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# **S.R. RANGANATHAN'S POSTULATES AND NORMATIVE PRINCIPLES**

***Applications in Specialized Databases  
Design, Indexing and Retrieval***

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**SARADA RANGANATHAN ENDOWMENT FOR LIBRARY SCIENCE**

**Bangalore, INDIA**

**1997**

# Ranganathan Centenary Series, 7

## Ranganathan's FIVE LAWS of Library Science

*Books are for Use  
Every Reader his/her Book  
Every Book its Reader  
Save the Time of the Reader  
Library is a Growing Organism*

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Dedicated to  
**Prof. S. Parthasarathy**

*For his significant contributions, in association with Dr. S.R. Ranganathan, to research in Classification, and the development of Science and Technology Information Systems and Services in India.*

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## FOREWORD

Nearly 70 years ago Dr. S.R. Ranganathan formulated his famous Five Laws of Library Science whose objective was to guide in maximizing the use of information and to meet the information needs of users efficiently, pinpointedly and expeditiously, in a fast changing environment. He recognised the user as the kingpin in designing all his innovative tools and techniques for organising information systems and services. His Colon Classification, Classified Catalogue Code, Reference Service, etc., are products of this fresh and vibrant approach, all designed toward the achievement of the goal of the Five Laws. In the process of designing tools for user-friendly systems, he developed many new concepts which are applicable in the newly emerging and fast developing area of digital information systems.

It is appropriate that Prof. A. Neelameghan has put together in this compilation some of the basic papers of Ranganathan on Subject Headings and Design of Depth Classification published in 1964. Ranganathan examines various possibilities for arranging the words in multi-worded subject headings in a helpful sequence which will match the approach of a majority of users. He states that the headings of subject entries taken together form an artificial language, where the syntax is one of position. Words in a multi-worded subject heading can be arranged in many sequences. So we cannot have a unique syntax of artificial language of subject headings. However, to arrive at a consistent and generally helpful syntax from the point of view of the users, the Postulates of Facet Analysis and Principles for Facet Sequence will be helpful. Ranganathan calls for an extensive study of the approach of users to arrive at a syntax acceptable to a large number of them. This would enable a deeper analysis of the problem for arriving at an Absolute Syntax which will give greatest satisfaction to the greatest number of users.

Ranganathan's papers on the Design of Depth Classification and the Hidden Roots of Classification consolidate his ideas developed over several years and fine-tuned from time to time. A major problem in the design of schemes for classification has been how to handle the two-fold infinity – the diversity in the diverse purposes of users and the infinity



in the dimensions of the universe of subjects. Another problem, which has a bearing on the notation of a scheme of classification, is the mapping of the multi-dimensional universe of subjects along a single dimension. For designing a scheme of classification, Ranganathan develops a series of postulates and normative principles. He spells out the various steps for classifying a document.

Prof Neelameghan was closely associated with Ranganathan during this period of development. He includes in this compilation two of his own papers. He shows how Absolute Syntax could function as a switching language – switching from one information System to another. Some parallel work done in the linguistic field by Chomsky, Fodor, Katz, Filmore and others in search of universal linguistic forms are examined.

In presenting Ranganathan's General Theory of Knowledge Classification, Prof Neelameghan explains some of his experiences in the use of Normative Principles in the design, development and retrieval of information from machine readable databases, especially object-oriented specialised databases, and design of user-interfaces and hypertext links.

This publication brings together important contributions on Knowledge Classification and Subject Headings by Ranganathan and supplemented by Prof. Neelameghan. This will be useful for those engaged in and learning the designing of specialised schemes of classification, object-oriented databases, vocabulary control tools, various types of structured indexes, cognitive modelling and neural networks, etc.

It is most appropriate that this publication is released on Ranganathan's birthday in August this year and during the fiftieth year of India's Independence.

