Categories in Charles A. Cutter’s Systems of Subject Cataloging and Bibliographical Classification: A Brief Overview

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The Categorial Approach to Knowledge Organization (KO)

• Categories, or concepts of a high level of generality are:

  * A basic structural feature of many different kinds of knowledge organization systems (KOSs).

  * Especially associated with KOSs based on *facet analysis*, a *categorial approach* to knowledge organization (KO)

  (Broughton 2013, 743; Lima & Raghavan 2014, 88; Vlasák 1967, 151-152)
The Historiography of the Categorial Approach to KO

• S. R. Ranganthan (1892-1972) was the first to give a full theoretical account of the categorial approach to KO. 
  (e.g., Broughton 2013, 743; Lima & Raghavan 2014, 88; Vickery 1966, 10)

• Several late 19th/early 20th pioneers of KO incorporated categorial elements into their KOSs:
  * Paul Otlet (1868-1944): the UDC
  * J. D. Brown (1861-1914): the Subject Classification
  * Henry E. Bliss (1870-1955): the Bibliographical Classification
  * Julius Otto Kaiser (1868-1927): Systematic Indexing

  (Beghtol 2004; Broughton 2013, 736; La Barre 2007, 131-132; Sales 2014; Svenonius 2000, 173-174)
Charles Ammi Cutter (1837-1903): An Unsung Pioneer of the Categorial Approach

* Codifier of the *Rules for a Dictionary Catalog* (1st ed., 1876; 4th ed., 1904)

* Creator of the Expansive Classification (1891-1893; developed throughout 1890s)

Both of these KOSs embodied a “traditional approach to KO” (Hjørland 2008, 88-90) ...

... Each also made use of categorial structures in its general architecture.

General Categories for Subjects in the *Rules for a Dictionary Catalog* (1).

Individual and General Subjects

All subjects in a catalog are divided into two broad classes:

* Individual subjects
  -- e.g., particular persons (e.g., “Goethe”, “Shakespeare”)
  " events (e.g., “The French Revolution”)
  " epochs (e.g., “the Middle Ages”)
  i.e., any particular thing viewed as singular and unique

* General subjects
  -- “general notions” formed by abstraction and generalization, and serving as the basis for class-concepts (e.g., “Man”, “Horse”, “History”, “Philosophy”)

(Cutter 1904, 23, s.v. “Subject”; McCosh 1883, 18-23; Miksa 1983a, 29)
General Categories for Subjects in the *Rules for a Dictionary Catalog* (2).

Concrete and Abstract Subjects

Interlacing the “individual-general” distinction was a second distinction between:

- **Concrete subjects**
  ≈ notions of objects presenting themselves as individual wholes possessing their full panoply of attributes.

- **Abstract subjects**
  ≈ notions of qualities, or clusters of certain qualities, that form part of an object but are considered in isolation from other aspects of the objects

(McCosh 1883, 8-9)
General Categories for Subjects in the *Rules for a Dictionary Catalog* (3).

Cutter’s Three Categories

- **Concrete Individual Subjects**
  
  ≈ Individuals viewed as wholes (e.g., “Goethe”, Shakespeare”)

- **Concrete General Subjects**
  
  ≈ General notions indicating the kinds of things that individual objects are (e.g., “Man” [or, better, “Human Being”])

- **Abstract General Subjects**
  
  ≈ General notions indicating abstractions derived from qualities of objects (e.g., “Wisdom”, “Life”, “History”, “Philosophy”)

(Cutter 1904, 23, s.v. “Subject”; McCosh 1883, 30-32, 48-49; Miksa 1983a, 25-26)
General Categories for Subjects in the *Rules for a Dictionary Catalog* (4).
The Theoretical Foundations

- Cutter’s tripartite category system based on Scottish Common Sense version of a traditional model of philosophical psychology:
  
  * *Concrete Individual Subjects* $\approx$ notions of objects directly apprehended in perception.
  
  * *Concrete General Subjects* $\approx$ notions of kinds of objects formed through the processes of abstraction, generalization, and conception.
  
  * *Abstract General Subjects* $\approx$ highest levels of abstraction, namely sciences and other departments of knowledge.

(Miksa 1977, 53-54; 1983a, 37-44; McCosh 1883, 27-28, 30-33)
General Categories for Subjects in the *Rules for a Dictionary Catalog* (5).
A Hierarchical Relational Structure

Cutter’s three categories stood in hierarchical relationships to one another:

*Concrete individual* subjects were included within *concrete general* subjects, which, in turn, were included within *abstract general* subjects.

e.g.,

*Socrates* (i.e., concrete individual) is included in the class of *Philosophers* (i.e., concrete general), which, in turn, is included within the domain of *Philosophy* (i.e., abstract general).

