ALPHABETICAL DEVICE AND MULTINOMIALS
(DEPTH CLASSIFICATION 49) S R RANGANATHAN

Traces the history of (AD) from vague beginnings to a conscious use of the same. Shows the evolution of the definition of (AD) till 1960. Recognises the necessity for the use of binomial terms to denote certain entities. Having illustrated the advantages of the (AD) in the construction of (IN) in the work facet of a class in the (MC) '0' literature, shows a method of (AD) for binomials. Next shows the need for the extensive use of (AD) for binomials in (IN) for virus. Suggests draft rules for the application of (AD) for binomials. Suggests the use of zone 2 of the work facet, thereby released, for representing sub-forms of literary forms such as lyrics, epics, comedies, and tragedies. Shows the possible application of the sub-forms of literature in Linguistics. Suggests the consideration of representing by (AD) the (IN) for the work facet, commentary facet etc in classics.

CONTRACTIONS USED

(ACI) Anteriorising common Isolate
(AD) Alphabetical Device
(CC) Colon Classification
(CD) Chronological Device
(IN) Isolate Number
(MC) Main Class
(P) Personality Facet
(SD) Subject Device
(T) Time Facet

1 EARLY HISTORY
11 Pressure of Tradition

The designing of CC started in November 1924. At that time, the idea that only an Indo-Arabic numeral could be used as an ordinal number was strong in the subconscious level. This was due, no doubt, to age-long usage. But it got much reinforced by the first and the most influential scheme of library classification—the DC designed by Melvil Dewey in 1876. At that time CC could dare break this tradition only to a very limited extent. It introduced Roman caps as possible digits. There were two reasons for this. In the first place, the base of 10 of the Indo-Arabic numerals was felt to be all too short for the schedule of (MC). The bundling together of all the pure sciences and representing the bundle by the digit 5, a similar bundling together of all the applied sciences and representing the bundle by the digit 6, the bundling together of philosophy and psychology and representing the bundle by the digit 1, the bundling together of all the social sciences and representing the bundle by the digit 3, and finding no suitable place for the newly emerging (MC) Sociology, carried sufficient conviction in this respect. Therefore, Roman caps were chosen to represent (MC). Secondly, there was no regular schedule for [T] in DC. Freedom
was therefore taken to represent millennia and centuries by Roman caps. In spite of having gone outside the Indo-Arabic numerals in this way, the CC did not have, at that time, the courage to exploit the freedom thus taken by it.

12 Alphabetic Device

One of the earliest uses of Roman caps outside (MC) and [T] was in the prescription of (AD) for the construction of a few (IN). This prescription occurred only in the following few places.

1 Crop numbers in agriculture for the crops which exceed the enumerated ones.

2 Bacterial diseases in medicine for the diseases which exceed the enumerated ones.

13 Chronological Device

The digits of the Roman alphabet crept into other places through the back-door, as it were. For, even by 1926, when the books in the Madras University Library, the superior sharpness of the use of (CD) in the construction of author numbers was sensed and exploited. This naturally brought in the use of Roman caps in (P). The following are the other few places where Roman caps entered the body of the schedule through (CD):

<table>
<thead>
<tr>
<th>CC</th>
<th>Host Class</th>
<th>Isolate</th>
<th>CC</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>B13, 3</td>
<td>Diophantine equation</td>
<td>Special equation</td>
<td>B13, 3K</td>
<td>Pell's equation (1657)</td>
</tr>
<tr>
<td>B13, 5</td>
<td>Forms including partition</td>
<td>Special form</td>
<td>B13, 5K</td>
<td>Fermat's last theorem (1657)</td>
</tr>
<tr>
<td>B13, 9</td>
<td>Associated arithmetic</td>
<td>Special arithme-</td>
<td>B13, 9M</td>
<td>New function (1832)</td>
</tr>
<tr>
<td></td>
<td>function</td>
<td>tic function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B23</td>
<td>Theory of equation</td>
<td>Special equation</td>
<td>B23, 9M</td>
<td>Abelian equation (1829)</td>
</tr>
<tr>
<td>B24</td>
<td>Determinant</td>
<td>Special determi-</td>
<td>B24M12</td>
<td>Alternant (1812)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B25:8</td>
<td>Special Transformation</td>
<td>Special trans-</td>
<td>B25:8M</td>
<td>Cremona transformation (1863)</td>
</tr>
<tr>
<td>B36</td>
<td>Infinite series</td>
<td>Special series</td>
<td>B36M</td>
<td>Fourier's series (1822)</td>
</tr>
<tr>
<td>B37:1</td>
<td>Integral</td>
<td>Special theories</td>
<td>B37:1M</td>
<td>Cauchy integral (1823)</td>
</tr>
<tr>
<td>B392</td>
<td>Integral of algebraic</td>
<td>Subdivision</td>
<td>B392M</td>
<td>Hyperelliptic function (1826)</td>
</tr>
<tr>
<td></td>
<td>function</td>
<td></td>
<td></td>
<td>Lie function (1809)</td>
</tr>
<tr>
<td>B393</td>
<td>Function defined by</td>
<td>Subdivision</td>
<td>B393M</td>
<td></td>
</tr>
<tr>
<td></td>
<td>contour integral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B394</td>
<td>Function defined by</td>
<td>Subdivision</td>
<td>B394L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>differential and integral equation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B396</td>
<td>Function defined by</td>
<td>Subdivision</td>
<td>B396M</td>
<td></td>
</tr>
<tr>
<td></td>
<td>infinite series and product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5:38</td>
<td>Effect, Radiation</td>
<td>Special effect</td>
<td>C5:38N28</td>
<td>Raman effect (1928)</td>
</tr>
<tr>
<td>C5:8</td>
<td>Nature of light</td>
<td>Special theories</td>
<td>C5:8K9</td>
<td>Wave theory (1890)</td>
</tr>
<tr>
<td>O</td>
<td>Literature</td>
<td>Author</td>
<td>O-, 2764</td>
<td>Shakespeare (1564)</td>
</tr>
<tr>
<td>Q29</td>
<td>Religion</td>
<td>Specific religion</td>
<td>Q29M72</td>
<td>Brahma Samaj (1872)</td>
</tr>
<tr>
<td>S</td>
<td>Psychology</td>
<td>School of Psych-</td>
<td>SM</td>
<td>Experimental psychology (1862)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Host Class

