



# KNOWLEDGE ORGANIZATION

Formerly INTERNATIONAL CLASSIFICATION

INTERNATIONAL JOURNAL  
Devoted to Concept Theory,  
Classification, Indexing,  
and Knowledge Representation

Understanding the Powerful Grouping  
Sense through a Unifying Classification Theory

Geometrical Patterns Underlying Human  
Intelligence: Implications in Information Retrieval

Recent Theoretical Approaches in  
Classification and Indexing

Knowledge Organization  
Needs Epistemological Openness

Galileo and the Inverse Precision/Recall  
Relationship

INDEKS Verlag, Frankfurt  
ISSN 0943 - 7444 Knowl.Org.  
Vol. 21 (1994) No. 3

# Contents

## Editorial

Knowledge Organization and Truth ..... 125

## Articles

Hall, Anthony V.: Understanding the Powerful Grouping Sense through a Unifying Classification Theory ..... 126  
 Bruneau, Alain-Philippe: Geometrical Patterns Underlying Human Intelligence: Implications in Information Retrieval ..... 132  
 Quinn, Brian: Recent Theoretical Approaches in Classification and Indexing ..... 140  
 Kiel, Ewald: Knowledge Organization Needs Epistemological Openness - A Reply to Peter Jaenecke ..... 148  
 Fugmann, Robert: Galileo and the Inverse Precision/Recall Relationship - Medieval Attitudes in Modern Information Science ..... 153

## Reports and Communications ..... 155

Duncan, Donna: IFLA Section on Classification and Indexing (155)  
 - Conferences of interest announced (139)

## ISKO News 18 ..... 157

ISKO's Membership soon at 500 (157) - Third International ISKO Conference (157) - Knowledge Organization and Quality Management ( 157) - ISKO General Assembly 1994 (159) - Advances in Knowledge Organization, Vol. 4. (160) - CallforPapers, 4th German ISKO Conference (160)

## Book Reviews ..... 161

Mulvany, N.C.: Indexing Books (R.Fugmann) ..... 161  
 Dudley, E. (Ed.): S.R. Ranganathan 1892-1972 (S.W.Davis) ..... 161  
 Spinner, H.F.: Die Wissensordnung. Ein Leitkonzept für die dritte Grundordnung des Informationszeitalters (G.Wersig) ..... 162  
 US Dept. of Health: The Alcohol and Other Drug Thesaurus: A Guide to Concepts and Terminology in Substance Abuse and Addiction (R.Fugmann) ..... 163  
 Beghtol, C.: The Classification of Fiction. The Development of a System Based on Theoretical Principles (W.Bies) ..... 165  
 Best, H.; Endres-Niggemeyer, B.; Herfurth, M.; Ohly, P.H. (Eds.): Informations- und Wissensverarbeitung in den Sozialwissenschaften (J.Krause) ..... 167

## Knowledge Organization Literatnre 21(1994)No.3 ..... 169

## KNOWLEDGE ORGANIZATION

Devoted to Concept Theory, Classification, Indexing, and KnowledgeRepresentation

The journal is the organ of the INTERNATIONAL SOCIETY FOR KNOWLEDGE ORGANIZATION (General Secretariat: Woogstr. 36a, D-60431 Frankfurt)

### Editors

Dr.Ingetraut DAHLBERG (Editor-in-Chief), Woogstr.36a, D-60431 Frankfurt

Dr.RobertFUGMANN, Alte Poststr.13, D-65510 Idstein

Prof.Jean M.PERREAUXT, The Library, Univ. of Alabama at Huntsville, P.O.Box 2600, Huntsville, AL 35899, USA

Prof.Daniel Benediktsson (Book Review Editor), Hollo Janos u.4, VLem 55, H-4024 Debrecen

### Consulting Editors

Prof.Kenneth G.B.BAKEWELL, 9, Greenacre Road, Liverpool, L25 0LD, U.K.

Prof.Pauline A.COCHRANE, GSLIS, University of Illinois, 410 David Kinley Hall, 1407 West Gregory Drive, Urbana, IL 61801-3680, USA

Mr.Douglas FOSKETT, 1,Dale Side, Gerrards Cross, Bucks. SL97JF, U.K.

Mr.Jens B.FRIIS-HANSEN, Hoesterkoebvej 7, DK-2970 Hoersholm, Denmark

Mr.Alan GILCHRIST, 38 Ship Street, Brighton BN1 1AB, U.K.

