

# Multiple Entry Points Variants and Cross-References in Indexes and Thesauri

American Society for Indexing Annual Conference  
Chicago, Illinois, June 17, 2016

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## About Heather and John

- Each has worked at Information Access Company/Gale Research/Thomson Learning/Cengage Learning since the 1990s (Heather with a break of 10 years)
- Each has experience with back-of-the-book indexing, periodical database indexing, and thesaurus development for database indexing

## Introduction

- Exercise
- Book indexing vs. periodical/database indexing
- Thesauri
- Multiple entry points overview

## Back-of-the-book index multiple entry points

- Double posts
- See references
- Issues specific to book indexes

## Thesaurus multiple entry points

- Nonpreferred terms
- Issues specific to thesauri

## Comparison summary

## Introduction

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## Exercise

Propose multiple entry points for these entries:

- **Campaign finance**
- **Automobile industry**
- **Aviation**
- **French Navy**

Three related functional/skill areas:

## 1. Back-of-the-book indexing

- Identifying the concepts and names mentioned in the book and organizing them into an index

## 2. Periodical/database indexing

- Identifying the main ideas of an article or content item and assigning the most appropriate index terms available *from a controlled vocabulary*, which results in creating an index

## 3. Controlled vocabulary (thesaurus) creation

- Creating and editing a structured list of terms used for database indexing (and sometimes multi-volume book indexing) for supporting end-user retrieval

## Back-of-the-book indexing vs. periodical/database indexing

### 1. Back-of-the-book indexing

- Also called “**closed indexing**”: the index is created for the single work, then is done (closed)
- Indexing subsequent editions may involve referring to previous edition’s index, but usually are indexed from scratch again
- Embedded indexing (linking to text location in the electronic file) enables index reuse and revision in subsequent editions

## 2. Database indexing

- Also called “**open indexing**”: indexing is an ongoing process as additional periodical issues or content is added, and the index is used yet never “finished” (open)
- A controlled vocabulary is necessary to provide consistent indexing to the same concepts from different sources indexed by different indexers over time.
- Originally was mostly for periodical articles. Now for any content in a content management system or digital asset management system: HTML files, PDFs, PPTs, brochures and ads, test questions and learning activities, images, audio, video, etc.



## 1. Similarities between the two kinds of indexing

- Read/examine and analyze content for what the main concepts are
- Consider different ways the concepts might be named
- Consider to how much detail to index

## 2. Differences between the two kinds of indexing

### A. Tasks

- Back-of-the-book indexing requires the indexer to additionally come up with (invent) all of the index terms and their variants and arrange them into an index
- Database indexers utilize the existing controlled vocabulary (and may suggest terms subject to approval)

## 2. Differences between the two kinds of indexing (continued)

### B. Differences in the resulting indexes

- Back-of-the-book indexing results in a fully displayed browsable alphabetical index.
- Database indexes may or may not be displayed to end-users. Maybe just portions (such as terms in a type-ahead scrollbox)

### C. Differences in the indexers

- A book is indexed by a single indexer.
- Database indexing projects are shared by multiple indexers.

## Controlled vocabulary

- Each term stands for an unambiguous concept.
- There is control over the addition of terms to the vocabulary.
- Indexers should / terms already in the controlled vocabulary.
- A very small controlled vocabulary might be a simple list without multiple entry points.

## Thesaurus - a kind of controlled vocabulary that has multiple entry points and structure

- **Multiple entry points** are “equivalent” terms, with a nonpreferred term pointing to a preferred term.
- **Structure** is through relationships between terms
  - Hierarchical (broader term/narrower term: BT/NT)
  - Associative (related terms: RT)

## Thesaurus excerpt example

### Alphabetical browse:

- [Corporate trust services](#) (Subjects)
- [Corporate turnarounds](#) (Subjects) (NPT)
- [Corporate videos](#) (Subjects) (NPT)
- [Corporate welfare](#) (Subjects)
- [Corporate wellness programs](#) (Subjects) (NPT)
- [Corporation directors](#) (Subjects) (NPT)
- [Corporation executives](#) (Subjects) (NPT)
- [Corporation law](#) (Subjects)
- [Corporation reports](#) (Subjects) (NPT)
- [Corporation secretaries](#) (Subjects)
- [Corporations](#) (Subjects)
- [Corporatism](#) (Subjects) (NPT)
- [Corporative state](#) (Subjects) (NPT)
- [Corporativism](#) (Subjects) (NPT)