<table>
<thead>
<tr>
<th>CC</th>
<th>Name</th>
<th>Isolate</th>
<th>CC</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Education</td>
<td>School of edu-</td>
<td>TL7</td>
<td>Herbart's school (1776)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T:5,1</td>
<td>Intelligence test</td>
<td>Subdivision</td>
<td>P:5,1N</td>
<td>Binet Simon test (1905)</td>
</tr>
<tr>
<td>V:91</td>
<td>Election method</td>
<td>System</td>
<td>V:91M</td>
<td>Proportional representation (1857)</td>
</tr>
<tr>
<td>X</td>
<td>Economics</td>
<td>System</td>
<td>XM</td>
<td>Co-operative economics (1825)</td>
</tr>
</tbody>
</table>

### Subject Device

In a similar way, the need for (SD) in an incipient form was felt while working out the sub-divisions of the omnibus (MC) M Useful Arts. Here, the Roman caps were used in the array of order 2 to derive canonical classes from the (MC) M Useful Arts. Here are the other instances where the Roman caps entered the body of the schedule through (SD).

#### SUBJECT DEVICE

<table>
<thead>
<tr>
<th>CC</th>
<th>Name</th>
<th>Isolate</th>
<th>CC</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>D6:8</td>
<td>Machinery</td>
<td>Specific ma-</td>
<td>D6,8(B)</td>
<td>Computer machinery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>chinery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Useful arts</td>
<td>Specific trade</td>
<td>MC5</td>
<td>Opticians' trade</td>
</tr>
<tr>
<td>NA,8</td>
<td>Building</td>
<td>Specific building</td>
<td>NA,8(Z,8)</td>
<td>Court building</td>
</tr>
<tr>
<td>ND,8</td>
<td>Figure</td>
<td>Specific figure</td>
<td>ND,8(B942)</td>
<td>Figure of venus</td>
</tr>
<tr>
<td>R39</td>
<td>Special view</td>
<td>Specific view</td>
<td>R39(Y)</td>
<td>Humanism</td>
</tr>
<tr>
<td>T:3</td>
<td>Teaching technique</td>
<td>Specific subject</td>
<td>T:3(B)</td>
<td>Teaching of mathematics</td>
</tr>
<tr>
<td>V:58</td>
<td>Right</td>
<td>Specific right</td>
<td>V:58(X)</td>
<td>Freedom of trade</td>
</tr>
<tr>
<td>X8</td>
<td>Industry</td>
<td>Specific industry</td>
<td>X8(F182)</td>
<td>Iron industry</td>
</tr>
<tr>
<td>Z,97</td>
<td>Regulative law</td>
<td>Specific pro-</td>
<td>Z,97(L)</td>
<td>Regulative law in medicine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>fession</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Anteriorising Common Isolates

Another break through the barrier of the tradition of Indo-Arabic numerals was in the use of Roman smalls to represent (ACI). This was done in 1925. But even here it cannot be said that this break-through was done with the full recognition that any single symbol outside the Indo-Arabic numerals can be used as a digit in the construction of class numbers.