Chennai,  
27 June 1997

**S. Parthasarathy**

## PREFACE

The Five Laws of Library Science, Dr. S.R. Ranganathan's *magnum opus* were formulated in the 1920s and first published in 1931 under the same title. His observational visits to a number of libraries in Britain while he was completing his studies in library science at the University College London School of Librarianship and Archives in 1924, provided his fertile intellect necessary data to formulate these basic norms for library and information service. Subsequently, they formed, on the one hand the guidelines for further research in various aspects of information work and service, and on the other, they were used as the bench mark to test the value of any new development, be it theory, principle, technique or practice, in any aspect of library and information service. Over a period of close to half a century of research and service, there is hardly any aspect of library and information service that he had not touched and enriched with his worthy contributions. And the Five Laws served as guidelines and benchmark.

At the Cleveland Conference in 1959\*, Ranganathan indicated that the analytico-synthetic methodology and faceted classification model based on postulates and principles, which have formed the basis of his Colon Classification scheme, could give more helpful results in machine-based information storage and retrieval. In the late 1960s at the Documentation Research and Training Centre (DRTC) of the Indian Statistical Institute (ISI) in Bangalore, S. Venkataraman, a computer

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\*International Conference for Standards on a Common Language for Machine Searching and Translation, Cleveland, Ohio, USA

engineer associated with the teaching and research at the Centre, stressed that the machine should be used for more intelligent work than merely for printing catalogues, etc. and that the Colon Classification could provide a basis for such work. Semi-automatic synthesis of class numbers given a facet-analyzed co-terminus expression of a micro-subject and deriving feature headings and subject headings according to Ranganathan's Chain Procedure from a faceted class number, were achieved. Following this, by the beginning of the 1970s Ranganathan became increasingly interested in the use of the analytico-synthetic facet approach in computer-based information storage and retrieval, and in the design of special purpose machines. Prof Mitra of the ISI (Electronics Department), Calcutta, discussed with Ranganathan these aspects in Bangalore. Unfortunately, Ranganathan passed away in 1972. However, his ideas for the structuring, organization, and representation of knowledge/subjects in machine-based information systems have found productive applications and as areas for research in other countries.

Dr. Ranganathan was intensely patriotic and very proud of India's contributions to mathematics and the physical sciences, literature, and the moral, ethical, and philosophical disciplines. And we are proud of his contributions to the library and information field. Therefore, in celebrating the fiftieth year of India's Independence, it is only appropriate that we recall Ranganathan's contributions to knowledge organization and their relevance in the emerging environment of information technology.

In this publication of the Sarada Ranganathan Endowment for Library Science, established by Ranganathan in 1961, some of his basic

papers on classification, subject structuring and knowledge organization are reprinted along with two supporting papers of A. Neelameghan. It is hoped that teachers and students of library and information science will find this collection useful.

This book is dedicated to Prof S. Parthasarathy, former head of the Indian National Scientific Documentation Centre, New Delhi, one of the earliest students and a close associate of Dr. Ranganathan in many areas including research in classification. Prof Parthasarathy, who will be completing eighty years in 1997, is actively associated with the Institute of Information Studies, the Sarada Ranganathan Endowment for Library Science, and the Ranganathan Centre for Information Studies. We are grateful to Prof. Parthasarathy for writing the Foreword to this volume.

The sources of the papers included in the book are as follows:

Chapter	Title	Source
1	Hidden roots of classification	<i>Library Science</i> . 4(1); 1967 March; p.1-26
2	Ordering systems for global information networks	<i>Ordering Systems for Global Information Networks. Proceedings of the Third International Study Conference on Classification Research</i> . Bombay, 6-11 January 1975.
3	Design of depth classification: methodology	<i>Library Science</i> . 1(1); 1964; Paper A; p.1-42

Chapter	Title	Source
4	Subject heading and facet analysis	<i>Journal of Documentation</i> . 20(1); 1964, Sep.; p.109-119
5	S. R. Ranganthan's general theory of knowledge classification in designing, indexing, and retrieving from specialised databases	<i>Library Science</i> . 34(2); 1997, March; Paper A; p.3-53

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Bangalore  
1 July 1997

**A.Neelameghan**  
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