total	156		225	

41   Annotation

The incidence of compound subjects in Biology and in Agriculture for the two years 1961 and 1981 indicates there is a significant

increase in the publication in 1981. The major cluster of documents lies in the facet-dimension of 1 to 4 faceted subjects in Biology and 2 to 6 in faceted subjects in Agriculture. Even here 2 to 3 faceted subjects have about 60% of the total number of documents in Biology. In Agriculture, we find 3 to 5 faceted subjects have nearly 70% of the total number of documents. The slight difference in the cluster of documents in facet-dimensions between Biology and Agriculture indicates the applied nature of subjects in Agriculture. Period-wise we find the cluster around 2 to 3 facet-dimensions is same in 1961 and 1981. But in Biology the number of documents is 5 faceted and 6 faceted ones appear to be insignificant in both the year. Agriculture has higher incidence of subjects of greater-facet dimension (5 and 6 facets) in 1981. This indicates that documents of 1981 have greater depth in their contents.

5 Distribution of documents by fundamental category of facets

The differential role of facets can be identified by the manifestation of these facets according to the fundamental categories P, M, E, S and T (3). The following tables present the distribution of documents by the types of facets incident in the compound subjects in Biology and in Agriculture for the years 1961 and 1981.

The following table 3 presents the distribution of documents by fundamental categories incident in the compound subjects in Biology.

TABLE 3. Distribution of documents by Fundamental categories of facets in compound subjects in Biology

Sl. No.	Fundamental categories	Number of documents			
		1961	Percentage	1981	Percentage
1.	Personality (P)	90	47.87	189	44.36
2.	Matter (M)	33	17.55	72	16.90
3.	Energy (E)	45	23.93	133	31.22
4.	Space (S)	8	4.25	18	4.22
5.	Time (T)	2	1.06	5	1.17
6.	Common Isolates (ACI)	10	5.32	9	2.11
	Total	188		426	

The following table presents the distribution of documents by fundamental categories incident in the compound subjects in Agriculture.

TABLE 4. Distribution of documents by Fundamental categories of facets in compound subjects in Agriculture

Sl. No.	Fundamental categories	Number of documents			
		1961	Percentage	1981	Percentage
1.	Personality (P)	160	44.94	279	46.03
2.	Matter (M)	25	7.02	39	6.43
3.	Energy (E)	92	25.84	167	27.56
4.	Space (S)	34	9.55	58	9.57
5.	Time (T)	14	3.93	7	1.15
6.	Common Isolates (ACI)	31	8.70	56	9.24
	Total	356		606	

51   Annotation

Personality facet is the dominant facet in its incident in the compound subjects in Biology and Agriculture. It has more than 40 percent incidence. The next dominant category is Energy. Matter facet is third in the descending order. The incident of Space facet and Time facet are more in Agriculture than in Biology. This again highlights the nature of Agriculture as an applied science. The period wise comparison of the incidence of the fundamental categories in the compound subjects going with Biology as well as Agriculture indicates not much complexity in formation of facet structure.

6 Distribution of speciators

The incidence speciators to facet in the compound subjects show the intension of the foci incident in compound subjects. It is helpful to study the range of incidence of speciators.

The following tables 5 & 6 present data on the incidence of speciators to facets by manifestation of the fundamental categories P, M, E, S and T and Basic subject in Agriculture and in Biology for the years 1961 and 1981.

TABLE 5. Distribution of documents by incidence of speciators in different facets in Biology

Speciators to	Number of documents			
	1961	Percentage	1981	Percentage
BS	1	4	—	—
P	13	52	11	39.28
M	6	24	5	17.86
E	5	20	12	42.85
S	—	—	—	—
T	—	—	—	—
Total	25		28	

TABLE 6. Distribution of documents by incidence of speciators in different facets in Agriculture

Speciators to	Number of documents			
	1961	Percentage	1981	Percentage
BS	—	—	—	—
P	19	54.28	43	72.88
M	1	2.86	1	1.69
E	1	2.86	13	22.03
S	11	31.42	2	3.39
T	1	2.85	—	—
CI	2	5.71	—	—
Total	35		59	

61 Annotation

In Agriculture, speciators to personality is incident in a larger measure than the speciator to other facets. Further the speciators appear to have greater percentage of incidence in 1981. Space facet has higher percentage of incidence of speciators in 1961 whereas it is insignificant in 1981. Speciators to Energy facet is incident in a significant way in 1981. In Biology, incidence of speciator is higher in Personality facet in 1961 and is about 20 percent in Matter and Energy. However the incidence of speciators to Energy facet is

double in 1981 whereas there is a slight decline in the incidence of speciators to Personality and Matter in the same year. From this data, it may be stated that complexity in Personality facet is on the increase in the compound subjects going with Agriculture. But in the case of Biology the complexity in the Energy facet appear to be on the increase.

7 Generalisation

From the foregoing presentation it may be noted that the compound subjects going with Biology as well as Agriculture, are moving towards greater depth in the contents of documents. The facet-dimensions and speciator-dimensions shows that there is need for expansion of schedules in all general scheme for classification. This study can be further developed by an investigation on a larger sample taken for each of the twenty-year period between 1961 and 1981.

8 Bibliographical References

1. RANGANATHAN (S R). Classifying as translating. (*In* his Prolegomena to library classification Ed 3. 1963. Chapter SB).
2. RANGANATHAN (S R). Dimension in Faceted classification. (*In* his Prolegomena to library classification. Ed 3. 1963. Chapter Q, Sec 8).
3. RANGANATHAN (S R). Fundamental categories. (*In* his Prolegomena to library classification. Ed 3. 1963. Chapte RB).