### Connecting Symbol

The connecting symbol colon -- a dot pair -- was conceived of even in 1924. For about a quarter of a century, this continued to be the only connecting symbol in use. It was of course outside the base of Indo-Arabic numerals.

### First Conscious Recognition

The first conscious recognition of a Roman cap, a Roman small, or a colon as an ordinal digit, came only while teaching in the Certificate Course of Librarianship under the auspices of the Madras Library Association in the summer of 1929. Only then was it realised that it was easier to improvise new ordinal numbers than new cardinal numbers. All that was needed to introduce a new ordinal number was realised...
to be to define its position between two consecutive ordinal numbers. I recall how in the 1929 class, I used to drive home the fixing of the ordinal value of colon as one lying between 0 and 1. I used to say as follows: "Mathematically, the colon—the dot pair—is a degenerate form of ellipse. In the dot pair it takes a subtler form. A subtler form is more powerful. Therefore, let us call the dot pair a greater 0. We have therefore to fix the ordinal value of the dot pair or colon to be greater than that of 0 and less than that of 1."

18 Roman Small

In respect of the Roman smalls, the ordinal value of each digit in relation to the other digits of the same species was taken from tradition. But no attempt was made to fix their ordinal value in relation to the Indo-Arabic numerals, as the necessity did not arise for it at that time on account of their anteriorising value.

19 Roman Cap

In respect of the Roman caps, the original value of each digit in relation to the other digits of the same species was taken from tradition. But no attempt was made for some years to fix their ordinal value in relation to the Indo-Arabic numerals. This led to some difficulties in the arrangement of class numbers—that is of books—particularly in the (MC) History. In 1930, this difficulty had to be faced by the Staff Council of the Madras University Library. The difficulty was traced to our not having consciously defined the ordinal value of the Roman cap in relation to the Indo-Arabic numerals. We had to choose either Z to be smaller than 1 or A to be greater than 9. At that time, the separation of work into that in the Idea Plane and that in the Notational Plane had not been made. In fact, it was made only about twenty years later. Therefore, a good number of sleepless hours had to be spent in the blind chase of the difficulty. Ultimately, it was decided that A should be defined to have an ordinal value greater than that of 9.

2 Later History
21 Separation of Planes of Work

No conscious effort was made for about twenty years to make full use of the Roman caps in any array whatever. In the early 1950s, the path was cleared for further work by a fundamental step taken. That was to distinguish the work involved in classification into work in three different planes—viz., idea, verbal, and notational planes respectively. It was realised that the failure to separate these three planes in thought was responsible to some extent for standing in the way of research in classification. Once they were separated, the work in the Idea Plane and in the Verbal Plane went on independently of each other. It also gave an opportunity to enrich the work in each plane in the light of the results of the work done in the other plane. This division of work in different planes was completed by 1954.

22 Mixed Notation

For one year thereafter, thought was concentrated on the Notational Plane. The results were communicated to FID/CA [3]. One of the findings was as follows. In an array in the Notational Plane, four zones can be recognised—Zone 1 in which the first digit of each isolate number is a Roman small, Zone 2 in which the first digit of each isolate number, excluding the Empty Digit 9, if any, is an Indo-Arabic numeral, Zone 3 in which the first digit of each isolate number, excluding the Empty Digit 9, if any, is a Roman cap, and Zone 4 in which the first digit of every isolate number is a starter bracket. This division of array into zones was due to the use of mixed notation in CC.

23 Efficiency Table

An efficiency table was constructed showing the sectors in each of the four Zones [2]. It was examined whether the isolate number in each sector in each array was used and in case they were used, in what way they were used. It turned out that Zone 4 was used for the construction of isolate number by (SD), Zone 1 was used for the construction of isolate number by enumer-
iation, and that Zone 3 was used for the construction of isolate numbers by (AD) or (CD). The following decision was then made. The first claim on the digits in the different zones should be as indicated above. But if in any array these claims do not arise, then the digits may be used by ordinary enumeration. Thus, Roman caps came to be used fully in any array whatever.

24 Work in Conscious Level

This led to work in conscious level in the utilization of the isolate numbers in the different sectors in the different zones. This in its turn led to the principles for guiding the work in the helpful utilization of the different sectors in the different zones. As a result of this, the (AD) got enunciated much better than before. The improvement in the successive rules on (AD) can be seen from what follows.

3 RULE ON ALPHABETICAL DEVICE
31 CC ed 1, 1933

*67 The Alphabetic Device consists in using the initial letter, or the initial letter amplified, of the name of the substance or any other appropriate entities, for the further subdivision of a class of substance or entities. *671 If more than one substance or entity have the same initial letter, their initial letters may be amplified by the addition of the numbers 1, 2, 3, etc respectively*.

32 Prolegomena, Ed.1, 1937

The first edition of the Prolegomena to library classification did not do anything more than to give examples of the use of (AD).