### Selected term details:

**Descriptor Corporation law**

**Relationships**

- [UF Company law](#) (Subjects)
- [UF Corporate law](#) (Subjects)
- ⊕ [BT Commercial law](#) (Subjects)
- ⊕ [NT Antitrust law](#) (Subjects)
- [NT Business judgment rule](#) (Subjects)
- [NT Disregarding corporate entity](#) (Subjects)
- ⊕ [NT Incorporation](#) (Subjects)
- [NT Railroad law](#) (Subjects)
- [RT Articles of incorporation](#) (Subjects)
- [RT Business enterprises](#) (Subjects)
- [RT Business trusts \(Law\)](#) (Subjects)
- [RT Bylaws](#) (Subjects)
- [RT Corporate counsel](#) (Subjects)
- [RT Corporate domicile](#) (Subjects)

Thesaurus excerpt  
example

Hierarchical view excerpt

- (NT1) Commercial law
  - (NT2) Accounting law
  - (NT2) Banking law
    - (NT3) Banking Act of 1935
    - (NT3) Disclosure (Banking law)
    - (NT3) Fair Credit Reporting Act
    - (NT3) Glass-Steagall Act
  - (NT2) Bankruptcy law
  - (NT2) Collection law
  - (NT2) Construction law
    - (NT3) Building codes
  - (NT2) Corporation law
    - (NT3) Antitrust law
      - (NT4) Antitrust law (International law)
      - (NT4) Rule of reason (Antitrust law)
      - (NT4) State action (Antitrust law)
    - (NT3) Business judgment rule
    - (NT3) Disregarding corporate entity
    - (NT3) Incorporation
      - (NT4) Articles of incorporation
    - (NT3) Railroad law
  - (NT2) Economic loss doctrine
  - (NT2) Food law
    - (NT3) Dairy laws
    - (NT3) Sugar laws
  - (NT2) Insurance law

## Multiple Entry Points

- **Defined:** Synonyms or roughly equivalent concepts (not just words), for the context.
- **Purpose:** To capture different wordings of how different people might describe or look up the same concept or idea.
  - Differences between that of the author and the user/reader
  - Differences among different users/readers
- A concept may any number of (multiple) entry points, or it may have only a single entry name.
- Multiple entry points can point to the preferred entry/term, or they can point directly to the content.

# Multiple Entry Points Overview

Have various designations:	Aliases	Found in:
	Alternate labels	<i>SKOS vocabularies</i>
	Alternate terms	
	Cross-references	<i>BOB indexes</i>
	Entry terms	<i>Thesaurus end-use</i>
	Equivalency relationship	<i>Thesaurus creation</i>
	Equivalent terms	<i>Thesaurus creation</i>
	Keywords	
	Nondescriptors	<i>Thesaurus end-use</i>
	Non-postable terms	<i>Thesaurus end-use</i>
	Nonpreferred terms	<i>Thesaurus creation</i>
	NPTs	<i>Thesaurus creation</i>
	See references	<i>BOB indexes</i>
	Synonyms	<i>Taxonomies</i>
	Use for terms	<i>Thesaurus end-use</i>
	Use references	<i>Thesaurus end-use</i>
Used for terms	<i>Thesaurus end-use</i>	
Variants		

## Types include:

- synonyms
- near-synonyms
- variant spellings
- lexical variants
- foreign language names
- acronyms/spelled out forms
- common/scientific names
- phrase variations (in print)
- antonyms
- more specific concepts (depending on circumstances)



### Exercise: Create each kind of multiple entry point

- synonyms: **Cars**
- near-synonyms: **Junior high schools**
- variant spellings: **Defense**
- lexical variants: **Hair loss**
- foreign language names: **German Air Force**
- acronyms/spelled out forms: **United Nations**
- common/scientific names: **Cancer**
- phrase variations (in print): **School buses**
- antonyms: **Behavior**
- more specific concepts: **Computers**

