



**Article title:** Thesaurus and Information Retrieval

**Authors:** David Kuku[1]

**Affiliations:** benue state university[1]

**Orcid ids:** 0000-0002-3884-3076[1]

**Contact e-mail:** kukudavid2014@gmail.com

**License information:** This work has been published open access under Creative Commons Attribution License <http://creativecommons.org/licenses/by/4.0/>, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. Conditions, terms of use and publishing policy can be found at <https://www.scienceopen.com/>.

**Preprint statement:** This article is a preprint and has not been peer-reviewed, under consideration and submitted to AfricArXiv Preprints for open peer review.

**DOI:** 10.14293/111.000/000067.v1

**Preprint first posted online:** 09 November 2023

**Keywords:** Information, Retrieval, Thesaurus

## **Introduction**

A thesaurus is a reference book or online tool that provides synonyms (words with similar meanings) and antonyms (words with opposite meanings) of a given word. The term "thesaurus" comes from the Greek words "thesauros" meaning "treasure" and "thēke" meaning "repository" or "storehouse" (Soergel, 1974).

According to Aitchison, J., Gilchrist, A., & Bawden, D. (2000) One of the earliest known thesauri was written by the Greek philosopher Filostrato during the 1st-century BC. However, the most famous and widely used thesaurus is the "Roget's Thesaurus," created by English physician and polymath Peter Mark Roget. Roget's Thesaurus was first published in 1852 and has since been revised and updated numerous times. It organizes words into categories and provides hierarchical relationships between them, helping readers find alternative words to use in their writing.

Thesauri have evolved over time from traditional print formats to online and digital resources, often integrated into word processing software or available as standalone websites (Cleveland, & Cleveland 2001). These digital tools provide users with instant access to a vast collection of words and their synonyms, making it easier to enhance their vocabulary, find alternative expressions, and improve their writing skills. Additionally, modern thesauri often offer features like example sentences, word usage tips, and even audio pronunciations.

Today, thesauri are widely used by writers, students, and professionals in various fields, including literature, journalism, copywriting, and language learning. They play an essential role in expanding vocabulary, avoiding repetitive language, and enhancing the overall quality and richness of written communication.

## Concept and types of thesauri

A thesaurus is a reference tool used to expand vocabulary, find synonyms, and explore the relationships between words. It classifies words based on their meanings and provides alternative terms that can be used interchangeably or convey similar concepts (Education Resources Information Center 2016). Let's explore the types of thesauri and provide some examples:

1. **Print Thesaurus:** Traditional thesauri in book or print format that categorize words alphabetically or conceptually. One well-known example is "Roget's Thesaurus," created by Peter Mark Roget in the 19th century, which organizes words into six main categories and various subcategories based on their meaning.
2. **Online Thesaurus:** Digital thesauri available on websites or as standalone software applications. They provide various search features and allow users to quickly find synonyms, antonyms, related terms, and more. Examples include Thesaurus.com, Merriam-Webster Thesaurus, and Oxford Dictionaries Thesaurus.
3. **Subject-Specific Thesaurus:** Thesauri designed for specific fields or domains to cater to their unique vocabulary and terminologies. These domain-specific thesauri ensure accurate indexing within specialized subjects. For instance, the Art and Architecture Thesaurus (AAT) is a subject-specific thesaurus focusing on art, architecture, and related areas.
4. **Multilingual Thesaurus:** Thesauri that provide synonyms and related terms in multiple languages, assisting language learners or those working in multilingual contexts. The Eurovoc Thesaurus, developed by the Publications Office of the European Union, is an example of a multilingual thesaurus used for indexing EU documents across different languages.
5. **Computational Thesaurus:** Thesauri used in natural language processing (NLP), machine learning, and information retrieval systems. These thesauri are often created using computational

techniques and corpus analysis. WordNet, a widely used lexical database, can be considered a computational thesaurus as it provides not only synonyms but also relations like hyponyms and meronyms (Craven, T. (2008).