33 Prolegomena, Ed.1, 1957

But the second edition of the Prolegomena to library classification devotes a chapter headed "25 Verbal Mnemonics" to (AD). It defines the Canon of Verbal Mnemonics as follows:

Verbal mnemonics should be rejected, without any hesitation, if a sequence more helpful to readers or more fillatory than alphabetical sequence exists. Verbal mnemonics by alphabetical device should be preferred if the alphabetical sequence is as helpful as any other sequence. The word forming the basis of verbal mnemonics should be that of international nomenclature wherever it has been set up. This is the Canon of Verbal Mnemonics*.

This canon clearly states the conditions under which (AD) should be used. It is essential that the (AD) should use only the term accepted in international nomenclature. This is in order to facilitate class numbers being used for international communication.

34 CC, Ed 6, 1960

The above prescription in the Prolegomena was amplified still further in ed 6 of CC published in 1960, as follows:

*0585 The Alphabetic Device (AD) consists in using the first or the first two, or the first three, etc. initial letters (all in caps) of the name of an entity, existential or conceptual, for the formation or the subdivision of an isolate.

*The following convention is suggested in dealing with names having the same initial letter. The first letter alone may be used for the most favoured entity, i.e. the entity which has the greatest literary warrant or which is the first on which literature arrives. The first two letters are to be used for the second favoured entity with the same initial letter, using 'favoured' in the above sense, and so on. The use of the first three letters may be invoked if the name of another entity has the same two initial letters as the one already selected for two-letter-representation. The number of letters used may be further increased to the necessary extent.

This device is to be used only in cases where no other method of subdivision gives a more helpful sequence. The schedules and the Rules indicate the places where this Device has to be used.

*05851 The (AD) can be applied only in respect of proper names, trade names, and certain technical nomenclature which are internationally current.

*05852 There are some unsolved diffic-
cultures in the application of this device. Certain combination of letters occur frequently at the beginning of names. Then, several letters have to be brought into use to secure individualization*.  

4 BINOMIAL TERM  
41 Virology  
During the last year, the classification of Virology was taken up. It was found that taxonomic classification of virus was not recommended by the specialists. In fact they did not adopt even taxonomic nomenclature. The general consensus of opinion among the virologists appears to be to adopt non-taxonomic nomenclature. One result of this is that a classification scheme has to represent a virus by (AD). Often the name of a virus is a binomial—that is, it consists of two terms. Occasionally it consists of even three terms. Here the existing Rule 0585 does not easily lend itself to the construction of the isolate number for a virus by (AD).

42 Work of an Author  
The existing Rule of CC for the construction of the isolate number for the work of an author in the (MC) Literature calls for the use of Indo-Arabic numerals. Here are the rules.  

*041 The Work (IN) should be constructed as follows:  

1 If the number of works of the author does not exceed eight, the works should be arranged in chronological sequence or, if it is impossible, in any arbitrary sequence or, if it is impossible, in some convenient sequence, and they should be divided successively into groups of eight each, and the numbers 1, 2, 3... 8, respectively should be assigned to the works.  

2 If the number of works of an author is greater than eight but does not exceed sixty-four, the works should be arranged in chronological sequence or, if it is impossible, in some convenient sequence, and they should be divided successively into groups of eight each, and the number 1, 2, 3... 8, respectively should be assigned to the groups. Such a number may be termed Group Number. Then to get the actual Work (IN) of the works in any group, 1, 2, 3... 8, respectively should be put after the Group Number; thus, each Work (IN) will consist of two digits, the first digit indicating the group into which the book falls and the second indicating the work in the group.  

3 If the number of works is greater than sixty-four but does not exceed 512, the same device may be extended. That is, the Work (IN) will consist of three digits, the first digit showing the major group of 64 works into which the work falls, the second digit showing the sub-group of the major group into which the book falls, and the third digit indicating the work in the sub-group*.  

43 Analogy and Illusion  
In practice, the application of the above rules involves a considerable work on the part of the classifier. In the refresher course being given to some librarians in Bangalore, the return for this considerable work was examined. The return was not found to be adequate to the work involved. But why was this rule formulated in 1933? It was due to an analogy and an illusion. At that time, it was rightly realised that to arrange the authors in a particular form of literature in particular language by (CD) was more helpful than to arrange them by (AD). Even now this is true. This led us to say "Let us arrange the works of any one author also chronologically, though uses of (CD) may not be easy to work with". This was the reason behind Rule 041 quoted in Section 42. It is now realised that the analogy is not true. The assumption, that the readers would prefer a chronological arrangement of the works of an author in the (MC) Literature, in a particular language and in a particular form, even as they would prefer a chronological arrangement of the authors themselves, errs on the side of illusion rather than of reality. The present view is that there can be no particular arrangement of the works of an author in the same form in the same language in the (MC) O Literature which is really more useful and likely to be sought by users than their arrangement by
(AD)\s This is also true of the arrangement
of the works of an author treated by the
Classic Device.