Prof.Wilfried GÖDERT, FHBD, Claudiostr.1, D-50678 Köln

Dr.M.A.GOPINATH, DRTC, Indian Statistical Inst.,8thMile, MysoreRoad, R.V.College P.O., Bangalore-560059, India

Prof.Eric de GROLIER, ISSC, 1, rue Miollis, F-75015 Paris, France

Prof.Krishan KUMAR, Dept.of Libr.& Inform.Sci., Univ.of Delhi, Delhi-110007, India

Prof.Yukio NAKAMURA, 14-8, Nisikata-1, Bunkyo-ku, Tokyo 113, Japan

Mr.PeterPAULSON, ForestPressOCLC, 85 Watervli Ave., Albany, NY, 12206, USA

Prof.Dr.RoyRADA, Dept.of Computer Science, University of Liverpool, Liverpool L69 3BX, U.K.

Drs.Gerhard J.A.RIESTHUIS, Universitetsbibliotheek, Singel 425, NL-1012 WP Amsterdam, Netherlands

Dr.Winfried SCHMITZ-ESSER, Oderfelderstr.13, D-20149 Hamburg

Prof.Dr.Eugeninsz SCIBOR, JINTE, Broniewskigo 83-157, PL-01-876 Warszawa, Poland

Dr.Otto SECHSER, In derEy 37, CH-8047 Zürich

Prof.Dr.Dagobert SOERGEL, College of Libr.& Inform.Serv., University of Maryland, College Park, MD, 20742, USA

Dr.Edouard SUKIASYAN, Russian State Library, Vozdvizhenka, 3, Moskva 10100, Russia

Prof.Nancy WILLIAMSON, Fac.of Information Studies, 140 St.George Str., Toronto MSS 1A1, Canada

UDC 025.4+168+001.4(05)

## KNOWLEDGE ORGANIZATION

International Journal devoted to Concept Theory, Classification, Indexing and Knowledge Representation

*Editors:* Dr.I.Dahlberg, Frankfurt; Dr.R.Fugmann, Idstein, Prof.J.M.Perreault, Huntsville, AL, USA.

*Editorial Office:* c/o Dr.I.Dahlberg, Woogstr. 36a, D-60431 Frankfurt. Tel.069-52 36 90, FAX: 069-52 05 66

*Issue frequency:* 4x/ann. *Annual subscription rates:* Institutions per volume DM 120.-, Individuals per volume 20% less, if directly ordered from INDEKS Verlag. Single issues: DM 30.- Back issues available, ask for special offer. Subscription included in membership fee for members of the International Society for Knowledge Organization (ISKO). MwSt and postage are included; no Air Mail delivery possible.

*Advertising rates:* Advertising ratecard No.3. Advertising factsheet with details of mechanical requirements and closing date available upon request.

*Publisher:* INDEKS Verlag, Woogstr.36a, D-60431 Frankfurt, Tel.069-52 36 90; FAX 069-52 05 66.

Bank Account Nos: INDEKS Verlag, Postgiro-Konto Frankfurt No.151208-608 (BLZ 500 10060). Frankfurter Sparkasse No. 852082 (BLZ 500 50201)

All Rights reserved. Printed in the Federal Republic of Germany 1994 by Druckerei H.Guntrum II KG. PF 180, D-36110 Schlitz/Hessen.

# Contents page

Vol.21(1994)No.3

Hall A.V.: **Understanding the powerful grouping sense through a unifying classification theory.**

Knowl. Org. 21(1994)No.3, p.126-131, 30 refs.

A unifying theory has been developed that draws together a compatible set of methods for classification, and shows why others should be rejected. The methods reveal polythetic groups and sequences, and evaluate the quality and the best identifying characters for each group. The theory defines the rules for the fuzzy uses of 40 interacting options for group studies in a new 12 000 line FORTRAN program called Uniter, available from the author. The theory and the program's options help to show the nature of the achievements and failures of humanity's powerful grouping sense. This approach offers useful understandings in an extremely wide range of fields, examples of which are given. Both research and teaching should take account of this development.

(Author)

Bruneau, A.-Ph.: **Geometrical patterns underlying human intelligence: Implications in information retrieval.**

Knowl.Org. 21(1994)No.3, p.132-139 21 refs.