(Miksa 1983a, 25)
Cutter’s General Categories in Application.

Specificity

For Cutter, “specificity or the degree of narrowness in any particular subject was a function of the relative degree of concreteness or abstraction that the subject term represented. ... [G]reat specificity meant greater concreteness whereas great breadth referred to greater abstractness” (Miksa 1983b, 116).

Concrete individual subjects are more specific than concrete general subjects, which, in turn, are more specific than abstract general subjects.

e.g.,
Socrates (concrete specific) is more specific than Philosopher (concrete general, which, in turn, is more specific than Philosophy (abstract general).
Cutter’s General Categories in Application (2).
Specific Entry

• Specific Entry
  “[R]egistering a book under a heading which expresses its special subject as distinguished from entering it in a class that includes the subject” (Cutter 1904, 22, s.v. “Specific Entry”)

• The Rule of Specific Entry:
  “Enter a work under its subject-heading, not under the heading of a class which includes the subject” (Cutter 1904, 66-67, Rule 165)

  e.g.,
  enter a book on Socrates under SOCRATES, not under PHILOSOPHERS, ANCIENT GREEK PHILOSOPHERS, ANCIENT PHILOSOPHERS, or PHILOSOPHY.
Cutter’s General Categories in Application (3). Specific Entry and the Dictionary Catalog

• The ideal of specificity is the direct entry of each book under the subject heading appropriate to it.

• Direct entry is assured by eliminating hierarchical subdivisions from the catalog file and giving each subject equal weight as a point of direct entry in the catalog:

  e.g., SOCRATES, PHILOSOPHERS, and PHILOSOPHY are each a separate heading: there are no classified headings of the sort PHILOSOPHY—PHILOSOPHERS—SOCRATES or PHILOSOPHERS—SOCRATES.

• This is the reason for Cutter’s preference for the form of the dictionary catalog over that of the alphabetico-classed and the classed catalog.

(Cutter 1876, 540; 1904, 19, s.v. “Dictionary and other alphabetical catalogs”)
Cutter’s General Categories in Application (4).
The Treatment of Complex Subjects: Significance Order

Under which subject heading should works dealing with complex subjects like “The Ornithology of New England”? 

• Cutter’s solution: Use a “significance order” (Miksa 1983a, 32), whereby a book dealing with a complex subject is entered under the heading that represents the element of the subject that belongs to the most specific subject category.

• Cutter’s significance order: Concrete singular subjects have precedence over concrete general subjects, which in turn, have precedence over abstract general subjects (Miksa 1983a, 35, 47-49)
Cutter’s General Categories in Application (5). The Treatment of Complex Subjects: Example

Book on “Ornithology of New England” (Cutter 1904, 68, Rule 165)

* Ornithology is an abstract general subject.
* New England is a concrete individual subject.

-- Concrete individual subjects have precedence over abstract general ones

• Enter under NEW ENGLAND

“The dictionary catalog in choosing between a class [sci., a concrete general or an abstract general subject—TMD] and an individual [sci. a concrete individual subject—TMD] chooses the latter” (Cutter 1904, 68, observation to Rule 165).
Cutter’s General Categories in Application (6). The Significance of Significance Order

• Cutter’s mechanism of *significance order* is broadly analogous to the mechanism of *citation order* within the categorial approach to KO (cf. Miksa 1983a, 31).

• Both align a limited set of categories into a sequence of precedence for use in structuring a file of index terms.

• Major difference:
  * *Significance order* serves as a decision tree for choosing between alternative subject headings for a given book.
  * *Citation order* serves as a principle for structuring complex classmarks (e.g., Otlet) or index terms (e.g., Kaiser).
Categories in the Expansive Classification:
Overview of the Classification

The Expansive Classification:

• was a bibliographical shelf classification

• consisted of “seven tables of classification of progressive fullness designed to meet the needs of a library at its successive stages of growth” (Cutter 1898, 84).

• was named “expansive” because each successive table in the sequence of seven constituted an expansion of its predecessor in terms of structure and notation (Cutter 1898, 84).
Categories in the Expansive Classification (2).
Structure and Notation of Main Tables

- *Enumerative scheme* in which broad departments of knowledge, or disciplines, served as the main classes for subjects.

- Sequence of classes followed what Cutter (1898, 86; 1899, 86) claimed to be an *evolutionary order* (cf. Dousa 2009, 80-83).