### Exercise answers:

- synonyms: **Cars / Automobiles**
- near-synonyms: **Junior high schools / Middle schools**
- variant spellings: **Defense / Defence**
- lexical variants: **Hair loss / Baldness**
- foreign language names: **German Air Force / Luftwaffe**
- acronyms/spelled out forms: **United Nations / UN**
- common/scientific names: **Cancer / Neoplasms**
- phrase variations (in print): **School buses / Buses, school**
- antonyms: **Behavior / Misbehavior**
- more specific concepts: **Computers / Laptops**

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## Comparison summary

### Double posts

- Multiple entries that refer to the same concept/name/topic/idea with the same locators.
- Desirable for many entries, but not all.
- Although called “double” posts, can be for three or more.
- Use double posts instead of *See reference*, for entries with no subentries.

## Double post examples:

Film reviews, 162–166, 173

Movie reviews, 162–166, 173

Ethics of communication, 113–114

Communication ethics, 113–114

Search, web, 41–42

Web-based research, 41–42

GDP (gross domestic product) 233, 251, 265, 295

gross domestic product 233, 251, 265, 295

## See references

- Entries that point to another entry, to use instead
- Locators are at the referred entry only.
- Used instead of double posts when entries have subentries, and it is undesirable to repeat all subentries. So it saves space.

### See reference examples:

arms purchases. *See* weapons purchases

labor unions. *See* unions, labor

parties, political. *See* political parties

war on drugs. *See* drug war

Handicapped persons. *see* Persons with disabilities

Daoism. *see* Taoism

MAS. *See* Movement toward Socialism (MAS)

Movimiento Nacionalista Revolucionario (MNR). *See* Nationalist Revolutionary Movement (MNR)

Issues specific to book index multiple entry points:

## Alphabetical display

Multiple entry points next to each other or very near (a couple entries away) are not needed, and are better omitted.

Do not have:

Ethnic groups

Ethnic minorities

Close lying entries may be permitted for educational purposes:

Net profit. *See* Net operating profit



“Flipping” main entries and subentries can serve as double posts

APA documentation style, 649, 665–677  
    parenthetical references, 666

Parenthetical references  
    in APA documentation style, 666

African Americans  
    business ownership, 247–248

Business ownership  
    by African Americans, 247–248

Active voice, 213–216  
    tone and, 235

Tone  
    active voice and, 235

More common than full flipping:

Double-post of main entry and main entry/subentry

## Design

clothing. see Fashion design

furniture, 223

industrial, 60–61

interior. see Interiors

product, 224–226

Furniture design, 223

Double post variation:

Slightly broader concept with added locator(s)

Body language, 85–87, 118

Gestures, 85–87

Hand gestures, 85–87

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## Comparison summary

## Thesauri, by themselves, do not have locators.

- So, true (re-directing) cross-references (in addition to double posts) are not needed for the purposes of saving space.

## Thesauri are rarely in print or print-only.

- So, multiple entry points can link directly to content.
- For the end-user, there is no need to re-direct/point to another term in the thesaurus first with a cross-reference.

## Thesauri are structured hierarchically.

- So, a single “preferred” term is needed for each concept in order to display a simple hierarchy of main entry terms. Double post terms cannot be accommodated.

# Thesaurus Multiple Entry Points

- Thesauri generally do not have traditional cross-references that redirect within the thesaurus prior to pointing/linking to the content.
- Thesauri do not have double post versions of concepts, where multiple entries are on equal standing.
- Each concept is described by a single “preferred term” which has hierarchical and related relationships with other preferred terms.
- Additional entry points for the concepts are “nonpreferred terms” (NPTs).
- Nonpreferred terms (NPTs) point to the preferred term, and have no relationships to other preferred terms.