The author argues that there are underlying structures to the mind which may be described as a form of visual intelligence. This idea favors artificial intelligence research directed in studies of geometrical patterns to cognition. He hypothesizes that such patterns may be compared with geographical maps as well as topological or spatial entities present in most written languages, but especially spatially based scripts such as Chinese. A philosophical approach is employed to discuss these issues, most notably the German philosophy of Gestalt and an epistemological critique of the foundations of knowledge. He concludes such entities may provide the basis for a solid model of intelligence based on formalized, geometricized formal patterns and that this model may be used effectively in a connectionist environment.

(Author)

Quinn, B.: **Recent theoretical approaches in classification and indexing.**

Knowl.Org. 21(1994)No.3, p.140-147, 40 refs.

This article is a selective review of recent studies in classification and indexing theory. A number of important problems are discussed, including subjectivity versus objectivity, theories of indexing, the theoretical role of automation, and theoretical approaches to a universal classification scheme. Interestingly, much of the work appears to have been done outside the United States. After reviewing the theoretical work itself, some possible reasons for the non-American origins of the work are explored.

(Author)

Kiel, E.: **Knowledge organization needs epistemological openness. A reply to Peter Jaenecke.**

Knowl.Org. 21(1994)No.3, p.148-152

This paper is put up to enter into a discussion about the theses of Peter Jaenecke in Knowl.Org. 94-1. Jaenecke's differentiation of knowledge as "core knowledge", "peripheral knowledge", and "pseudoknowledge" is rejected, since his conception of knowledge is limited to a particular epistemology and knowledge domain. The author argues in favor of an epistemologically open conception of knowledge organization considering knowledge organization as a user-supporting but not as a user and producer controlling task.

(Author)

Fugmann, R.: **Galileo and the inverse precision-recall relationship. Medieval attitudes in modern information science.**

Knowl.Org. 21(1994)No.3, p.153-154

The tight adherence to dogmas, created and advocated by authorities and disseminated through hearsay, constitutes an impediment to the progress badly needed in view of the low effectiveness of the vast majority of our bibliographic information systems. The Italian mathematician and physicist Galileo has become famous not only for his discoveries but also for his being exposed to the rejective and even hostile attitude on the part of his contemporaries when he contradicted several dogmas prevailing at that time. This obstructive attitude can be traced throughout the centuries and manifests itself in the field of modern information science, too. An example is the allegedly necessary, inevitable precision/recall relationship, as most recently postulated again by Lancaster (1994). It is believed to be confirmed by empirical evidence, with other empirical evidence to the contrary being neglected. This case even constitutes an example of the suppression of truth in the interest of upholding a dogma.

(Author)

This contents page may be reproduced without charge.

**Beilagenhinweis:** Einigen Heften liegen bei: 1. Call for Papers, dt. ISKO-Konferenz 1995 - 2. Info über "The new Britannica"

# KNOWLEDGE ORGANIZATION



## Scope

The more scientific data are generated in the impetuous present times, the more ordering energy needs to be expended to control these data in a retrievable fashion. With the abundance of knowledge now available the questions of new solutions to the ordering problem and thus of improved classification systems, methods and procedures have acquired unforeseen significance. For many years now they have been in the focus of interest of information scientists the world over. Until recently, the special literature relevant to classification was published in piecemeal fashion, scattered over the numerous technical journals serving the experts of the various fields, such as

philosophy and science of science  
science policy and science organization  
mathematics, statistics, and computer science  
library and information science  
archivistics and museology  
journalism and communication science  
industrial products and commodity science  
terminology, lexicography and linguistics

Beginning 1974, KNOWLEDGE ORGANIZATION (formerly INTERNATIONAL CLASSIFICATION) has been serving as a common platform for the discussion of both theoretical background questions and practical application problems in many areas of concern. In each issue experts from many countries comment on questions of an adequate structuring and construction of ordering systems and on the problems of their use in opening the information contents of new literature, of data collections and survey, of tabular works and of other objects of scientific interest.

Their contributions have been concerned with

- (1) clarifying the theoretical foundations (general ordering theory, science theoretical bases of classification, data analysis and reduction)
- (2) describing practical operations connected with numerical taxonomy/ classification, as well as applications of classification systems and thesauri, manual and machine indexing
- (3) tracing the history of classification knowledge and methodology
- (4) discussing questions of education and training in classification
- (5) concerning themselves with the problems of terminology in general and with respect to special fields.