44 Illustration 1

Let us take the case of the dramatic
works of William Shakespeare. Even scholar-
ship extended over several decades could not
assert the exact chronological sequence of
his plays. The following is given by scholars
as one possible chronological table of them
[1].

Chronology of the Plays of Shakespeare
1590-91
1 Henry VI (2)
2 Henry VI (3)
3 Henry VI (1)
4 Richard III
5 Comedy of errors
6 Titus Andronicus
7 Taming of the shrew
1594-95
8 Two gentlemen of Verona
9 Love's labour's lost
10 Romeo and Juliet
1595-96
11 Richard II
12 Midsummer night's dream
1596-97
13 John
14 Merchant of Venice
1597-98
15 Henry IV (1)
16 Henry IV (2)
1598-99
17 Much ado about nothing
18 Henry V
1599-1600
19 Julius Caesar
20 Merry Wives of Windsor
21 As you like it
1600-1601
22 Twelfth night
23 Hamlet
1601-1602
24 Troilus and Cressida
1602-1603
25 All's well that ends well
1604-1605
26 Measure for measure
27 Othello
1605-1606
28 Macbeth
29 Lear
1606-1607
30 Antony and Cleopatra
1607-1608
31 Coriolanus
32 Timon of Athens
1608-1609
33 Pericles
1609-10
34 Cymbeline
1610-11
35 Winter's tale
1611-12
36 Tempest
1612-13
37 Henry VIII
38 Two noble kinsmen

The following note is prefixed to the
above table in the Encyclopaedia; "It will be
understood that neither the order in which the
plays are given nor the distribution of them
over the year lay claim to more than approxi-
mate accuracy". In these circumstances, it
is hardly reasonable to expect that all readers
will know the chronological sequence of the
plays or will feel it more helpful if the plays
are arranged on the shelves and in the catalogues in this particular sequence rather than in the alphabetical sequence.

44 Illustration 2

In the case of Shakespeare we had at least some ready-made table provided by scholars. In other cases, even this help may not be available. In 1928 we were made to realize the enormous difficulty of arranging the works of another author by (CD). For in that year a reader presented to the Madras University Library the complete works of Alexandre Dumas (1802-1870). These were in 277 volumes. This threw us a challenge to work out a schedule for the dramas and the novels of Dumas. We spent a good deal of time over it, now and again consulting those who were devoted students of his works. But at the end we asked ourselves, "How many readers will feel helped by this chronological arrangement of the works of Dumas? Will not the readers be helped much better if the works are arranged alphabetically by their titles?"

45 Multi-Worded Titles

We now prefer to construct by (AD) the (IN) of a work of an author in the (MC) O literature or classified by Classic Device. Here we found the problem of the titles of many a work being multiworded. They also often create a situation in which the (AD) has to be applied to many of the words in the title even as it happens in the case of the multi-nomial nomenclature of virus.

5 ALPHABETICAL DEVICE FOR MULTI-NOMIALS

We are now making a study of how the (AD) should be applied to multi-nomial terms such as titles of works in literature or in classics and multi-nomial nomenclature of virus.

51 Example 1

Schedule for the Work Facet of Shakespeare

The following arrangement of the work of Shakespeare given in Sec 44 has been tentatively arrived at, with the use of (AD),

A All's well that ends well
AN Antony and Cleopatra
AS As you like it
C Comedy of errors
CO Coriolanus
CY Cymbeline
H Hamlet
HE-4-1 Henry IV (1)
HE-4-2 Henry IV (2)
HE-5 Henry V
HE-6-1 Henry VI (1)
HE-6-2 Henry VI (2)
HE-6-3 Henry VI (3)
HE-8 Henry VIII
J John
JU Julius Caesar
K King Lear
L Love's labour's lost
M Macbeth
ME Measure for measure
MER Merchant of Venice
MERR Merry wives of Windsor
MI Midsummer night's dream
MU Much ado about nothing
P Othello
PE Pericles
R-2 Richard II
R-3 Richard III
RO Romeo and Juliet
T Taming of the shrew
TE Tempest
TI Timon of Athens
TIT Titus Andronicus
TR Troilus and Cressida
TW Twelfth night
TWO Two gentlemen of Verona
TWO-N Two noble kinsmen
W Winter's tale

52 Example 2

Sample Schedule for Virus

AP Apeu
APP-M Apple mosaic
APP-R Apple rubbery wood
B Bacillus (bacteriophage)
B-A Bacillus anthracis (bacteriophage)
B-C Bacillus cerus (bacteriophage)
B-M Bacillus megaterium (bacteriophage)
BA-F Barley false-stripe
ALPHABETICAL DEVICE AND MULTINOMIALS