Standard thesaurus notation: USE / UF (**Used for** or **Used from**)

**Nonpreferred term USE Preferred term**

**Preferred term UF Nonpreferred term**

- **Public procurement** USE **Government purchasing**  
**Government purchasing** UF **Public procurement**
- **Dress design** USE **Costume design**  
**Costume design** UF **Dress design**
- **Eskimos** USE **Inuit**  
**Inuit** UF **Eskimos**
- **Inundations** USE **Floods**  
**Floods** UF **Inundations**

## Thesaurus nonpreferred terms:

- Considered a kind of “relationship” of the Equivalency type.
- Reciprocity of relationship, pointing in both directions.
- Both preferred terms and nonpreferred terms are “terms.”

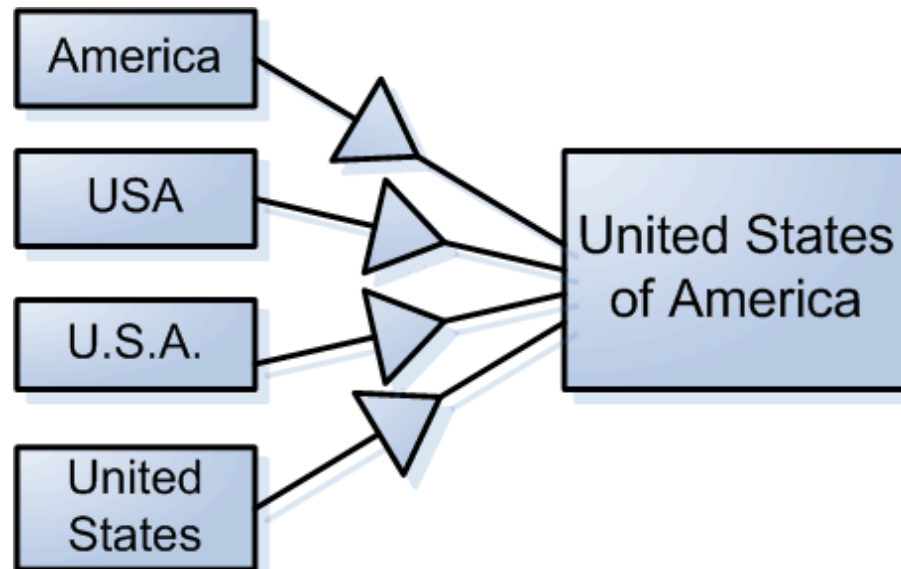
## In contrast with SKOS vocabularies:

- Instead of terms, there are concepts.
- Concepts have multiple labels.
- Concepts have a preferred label (for each language).
- Concepts have any number of alternate labels and hidden labels (for each language).
- Alternate and hidden labels are part of a concept’s attributes, not equivalent terms and not connected by “relationships.”



## Many-to-one, not one-to-many

- Typically a nonpreferred term may point to only one preferred term.
- But a preferred term, may have multiple nonpreferred terms pointing to it.



Thesauri, typically in electronic form, can be searched in addition to being browsed.

- For users who search, nonpreferred terms for entries that are alphabetically next to each other should still be.  
For example, *do* have both:
  - Ethnic groups
  - Ethnic minorities
- If the search system is “smart” to search on words within terms, *do not* include simple inversions as nonpreferred terms. For example, *do not* add the nonpreferred term:
  - Political fundraising
  - ~~UF Fundraising, political~~

## Narrower concept as a nonpreferred term

Examples: Laptops USE Computers

Hand gestures USE Body language

As the preferred term is used for the narrower concept and fully encompasses the nonpreferred term.

Can be problematic if:

- The nonpreferred/preferred term relationship is not displayed to the end-users, and
- There are multiple narrower concepts as nonpreferred terms

Computers

NT Laptops

NT Desktops

NT Servers

NT Supercomputers

## Narrower concept as a nonpreferred term problem

### Scenario:

- Indexer indexes article on **Supercomputers** with **Computers**.
- End-user looks up term **Laptops**, and is taken directly to result set of articles indexed with **Computers**.
- Result set includes articles on supercomputers and other computers that are not laptops, in addition to articles on laptops.
- End-user thinks the indexing is wrong by retrieving articles on other computers besides the selected laptops.

## Know your user interface for thesauri

- Thesauri don't stand alone like a book index. They are used within systems and applications.
- Decisions about additional entry points for a thesaurus are best made when you have a full understanding of your end users and the user interface through which they will use the thesaurus.
- Always ask yourself, “How are these NPTs being used?” The answer to that question will be the answer to many, many questions about specific NPTs.