## Instructions for Authors

*Manuscripts* may be submitted in either English, German or French to the editor-in-chief in two sets (the original and one copy) typed in double space, comprising between 1500 to 3000 words. They should be accompanied by an English indicative abstract of 100-200 words. The contributions are refereed.

*Criteria for acceptance* will be appropriateness to the field of the journal (see Scope and Aims) taking into account the merit of the content and its presentation. Papers are accepted with the understanding that they have not been published, submitted or accepted for publication elsewhere and that, if the work received official sponsorship, it has been duly released for publication. Authors will usually be notified within 6 to 10 weeks. Unless specifically requested, manuscripts or illustrations will not be returned.

The *text of the contributions* should be structured by subheadings; it should contain (a) an introduction, stating the purpose, (b) a description of materials and methods in sufficient detail, (c) information on results or systems developed, and (d) a conclusion on and/or summarization.

*References* should be listed at the end of the paper with the numbers in brackets referring to such numbers in brackets within the text part.

*Additional notes* should be indicated in the text by lifted single numbers behind a word and equally collected with their texts at the end of the paper under the heading *Notes*.

*Journal References* should contain the names and initials of all authors, full titles of the publication, abbreviation of the journal according to the ISO Standard 4, volume number, year

## Aims

Thus, KNOWLEDGE ORGANIZATION is meant to be a programme for the improvement of classification methods and processes, a forum for discussion for all those interested in the organization of knowledge on a universal or a subject-field scale, using concept analytical and/or concept-synthetic approaches as well as numerical procedures and comprising also the intellectual and automatic compilation and use of classification systems and thesauri in all fields of knowledge, with special attention being given to the problems of terminology.

KNOWLEDGE ORGANIZATION publishes original articles, reports on conferences and similar communications, the Newsletters of the International Society for Knowledge Organization (ISKO News) and the Committee on Classification Research of the International Federation for Information and Documentation (FID/CR News) as well as book reviews, letters to the editor, and an extensive annotated bibliography of recent classification and indexing literature, covering now some 500 items in each issue.

KNOWLEDGE ORGANIZATION should therefore be available at every university and research library of every country, at every information center, at colleges and schools of library and information science, in the hands of everybody interested in the fields mentioned above and thus also at every office for updating information on any topic related to the problems of order in our information-flooded times.

KNOWLEDGE ORGANIZATION was founded in 1973 by an international group of scholars with a consulting board of editors representing the world's regions, the special classification fields, and the subject areas involved. From 1974-1980 IC was published by K.G.Saur Verlag, München. Back issues of 1978-1990 are available from INDEKS Verlag, too. (The 14 volumes of 1978-1991 are offered now at the highly reduced price of DM 400.-).

As of 1989, KNOWLEDGE ORGANIZATION has become the official organ of the INTERNATIONAL SOCIETY FOR KNOWLEDGE ORGANIZATION (ISKO) and is included for every ISKO-member, personal or institutional in the membership fee (DM 60.-/DMI 20.-).

*Rates:* From 1990 on for 4 issues/ann. (including indexes) DM 120.-. No air mail delivery any longer. Membership rates see above. - INDEKS Verlag, Woogstr.36a, D-60431 Frankfurt.

of publication in brackets, issue number and first and last page numbers. *Monograph References* should give the name(s) of the author(s), full title, edition, place of publication, publisher, year and the number of pages.

*Examples:* Brandhorst, J.P.J.: Quantifiability in iconography. *Knowl.Org.* 20(1993)No.1, p.12-19, 11 refs.

Hunter, E.J.: Classification made simple. Aldershot, GB: Gower 1988. 115p.

*Illustrations* should be restricted to the necessary minimum. *Graphs and diagrams* should be supplied as black and white drawings suitable to reproduction. *Half-tone illustrations* should be sharp, well-contrasted glossy prints. Illustrations should be numbered lightly with a soft pencil on the back. Numbered legends should be attached on a separate sheet.

*Tables* should be typed double-spaced on a separate sheet, contain a number and a title at the top and be cited in the text. Each column should have a heading.

Authors shall receive 25 *reprints* of their papers free of charge. Additional reprints may be ordered.

*Corrections in galle proof* exceeding 10% of the typesetting costs will be charged to the author.

*Contributions on micro flexible discs* are welcome if delivered in DOS compatible standard software such as Word (DOS or Windows), WordStar, WordPerfect, Euroscript, Multimate, In\*a\*vision, DCA/RFT-files or plain ASCII code - our standard is Word/DOS (Word/Windows) and PageMaker.