BA-S  Barley stripe-mosaic
BA-Y  Barley yellow-dwarf
BE-R  Beet ring spot
BE-Y  Beet yellows
Be-Y-N Beet Yellow-net
BLU-S  Blueberry stunt
BO-V-B Borrellopta variolae Var. bouis
Bo-V-H Borrellopta variolae Var. hominis
O-M  Oat mosaic
O-R  Oat red-leaf
OR-M  Orchid flower breaking
P-M  Papaya mosaic
PA  Papilloma
PAR-I  Para influenza
PAR-I-1 Para influenza 1
PAR-I-10 Para influenza 10
PE-E-M Pea-enation mosaic
PE-M  Pea mosaic
PE-S  Pea streak
PE-ST  Pea stunt
PEA-M  Peach mosaic
PEA-R  Peach ring spot
PEA-Ro  Peach rosette
PEA-S  Peach stunt
PEA-Y-B-M Peach yellow-bud mosaic
PEA-Y-L-M Peach yellow leaf-roll
PEA-Y-M  Peach yellow mosaic
PEAN-R  Peanut rosette
POL  Polymia
POT-A  Potato A
POT-C  Potato C
POT-CA  Potato calico
POT-CO-R  Potato corky ringspot
POT-F  Potato F
POT-L  Potato late breaking
POT-LE  Potato leafroll
POT-Y  Potato Y
POT-YE-D Potato yellow dwarf
TO-M  Tobacco mosaic
TO-R  Tobacco rattle
TO-RI  Tobacco ringspot
TON-A  Tomato aspermy
TON-AU-M  Tomato aucuba mosaic
TON-B  Tomato big-bud
TON-BU  Tomato bushy-stunt
TON-F  Tomato fern-leaf
TON-M  Tomato mosaic
TON-R  Tomato ringspot
TON-S  Tomato spotted-wilt
TOP-Y  Top yellows
TOM-Y-N Tomato yellow-net

53 Some Inference
531 Title of Work

A comparison of the schedules for the dramas of Shakespeare and for virus calls for some remarks. In Shakespeare, Roman numerals are all converted into Indo-Arabic numerals. The occasion to use a binomial is not much. It is equally so with the use of trinomials. Apart from the historical plays, where a numeral has to be used, we do not find the need for a binomial number except in the case of "Two gentlemen of Verona" and "Two noble kinsmen". Since we have already used TW to represent the "Twelfth night", we are obliged to use TWO to represent the first word in each of the above plays. But it happens that the same first word occurs in the name of both the plays. Therefore we have to invoke the aid of the second word in the title of the latter play. Thus we get the (IN) TWO and TWO-N.

532 Name of Virus

But, in the case of a virus, the users' memory will be very much helped if each word in the binomial or the trinomial, as the case may be, is represented in the (AD), thought it may not be necessary for the individualisation of the isolates. This is an important difference between the application of (AD) to works in literature or in classics and to the names of the viruses.

6 RULES FOR (AD)

In the light of the experience indicated above, the following additional rules are suggested for (AD) to facilitate the numbering of the rules. It may be helpful to renumber the existing Rule 05852 into 05852-05855. The rule about the (AD) for binomial may be given the number 05852 as shown below:

05852 - If the users find it helpful to denote an entity by a binomial term, the (AD) should be applied independently to both the words in the binomial term, as prescribed in the Rule 0585.
05853. - The two (IN) got thus by (AD) are to be connected by the super-imposition device ".-" (hyphen), in order to fill (IN) by (AD).

05854. - The device prescribed by the Rules 05852 and 05853 may be called "Bionomial (AD)".

05855. - The (AD) may be applied to trinomials and higher multinomials in a similar way. The corresponding (AD) may be called Trinomial (AD) . . . Multinomial (AD).

Note. - It may be explicitly stated that it is not obligatory to use all the words in a multinomial in the (AD) unless the helpfulness to users demands it as in the biological sciences.

In other cases such as in the works of a classical author or in the author (MC) O literature, it is a matter for judgment whether it is more economical to ignore the second and the later words in the (AD) or to use not only the first word but also the later words to the necessary extent.

7 RELEASE OF ZONE 2

The use of (AD) to get (IN) for the works of a classical author or an author in (MC) O literature or for virus or other isolates in any facet shifts the representation of the isolates from Zone 2 to Zone 3 of the Array of Order 1 in its facet. This makes Zone 2 fallow. The Efficiency Table [2] prompts us to examine whether the fallow Zone 2 can be put to any use. How it can be usefully put to some other use in virology will be indicated in a later paper. We shall confine ourselves here to the use of Zone 2 in the case of a work facet of an author. For definiteness, we shall take the dramas of Shakespeare as an illustration.