Example on the following screenshot slides:

Education standards USE/SEE Educational standards

## User interface of the thesaurus editor – Begins search:

### Search Form

either **enter a search phrase**

education standards

Smart  Begins  Contains  Exact

or **select an alphabetical range**

Range  a  thru. Z

or **enter a specific item uid**

Item UID

### select search criteria

Obj Subjects

Cat All Categories

Act Active

### display batching

1000 Items per batch

Start Search

### Search Results

Elapsed Time for Query: 0.019 seconds

**1 Items Found**

- [Education standards](#) (Subjects) (NPT)

## User interface of the thesaurus editor – Smart search:

### Search Form

either enter a search phrase

education standards

Smart  Begins  Contains  Exact

or select an alphabetical range

Range  a  thru. z

or enter a specific item uid

Item UID

### select search criteria

Obj

Cat

Act

### display batching

1000 Items per batch

Start Search

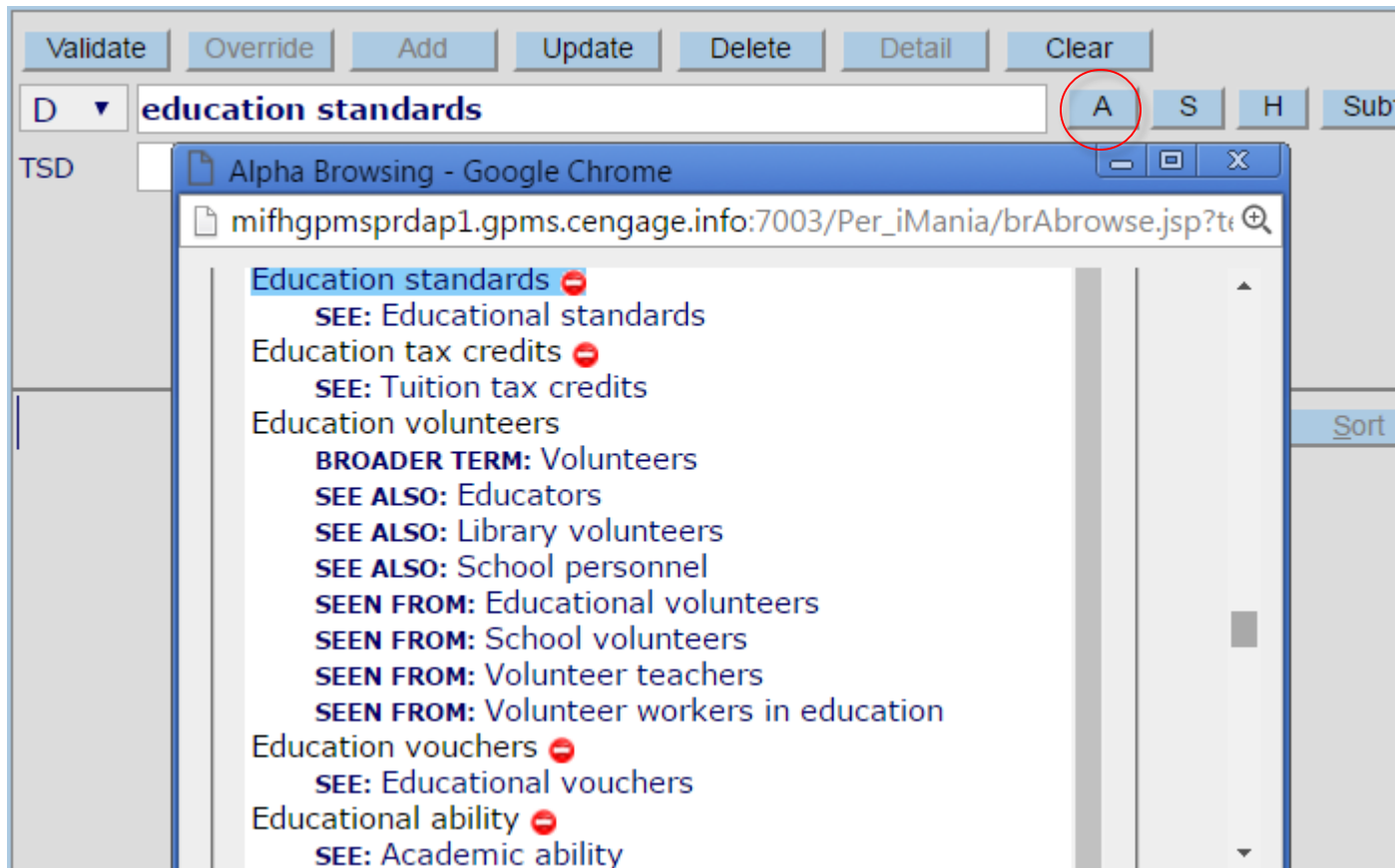
### Search Results

Elapsed Time for Query: 0.068 seconds

**5 Items Found**

- [Education standards](#) (Subjects) (NPT)
- [Educational standards](#) (Subjects)
- [State education standards](#) (Subjects) (NPT)
- [State educational standards](#) (Subjects) (NPT)
- [State standards \(Education\)](#) (Subjects)