- The notation to indicate subjects consisted solely of *the letters of the Roman alphabet*
  
  C = “Christianity and Judaism”
  CB = “The Bible”
  MV = “Biology”
  RCZ = “General and miscellaneous works” on “[e]xttractive and productive arts”
  T = “Fabricative arts, Manufactures and Handicrafts”
  WP = “Painting”
Categories in the Expansive Classification (3). Two Auxiliary Lists: Structure and Notation

1. A short list of *bibliographical forms*, elements of which were notationally indicated by single Arabic digits (Cutter 1891-1893, 130):
   5 = Dictionaries
   7 = Periodicals

2. The *Local List*, an extensive enumeration of *geographical regions, continents, and countries*, elements of which were notationally indicated by Arabic numerals between 11-99 and decimal extensions thereof (Cutter 1891-1893, 7-8; “Local List”):
   14 = Arctic Regions      30 = Europe     83 = United States
   143 = Greenland         39 = France     896 = Illinois
   15 = Oceans and Islands  45 = England
   161 = Hawaiian Archipelago 595 = Romania
Categories in the Expansive Classification (4).
Two uses of the Local List

1. Members of the local list could serve as subdivisions of subjects from the Main Table (Cutter 1898, 85):
   
   F45 = History of England
   G45 = Geography of England
   JT45 = English politics
   X45 = English language
   Y45 = English literature

2. Members of the local list could be subdivided by subjects from the Main Table (Cutter 1891-1893, “Subject divisions under countries”; 1899, 48):

   45F = History of England
   45G = Geography of England
   45JT = English politics
   45X = English language
   45Y = English literature
Categories in the Expansive Classification (5).
The Category-Based Structure of Classmarks

• The Expansive Classification distinction between two semantically different categories—*Subjects* and *Places*.

• These were formally distinguished by assignment to different classification schedules—the *Main Tables* and *Local List*—and by different notational symbols—*Roman letters* and multiple *Arabic digits*.

• These two categories could be combined into two sequences:

  [Subject]-[Place]  e.g., F45 = History.England
  [Place]-[Subject]  e.g., 45F = England.History

• The Expansive Classification thus involved facultative use of a simple form of *category-based class synthesis*. 
A Preferential Option for the Concrete: A Unifying Feature of the Rules and the Expansive Classification

Both the *Rules for a Dictionary Catalog* and the Expansive Classification were designed to favor the representation of concrete, individual subjects:

* “[T]he tendency of the dictionary catalog is towards national classification: that is, in separating what relates to the parts of a subject, as is required by its *specific* principle, it necessarily brings together all that relates to a country in every aspect, as it would what relates to any other individual” (Cutter 1904, 127).

* In the Extensive Classification, “classification by country” is “the most important instance” of the “thing-arrangement” characteristic of a classificatory tendency toward the concrete and the individual” (Cutter 1899, 48, 47).
Conclusion

Although Cutter designed his KOSs according to the norms of the traditional approach to KO and did not develop an explicit theory of categories, he did incorporate elements of a categorial approach into both the *Rules* and the Expansive Classification:

*Rules:*
* Three-category system of concrete individual, concrete general, and abstract general subjects, articulated into a hierarchical structure that correlated with subject specificity and served as the basis for selecting subject-headings for books with complex subjects.

Expansive Classification
* Allowed for facultative use of class synthesis involving a table of Subjects and an auxiliary Local List.

Cutter can be considered alongside Otlet, Brown, Bliss, and Kaiser as a precursor of the categorial approach to KO.
Thank You for your Attention!
Any Questions?
References


Hjørland, B. 2008. What is knowledge organization (KO)? Knowledge organization, 35: 86-101


The Categorial Approach to Structuring Cross References in the Rules for a Dictionary Catalog:
Rule 342

342. When there are many cross-references classify them.

Ex. Architecture. See also Arches; — Baths; — Bridges; — Cathedrals; — Fonts; — [and many other things built]; also Carpentry; — Drawing; — Metal-work; — Painting; — [and many other means or methods of building]; also Athens; — Berlin; — Boston; — Milan; — Rome; — Venice; — Verona; — [and many other cities whose buildings are described]; also Arabia; — Assyria; — Egypt; — France; — Greece; — India; — Italy; — [and many other countries whose architecture is described];

Source: Cutter, 1904, 125.
The Categorial Basis to Cutter’s Example for Rule 362

Cutter’s example can be analyzed as one in which the subjects relating to a given domain—Architecture—are assigned to four different categories:

- “Things built” = *products* of architectural processes
- “Means and methods of building” = architectural *processes*
- “Cities whose buildings are described”
  = *places* in which the products of architectural processes are located.
- “Countries whose buildings are described”
  = *places* in which the products of architectural processes are located.