**The thesaurus plays several important roles in indexing:**

1. **Synonym control:** A thesaurus helps maintain consistent indexing by providing a controlled vocabulary of synonyms and related terms. It ensures that different indexers or systems use the same terms for the same concepts, avoiding ambiguity and improving search accuracy.
2. **Term selection:** Thesauri help indexers in selecting the most appropriate terms to represent concepts. They provide guidance on preferred terms, non-preferred terms, and related terms, ensuring that relevant concepts are captured and indexed accurately.
3. **Hierarchical organization:** Thesauri often have a hierarchical structure that allows the indexer to place terms in a broader, narrower, or related context. This hierarchy helps in organizing the index, facilitating browsing, and understanding the relationships between different concepts.
4. **Concept mapping:** Thesauri provide cross-references or mapping between similar or closely related terms. This helps indexers in finding related terms that users might search for, even if they use different terminology.
5. **Faceted indexing:** Thesauri can also enable faceted indexing, where concepts are assigned to multiple categories or facets. This allows users to refine their search by combining different facets, providing more precise and targeted results.
6. **Language support:** Thesauri can aid in indexing documents in multiple languages by providing translations or equivalents for terms in different languages. This enhances the accessibility and usability of the index for multilingual users.

Overall, the thesaurus serves as a valuable tool in indexing by ensuring consistency, improving search precision, facilitating browsing, and enabling cross-referencing and concept mapping.

### **Importance of thesaurus in indexing**

A thesaurus is indeed an invaluable tool in indexing as it helps in enhancing the accuracy and efficiency of indexing processes. Let's discuss some key points regarding its importance in indexing:

1. **Synonym identification:** A thesaurus provides a comprehensive list of synonyms for a given term or concept. This aids in finding suitable alternative terms that could be used as index terms, ensuring that users can locate relevant information using different terminology or language variations. Without a thesaurus, indexers may struggle to capture the range of related terms effectively.
2. **Conceptual mapping:** Through the use of hierarchies, a thesaurus permits the creation of relationships between broader terms, narrower terms, and related terms for a given concept. This helps indexers map the structure and logical connections between different subjects and allows users to navigate the index more effectively, discovering related information and exploring related concepts.
3. **Standardization:** A thesaurus helps ensure consistency and standardization in indexing practices, particularly in fields where different terminologies or vocabularies may be used for similar concepts. By providing a controlled vocabulary, a thesaurus guides indexers to select specific terms rather than relying on personal interpretations or preferences. This consistency helps users find relevant information across various resources and eliminates confusion caused by inconsistent or ambiguous indexing.

4. Improved search precision: With a thesaurus, indexers can assign more precise index terms to represent concepts accurately. This results in more accurate retrieval of information during searches by users. For example, while a user may search for "cats," an indexer who understands thesaurus relationships might assign the more specific term "felines" to cover a broader range of related concepts such as domestic cats, big cats, and wild cats.

5. Efficient retrieval: By using a thesaurus, indexers can significantly reduce redundancy and ensure compact indexing. Synonyms and related terms can be grouped under a single preferred term, avoiding unnecessary repetition in the index structure. This enhances the efficiency of information retrieval by eliminating potential distortions in search results due to duplicate or dispersed entries (Weinberg, B. H. (1998))

In summary, a thesaurus greatly aids the indexing process by providing synonym identification, conceptual mapping, standardization, improved search precision, and efficient retrieval. Its comprehensive and structured nature supports accurate, consistent, and user-friendly indexing practices, ultimately enhancing the usability and effectiveness of a given index.

## Reference

- Aitchison, J., Gilchrist, A., & Bawden, D. (2000). *Thesaurus construction and use: a practical manual* (4. ed). London: Aslib.
- Cleveland, D. B., & Cleveland, A. D. (2001). *Introduction to indexing and abstracting* (3rd ed). Englewood, Colo: Libraries Unlimited. (21)
- Craven, T. (2008). *Thesaurus Construction*. Retrieved June 13, 2016, from <http://publish.uwo.ca/~craven/677/thesaur/main00.htm>
- ERIC - Education Resources Information Center. (2016). Retrieved June 13, 2016, from <https://eric.ed.gov/>
- Soergel, D. (1974). *Indexing languages and thesauri: Construction and maintenance*. Los Angeles: Melville Publishing Company.
- Weinberg, B. H. (1998). *Thesaurus Design for Information Systems*. Seminar presented at the Vocabulary Links:// *Thesaurus Design for Information Systems*, New York. Retrieved from <http://www.allegrotechindexing.com/article02.htm>