## User interface of the indexer – Alphabetical browse:



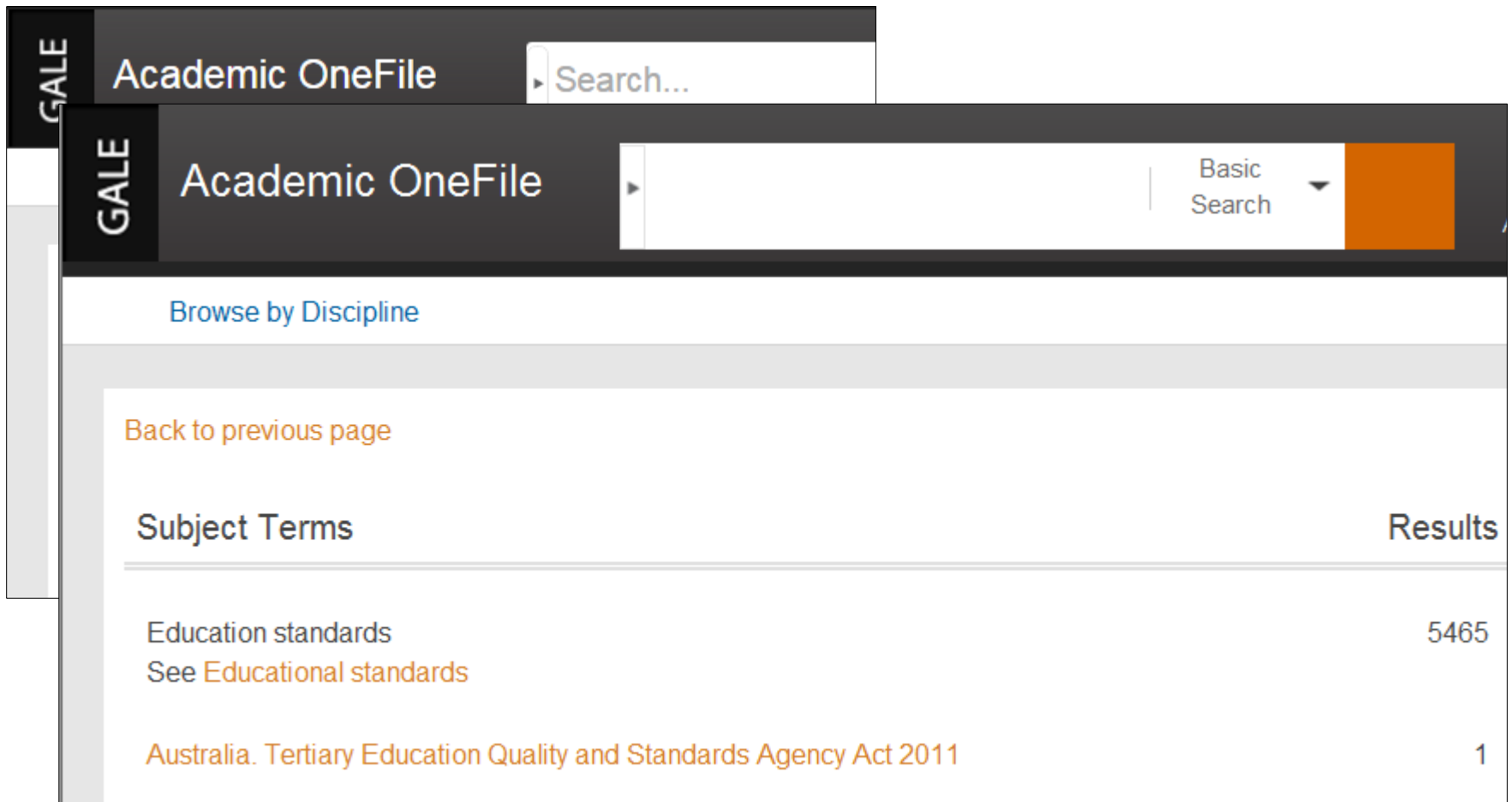


## User interface of the indexer – Smart search:

The screenshot displays a web-based thesaurus interface. At the top, there are several buttons: Validate, Override, Add, Update, Delete, Detail, and Clear. Below these is a search bar containing the text "education standards". To the right of the search bar are buttons labeled A, S, H, and Su. The "S" button is circled in red. Below the search bar, a browser window titled "Smart Search - Google Chrome" is open, showing the URL "mifhgpmsprdap1.gpms.cengage.info:7003/Per\_iMania/brSbrowse.jsp?ter". The search results are displayed in a list format, with "Education standards" selected. The results include:

- Education standards (with a minus sign icon)
- SEE: Educational standards
- Educational standards
- NARROWER TERM:** Carnegie units
- NARROWER TERM:** Common European Framework of Reference for Languages
- NARROWER TERM:** Curriculum standards
- NARROWER TERM:** State standards (Education)
- SEE ALSO:** Academic eligibility (School sports)
- SEE ALSO:** Accreditation (Education)
- SEE ALSO:** Competency based education
- SEE ALSO:** Educational accountability
- SEE ALSO:** Educational assessment
- SEE ALSO:** Grades (Scholastic marks)
- SEE ALSO:** Grading (Education)
- SEE ALSO:** Graduation requirements
- SEEN FROM:** Academic standards
- SEEN FROM:** Education standards
- State education standards (with a minus sign icon)
- SEE: State standards (Education)

## User interface of the end-user - search on Subjects:



The screenshot displays the Academic OneFile search interface. At the top, there is a search bar with the text "Search...". Below the search bar, the text "Browse by Discipline" is visible. A link "Back to previous page" is also present. The main content area is titled "Subject Terms" and "Results". The results table shows the following entries:

