Relational aspects of subject authority control: the contributions of classificatory structure

Rebecca Green
Assistant Editor, Dewey Decimal Classification
OCLC
FRSAD starting point

The purpose of authority control is to ensure consistency in representing a value—a name of a person, a place name, or a term or code representing a subject—in the elements used as access points in information retrieval. . . . In addition to ensuring consistency in subject representation, a subject authority system may also record established semantic relationships among subject concepts and/or their labels.
Classification systems ≠ thesauri

- Fundamental unit of analysis: class
- Externally, classes organized into (poly)hierarchy
- Internally, classes structured as subgraphs around focal topics → “topic neighborhoods”
- Set of topics in class not fully enumerable
PARADIGMATIC RELATIONSHIPS EXPRESSED THROUGH THE CLASSIFICATORY STRUCTURE
<table>
<thead>
<tr>
<th>Type of relationship</th>
<th>Broader class</th>
<th>Narrower class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialization</td>
<td>005.75 Specific types of data files and databases</td>
<td>005.758 Distributed data files and databases</td>
</tr>
<tr>
<td>Instantiation</td>
<td>224 Prophetic books of Old Testament</td>
<td>224.8 Amos</td>
</tr>
<tr>
<td>Whole-part: portion</td>
<td>T2—5 Asia</td>
<td>T2—57 Siberia (Asiatic Russia)</td>
</tr>
<tr>
<td>Whole-part: component</td>
<td>352.4 Financial administration and budgets</td>
<td>352.46 Public expenditures</td>
</tr>
</tbody>
</table>
Hierarchical relationships:
See references

170 Ethics (Moral philosophy)

Class here conscience, good and evil; ethics of specific subjects, interdisciplinary works on social ethics

For religious ethics, see 205; for social ethics as a method of social control, see 303.372. For ethics of a specific religion, see the religion, e.g., Christian ethics 241
Equivalence relationships

612.115  Coagulation (Clotting)
  Including role of fibrin, fibrinoplastin, plasma, thrombin in clotting

796.356 64  Rink hockey
  Variant names: hardball hockey, quad roller hockey

324.294 04  The Nationals
  Former names: Australian Country Party, National Country Party, National Party of Australia
Associative relationships within a class

T1—092 Biography

Autobiography, description and critical appraisal of work, diaries, reminiscences, correspondence of people . . . who are part of the subject or who study the subject . . .

006 Special computer methods

Class here programs, programming, selection and use of hardware in relation to special computer methods
Associative relationships using class-elsewhere notes

         Class Israel-Arab War, 1973, in 956.048

956    Middle East (Near East)
956.04  1945–1980
956.048 Israel-Arab War, 1973 (Yom Kippur War)
Associative relationships using see-also references (1)

• Lexical similarity

T2—764 252 Austin County

See also — 76431 for Austin (city)

641.865 4 Cookies

Variant name: biscuits

See also . . . 641.8157 for biscuits (quick breads)
Associative relationships using see-also references (2)

• Complementarity

190  Modern *western and other noneastern* philosophy

*See also* 181 *for* *eastern* *philosophy*

• Facet difference

621.91  Planing and milling *tools*

*See also* 671.35 *for* *machining* *metal*
Associative relationships using see-also references (3)

- Relational configuration difference
  - 616.075 Diagnosis and prognosis
  - 616.075 61 Blood analysis
    See also 616.15075 for diagnosis of diseases of blood

- Diseases of blood
  - 616.15 Diseases of blood
    See also 616.07561 for use of blood analysis in diagnosis of diseases in general
  - 616.150 75 Diseases of blood—diagnosis and prognosis
RELATIONSHIPS EXPRESSED THROUGH THE RELATIVE INDEX
Relative Index (RI) headings (1)

- Functions
  - Index classes
  - Reflect topics

- Structure: Main heading + (optionally) 1+ subheadings

- Example

  Commercial airplanes 387.733 404 23
  engineering 629.133 340 423
  piloting 629.132 521 6
  transportation services 387.733 404 23

  see also Aircraft
Relative Index (RI) headings (2)