71 Grouping of Works of Shakespeare

We have literary warrant demanding the grouping of the dramas of Shakespeare into comedies, tragedies, etc. There are certainly critical works on such groupings. Bradley's "Shakespearean tragedy" is an example. The present rules in CC do not provide any way of individualising such isolates. It now occurs that Zone 2 in work facet may be used for the purpose. Here is an illustrative schedule,

3 Comedies
5 Tragedies
6 Historical Plays
7 Romantic Plays

Note. It may be noted here that the digits used are mnemonica. The digit 6 is the mnemonic for time and therefore used to represent historical plays. The digit 5 is the mnemonic for emotion and therefore used as the mnemonic for the most stirring emotion implied in tragedy. The digit 3 is used for comedies as it is the specific digit for joy in the schedule for "S Psychology" With such a schedule as above, the number for Bradley's "Shakespearean tragedies" will be 0111, 2J64, 5: g.

72 Collection of a Group of Works

In CC, the digit x is used to represent collection as well as selection. When applied to the works of an author, the digit x should be added after the author number (vide Rule 09x). Thus the (CN) 0111, 2J64x will represent both the collected works of Shakespeare and any collection or selection of Shakespearean works. But we have collection or selection of tragedies alone, the collections and selections of comedies, and so on. Till now, it has not been possible for us to give a co-extensive and expressive (CN) for them. The prescription contained in Section 71 shows a way out. In fact, it shows two possible ways out. The (CN) for the collection and selection of Shakespearean tragedies may be either.

0111, 2J64, 5x or
0111, 2J64x5

The former number has the advantage of bringing together the editions of the collection of tragedies as well as the critical works on tragedies. On the other hand, the later number places the collection of tragedies just after the collection of all the works. Since we cannot allow a homonym in a classificatory language, a decision must be made once and for all to prefer the one or the other. Perhaps the first alternative will be more helpful than the second.
73 A New Facet

These ideas open up a very vast vista in the depth classification of subjects in (MC) Literature, as this would be needed in documentation work. It is particularly useful in the documentation of the ancient and medieval literature in the Indian languages. Here a variety of forms of poetry have been identified. For example in Tamil, as many as 170 varieties of poetry have been listed. There is a considerable amount of literary warrant on some of these varieties. Till now we had no means of facing the challenge of depth classification in this field. How this challenge can now be met will be shown in Paper O in this issue.

74 Application to Linguistics

There has been another unsolved problem haunting us all along. The evaluation of a work in (MC) O Literature is different from the norms or the rules for the composition of different forms of literature such as a poem, a drama, a novel, and a short story. The ideas developed in this paper suggest a solution to this problem only, the following numbers which are more extensive have been possible till now:

P111, J72:7 Art of writing drama in modern English
P111, J73:7 Art of writing a novel in modern English.

It is now possible to have numbers which are more coextensive than the classes concerned such as the following:

P111, J725:7 Art of writing a tragedy in Modern English
P111, J731:7 Art of writing short story in modern English.

These ideas require further pursuit. In particular, each of the language schedules should be worked out for subforms and for each of the broad forms such as poetry, drama and fiction.

8 APPLICATION TO CLASSICS

In arranging the Indian Classics in part 3 of CC-- particularly the works of a single author considerable difficulty was felt in 1933. Fortunately Mahamahopadhyaya S Kuppuswami Sastrl, was a living encyclopaedia and a bibliography on sanskrit class helped me in deciding the sequence of the works. But there is bound to be some difference of opinion with regard to their sequence. More over new classics are being continuously unearthed since then. In view of this it is felt that the work facet in a classic as well as the commentary facet may be constructed by (AD), without much of unhelpfulness to the readers. A small section of the schedules of the classics in Advaita is reproduced here both as it is in the printed media CC and as it would be if the (IN) in the work facet is constructed by (AD).

81 Existing Sequence

<table>
<thead>
<tr>
<th>Existing class Number</th>
<th>Work</th>
<th>Proposed class Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>R66x1, 11</td>
<td>Sankara: <em>Upadesa-sahasri</em></td>
<td>R66x1, U</td>
</tr>
<tr>
<td>R66x1, 12</td>
<td>Sankara: <em>Viveka-cudamani</em></td>
<td>R66x1, VI</td>
</tr>
<tr>
<td>R66x1, 13</td>
<td>Sankara: <em>Aparoksanubhuti</em></td>
<td>R66x1, A</td>
</tr>
<tr>
<td>R66x1, 14</td>
<td>Sankara: <em>Dasaslokī</em></td>
<td>R66x1, DA</td>
</tr>
<tr>
<td>R66x1, 14, 1</td>
<td>Madhu-sudana Sarsvati: <em>Siddhanata-bindu</em></td>
<td>R66x1, DA, S</td>
</tr>
<tr>
<td>R66x1, 15</td>
<td>Sankara: <em>Panči-karana</em></td>
<td>R66x1, P</td>
</tr>
<tr>
<td>R66x1, 16</td>
<td>Sankara: <em>Daksinamurti-stotra</em></td>
<td>R66x1, D</td>
</tr>
<tr>
<td>R66x1, 17</td>
<td>Sankara: <em>Vakya-sudha</em></td>
<td>R66x1, V</td>
</tr>
</tbody>
</table>
82 Proposed Sequence

The above eight works will fall in the following sequence when arranged according to their new numbers.