Subject Terms	Results
Education standards See <a href="#">Educational standards</a>	5465
<a href="#">Australia. Tertiary Education Quality and Standards Agency Act 2011</a>	1

## User interface of the end-user – autosuggest enabled:

The screenshot displays the Gale Academic OneFile search interface. At the top left, the 'GALE' logo is visible. The main header area includes 'Academic OneFile' and a search type selector set to 'Basic Search' with a dropdown arrow, and an 'Advanced' link. Below the header, there is a 'Browse by Discipline' link. The main content area features two search tabs: 'Subject Guide Search' (which is selected and underlined) and 'Publication Search'. Under the 'Subject Guide Search' tab, there is a search input field containing the text 'education stan' and a blue 'Search' button. A dropdown menu is open below the input field, displaying three search results: 'Education Statutes and Regulations of Ontario 1998 Consolidation (Nonfiction work)', 'Educational standards', and 'United States. National Center for Education Statistics'. A vertical scrollbar is visible on the right side of the dropdown menu.

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## Comparison summary

## Same goal:

- To direct various users, who / various terms that mean the same thing, to the same content location

## Same approach:

- Utilizes synonyms, near synonyms, sometimes antonyms (e.g. behavior/misbehavior), slang or jargon, abbreviations or acronyms and spelled out forms, former and current names, pseudonyms, phrase variations and inversions, etc.