• Main headings may be:
  – Simple (e.g., Brass; Meteors; Solar flares)
  – Complex (e.g., Mate selection; Textual criticism)

• Subheadings may reflect:
  – Discipline / subdiscipline (e.g., Immigration – law)
  – Processes (e.g., Theater – influence on crime;
    Theft – prevention – management)
  – Time (e.g., Greece – ancient)
  – Viewpoint (e.g., Theology – Islam – Sufi)
Recording RI relationships

• MARC authority record
  – Hierarchical and associative relationships
    • 5XX See Also From Tracing Fields
      – Relationship information: $i
      – Broader term: $w g
      – Narrower term: $w h
  – Equivalence relationships
    • 260 Complex See Reference
    • 4XX See From Tracing Fields
Automatic identification of RI equivalence relationships

- Synonym qualifiers
- Variant names
- Hyphenation differences
- Acronyms
- Equivalent in other tools
  - LCSH
  - WordNet
- Heuristic: If A and B are equivalent, then A—C and B—C are equivalent
Automatic identification of RI hierarchical relationships

- Heuristic: \( A \rightarrow B \) BT \( A \) vs. \( A \rightarrow B \) BT \( B \)
- Heuristic: \( X A \) BT \( A \) (e.g., Adj Noun BT Noun)
- Heuristic:
  - \( A \rightarrow B \) BT BT-of-A→B
  - \( A \rightarrow B \) BT A→BT-of-B
- Hierarchical relationship in other tools
  - LCSH
  - WordNet
SYNTAGMATIC RELATIONSHIPS EXPRESSED THROUGH THE CLASSIFICATORY STRUCTURE AND RELATIVE INDEX
Number building / RI structure correspondence (1)

787.87  *Guitars
*Add as instructed under 784–788

784–788 Instruments and their music
Add to each subdivision identified by * as follows:
11-17 General principles
Add to 1 the numbers following 781 in 781.1–781.7

781.643  Blues
787.871643 indexed by Guitars – music – blues
# Number building / RI structure correspondence (2)

**Table 1:** Correspondence between built number and Relative Index term components

<table>
<thead>
<tr>
<th>Base number</th>
<th>Component 1</th>
<th>Component 2</th>
<th>Relative Index term</th>
</tr>
</thead>
<tbody>
<tr>
<td>787.87</td>
<td>(784-788:)1 General principles, musical forms, instruments</td>
<td>(781.)642 Country music</td>
<td>Guitars – music – country music</td>
</tr>
<tr>
<td>787.87</td>
<td>(784-788:)1 General principles, musical forms, instruments</td>
<td>(781.)643 Blues</td>
<td>Guitars – music – blues</td>
</tr>
<tr>
<td>787.87</td>
<td>(784-788:)1 General principles, musical forms, instruments</td>
<td>(781.)644 Soul</td>
<td>Guitars – music – soul</td>
</tr>
<tr>
<td>787.87</td>
<td>(784-788:)1 General principles, musical forms, instruments</td>
<td>(781.)65 Jazz</td>
<td>Guitars – music – jazz</td>
</tr>
<tr>
<td>787.87</td>
<td>(784-788:)1 General principles, musical forms, instruments</td>
<td>(781.)654 Mainstream jazz (“including swing”)</td>
<td>Guitars – music – swing</td>
</tr>
<tr>
<td>787.87</td>
<td>(784-788:)1 General principles, musical forms, instruments</td>
<td>(781.)66 Rock (Rock 'n' roll)</td>
<td>Guitars – music – rock</td>
</tr>
</tbody>
</table>
SO WHAT?
Importance of relational side of subject authority control in the DDC

- Help developers maintain system
- Support establishment of crosswalks between systems
- Help classifiers assign bibliographic records to most appropriate class
- Help end users find most appropriate resources for their needs
  - Assist in knowledge discovery when end user searches with entry vocabulary from one system against bibliographic records to which subject notation from other systems have been assigned
Thank you!

Rebecca Green
Assistant Editor, Dewey Decimal Classification

greenre@oclc.org