<table>
<thead>
<tr>
<th>Proposed Class Number</th>
<th>Work</th>
<th>Existing class Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>R66x1, A</td>
<td>Sankara: Aproksanubhuti</td>
<td>R66x1, 13</td>
</tr>
<tr>
<td>R66x1, D</td>
<td>Sankara: Daksinamurti-stotra</td>
<td>R66x1, 16</td>
</tr>
<tr>
<td>R66x1, DA</td>
<td>Sankara: Oasa-sloki</td>
<td>R66x1, 14</td>
</tr>
<tr>
<td>R66x1, DA, S</td>
<td>Madhy-sudana Sarasvati: Siddhanta-blindu</td>
<td>R66x1, 14, 1</td>
</tr>
<tr>
<td>R66x1, P</td>
<td>Sankara: Panci-karana</td>
<td>R66x1, 15</td>
</tr>
<tr>
<td>R66xq, U</td>
<td>Sankara: Upadesa-sahasri</td>
<td>R66x1, 11</td>
</tr>
<tr>
<td>R66x1, V</td>
<td>Sankara: Yakya-sudha</td>
<td>R66x1, 17</td>
</tr>
<tr>
<td>R66x1, VI</td>
<td>Sankara: Viveka-cudamani</td>
<td>R66x1, 12</td>
</tr>
</tbody>
</table>

83 Illustration from Nyaya Philosophy

The following is another selection from the classics on Nyaya Philosophy. They are arranged with the help of the proposed (AD). Their original class number are given in column 3.

<table>
<thead>
<tr>
<th>Proposed Class Number</th>
<th>Work</th>
<th>Existing Class Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>R625x1,N</td>
<td>Gautama: Nyaya-sutra</td>
<td>R625x1, 1</td>
</tr>
<tr>
<td>R625x1,N,B</td>
<td>Vatsayana: Nyaya-bhasya</td>
<td>R625x1, 1, 1</td>
</tr>
<tr>
<td>R625x1,N,B,V</td>
<td>Uddyota-kara: Nyaya-varttika</td>
<td>R625x1, 1, 1, 1</td>
</tr>
<tr>
<td>R625x1,N,B,V,T</td>
<td>Vacaspati-misra: Nyaya-varttikatparaya-tika</td>
<td>R625x1, 1, 1, 1, 1</td>
</tr>
<tr>
<td>R625x1,N,B,V,T,P</td>
<td>Udayanacarya: Nyaya-varttika-tatparya-parisuddhi</td>
<td>R625x1, 1, 1, 1, 1, 1</td>
</tr>
<tr>
<td>R625x1,N,M</td>
<td>Jayanta Bhatta: Nyaya-manjari</td>
<td>R625x1, 1, 2</td>
</tr>
<tr>
<td>R625x1,N,S</td>
<td>Visva-natha Pancanana: Nyaya-sutra-vrtti</td>
<td>R625x1, 1, 3</td>
</tr>
<tr>
<td>R625x1,N,S-V</td>
<td>Radha-mohan Bhattacharya: Nyaya-sutra-vivarana</td>
<td>R625x1, 1, M10</td>
</tr>
</tbody>
</table>

84 Old and New

The titles of the works are all binomials or even trinomials. All of them begin with the word 'Nyaya'. Therefore 'N' is used as (IN) the work number only for the basic class. In the other works it is only the second term in the title that is used for the (AD). In the last two examples the titles of works are trinomials. The first two terms are the same. Therefore the first word 'Sutra' alone is used in the (AD) for one of the works. Both the term in the binomial 'Sutra'-vivarana', in the second work the (IN) in the work facet is a hyphenated one-S-V.
BIBLIOGRAPHY

Note:
1 The following is the list of the documents used.
2 Column 1 of this bibliography gives the serial number of the documents included in it.
3 Column 2 of this bibliography gives the number of the section in the text, where the reference to the document is made.

1 Sec 44 ENCycloPaedia Britannica:

2 Sec 23 Ranganathan (S R). Efficiency table. (Depth classification, 17).
   (An lib sc, 2; 1955; 1-8).

3 Sec 22 — Report to FID/CA 5. 1955.