# Multiple Points of Entry Comparison: Differences

<b>Book Indexes</b>	<b>Thesauri</b>
<p>Two different methods:</p> <ol style="list-style-type: none"> <li>1. Double-posts Both or all of equivalent-meaning entry terms have equal standing</li> <li>2. See references - Points the user from an entry term <i>not</i> used in the index to one that <i>is</i> used in the index</li> </ol>	<p>One method only:</p> <p>Nonpreferred terms / Equivalency relationship: Use - Points the user from an entry term <i>not</i> used in the thesaurus to one that <i>is</i> used in the thesaurus</p>
<p>Indexer decisions:</p> <ul style="list-style-type: none"> <li>- When to create double-posts versus See references (usually based on presence of subentries)</li> <li>- If using a See reference, then what the preferred term will be</li> </ul>	<p>Thesaurus editor decisions:</p> <ul style="list-style-type: none"> <li>- In all cases, what the preferred term will be</li> </ul>
<p>See reference are one-directional: See (no corresponding “Seen from”)</p>	<p>Equivalency relationships are bi-directional and reciprocal: / and Used from (USE/UF)</p>

# Multiple Points of Entry Comparison: Differences

## Book Index

The user will be skimming the printed index.

Don't create cross-references that fall close to each other alphabetically (starting with the same word or with the same first 3-4 letters).

Do *not* create:

biological sciences. *See* biology

Create adjective-noun inversions, as double-posts or cross-references to provide a different word to start on:

business zoning  
zoning, business

## Thesaurus

The user might *search* the thesaurus instead of browsing it.

*Do* create nonpreferred terms that would fall close to each other (starting with the same word or with the same first 3-4 letters).

*Do* create:

Biological sciences  
*Use* Biology

If the thesaurus can be searched, do *not* create inverted nonpreferred terms.  
/ natural language only.

Business zoning

## Book Index

Create multiple entry points in anticipation of different ways:

- various users may look up the concept.

## Thesaurus

Create multiple entry points in anticipation of different ways:

- various users may look up the concept,
- various indexers may look up the concept,
- and various sources to be indexed may describe the concept

A well-designed thesaurus generally has more nonpreferred terms proportionally, than a well-designed BOB index has of double posts of main entries and See references.



# Multiple Points of Entry Comparison: Examples

## Book Index

With double (or triple) posts:

computers in typography, 99–100, 145–146, 181

digital typography, 99–100, 145–146, 181

typography, digital, 99–100, 145–146, 181

## Thesaurus

*Computers in typography*  
USE Digital typography

Digital typography  
UF Computers in typography

# Multiple Points of Entry Comparison: Examples

## Book Index

With See references:

AIGA. *see* American Institute of Graphic Arts

American Institute of Graphic Arts  
awards, 6, 55–56, 63, 96, 100  
founding of, 38  
Nash, Ray, involvement in, 96  
publications, 56  
SP meetings with, 8

## Thesaurus

*AIGA*

USE American Institute of Graphic Arts

American Institute of Graphic Arts  
UF AIGA

## Book indexing

- American Society for Indexing <http://www.asindexing.org/about-indexing>

## Thesaurus creation

- American Society for Indexing <http://www.asindexing.org/about-indexing/thesauri>
- ANSI/NISO Z39.19-2005 (R2010) Guidelines for the Construction, Format, and Management of Monolingual Controlled Vocabularies  
[http://www.niso.org/apps/group\\_public/download.php/12591/z39-19-2005r2010.pdf](http://www.niso.org/apps/group_public/download.php/12591/z39-19-2005r2010.pdf)
- “Practical Taxonomy Creation” ASI Online Learning 3-part webinar course  
<http://www.asindexing.org/online-learning/taxonomy-hedden>
- Construction of Controlled Vocabularies: A Primer  
<http://marciazeng.slis.kent.edu/Z3919/index.htm>
- Thesaurus Construction tutorial by Tim Craven  
<http://publish.uwo.ca/~craven/677/thesaur/main00.htm>
- Hedden, Heather (2010, 2016). *The Accidental Taxonomist*. Medford, NJ: Information Today, Inc.  
<http://books.infotoday.com/books/TheAccidentalTaxonomist.shtml>

# Questions?

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