

3. Relationships in Controlled Vocabularies

The three primary relationships relevant to the vocabularies discussed in this book are equivalence, hierarchical, and associative relationships. Relationships in a controlled vocabulary should be reciprocal. Reciprocal relationships are known as asymmetric when the relationship is different in one direction than it is in the reverse direction—for example, broader term/narrower term (BT/NT). If the relationship is the same in both directions, it is symmetric—for example, related term/related term (RT/RT).

3.1. Equivalence Relationships

Equivalence relationships are the relationships between synonymous terms or names for the same concept. A good controlled vocabulary should include terms representing different forms of speech and various languages where appropriate. Below are examples of terms in several languages that all refer to the same object type.

ceramics
ceramic ware
ware, ceramic
cerámica
Keramik

Ideally, all terms that share an equivalence relationship are either true synonyms or lexical variants of the preferred term or name or another term in the record.

3.1.1. Synonyms

Synonyms may include names or terms of different linguistic origin, dialectical variants, names in different languages, and scientific and common terms for the same concept. Synonyms are names or terms for which meanings and usage are identical or nearly identical in a wide range of contexts. True synonyms are relatively rare in natural language. In many cases, different terms or names may be interchangeable in some circumstances, but they should not necessarily be combined as synonyms in a single vocabulary record. Likewise, names for persons, places, events,

and so on, may be used interchangeably in certain contexts, but their meanings may actually differ. Various factors must be considered when designating synonyms, including how nuance of meaning may differ and how usage may vary due to professional versus amateur contexts, historical versus current meanings, and neutral versus pejorative connotations. The creator of the vocabulary must determine whether or not the names or terms should be included in the same record or in separate records that are linked via associative relationships because they represent related concepts but are not identical in meaning and usage. In the examples below, each set of equivalent terms represents a single object type, style or culture, or person.

elevators

lifts

Ancestral Puebloan

Ancestral Pueblo

Anasazi

Basketmaker-Pueblo

Moqui

Le Corbusier

Jeanneret, Charles Édouard

Jeanneret-Gris, Charles Édouard

Fig. 7. Differences in language may account for differences in terminology in a vocabulary record, such as *hard paste porcelain* in English and *pâte dure* in French.

Unknown Chinese; *Lidded Vase*; Kangxi reign (ca. 1662/1722); hard paste porcelain, underglaze blue decoration; height: 59.7 cm (23½ inches); J. Paul Getty Museum (Los Angeles, California); 86.DE.629.



3.1.1.1. Lexical Variants

Although they are grouped with synonyms for practical purposes, lexical variants technically differ from synonyms in that synonyms are different terms for the same concept, while lexical variants are different word forms for the same expression. Lexical variants may result from spelling differences, grammatical variation, and abbreviations. Terms in inverted and natural order, plurals and singulars, and the use of punctuation may create lexical variants. In a controlled vocabulary, such terms should be linked via an equivalence relationship.

mice
 mouse

watercolor
 water color
 watercolour
 water-colour
 color, water

Romania
 ROM

In the example below, the past participle *embroidered* is included in the record for the process *embroidering* (needleworking (process), <needleworking and needleworking techniques>, . . . Processes and Techniques).

embroidering
 embroidered
 embroidery

Certain lexical variants could be flagged as *alternate descriptors* (AD), meaning that the AD and the *descriptor* (D) are equally preferred for indexing. For example, for objects, animals, and other concepts expressed as singular and plural nouns, the plural may be the descriptor, while the singular would be the alternate descriptor. In other cases, the past participle or an adjectival form may be an alternate descriptor.

baluster columns (D)
 baluster column (AD)

laminating (D)
 laminated (AD)

mathematics (D)
 mathematical (AD)

3.1.1.2. Historical Name Changes

Political and social changes can cause a proliferation of terms or names that refer to the same concept. For example, the term used to refer to the ethnic group of mixed Bushman-Hamite descent with some Bantu admixture, now found principally in South Africa and Namibia, was previously *Hottentot*. That term now has derogatory overtones, so the term *KhoiKhoi* is preferred. However, a vocabulary such as the *AAT* would still link both terms as equivalents so that retrieval is thorough.

Names of people and places also change through history: People change their names, as when a title is bestowed or a woman marries. Place names change for a variety of reasons, as when *North Tarrytown, New York*, changed its name to *Sleepy Hollow* in 1996, or when the nation formerly known as the *Union of Burma* changed its name to the *Union of Myanmar* in 1989.

The issues that surround such historical changes are many. Determining when names are equivalents and when they instead refer to different entities is not always clear. For example, *Persia* is a historical name for the modern nation of Iran prior to 1935, yet ancient Persia was not entirely coextensive with modern Iran. Likewise, modern Egypt is not the same nation as ancient Egypt—neither in terms of borders nor of administration—therefore the names may be homographs, but not necessarily equivalents.

3.1.1.3. Differences in Language

Vocabularies may be monolingual or multilingual. Regional and linguistic differences in terminology are among the most common factors influencing variation among terms that refer to the same concept in monolingual vocabularies. Regional differences in terminology occur due to vernacular variations; for example, *English barn*, *Connecticut barn*, *New England barn*, and *Yankee barn* are all terms that refer to the same type of structure: a rectangular, gable-roofed barn that is divided on the interior into three roughly equal bays.

Multilingual vocabularies require the resolution of other issues in addition to those surrounding monolingual vocabularies. Cultural heritage communities around the world wish to share information, and users in many nations try to gain access to the same material on the Web. They need to retrieve the correct information on an object regardless of whether it has been indexed under *pottery*, *keramik*, or *c eramique*. This is not always a simple prospect; forming equivalents is not just a matter of providing literal translations. For example, a nonexpert translator or a

AAT	
copper (metal) (preferred,C,D,U,LC,English-P)	
Cu (C,UF,U,A,English)	
cuiivre (metal) (C,D,U,French-P)	
cuprum (C,D,U,Latin-P)	
koper (C,D,U,Dutch-P)	
Kupfer (C,D,U,German-P)	
rame (C,D,U,Italian-P)	
cobre (C,D,U,Portuguese-P,Spanish-P)	
koppar (C,D,U,Swedish-P)	
TGN	
Beijing (preferred,C,V,N,Chinese (transliterated Pinyin)-P)	
Peking (C,V,N,Chinese (transliterated Wade-Giles)-P)	
Pékin (C,V,N)	
Pei-Ching (C,V,N)	
Pei-ching (C,V,N)	
Pei-p'ing (C,V,N)	
Peiching (C,O,N)	
Pekin (C,O,N)	
Pechino (C,O,N)	
Peiping (H,V,N)	..... 1928-1949
Peip'ing (H,V,N)	
Ch'i (H,V,N)	..... under the Chou Dynasty (1122-255 BCE)
Khanbalik (H,O,N)	
Cambaluc (H,O,N)	..... city with this name built 1260-1290
ULAN	
Giambologna (preferred,V,display,LC, Italian-P)	
Giovanni da Bologna (V, Italian)	
Bologna, Giovanni da (V, Italian)	
Giovanni Bologna (V, Italian)	
Bologna, Giovanni (V, Italian)	
Gian Bologna (V, Italian)	
Bologne, Jean de (V, French-P)	
Jean de Bologne (V, French)	
Boulogne, Jean de (V)	
Bologne, Jean (V, French)	
Boulogne, Jean (V, French)	
Jean Bologne (V, French)	
Jean Boulogne (V, French)	
Boullongne, Jean (V)	
Boulongne, Jean (V)	
Bolongne, Jean (V)	

Fig. 8. Examples of terms flagged by language in the AAT, TGN, and ULAN.

computer program might translate the English term *toasting glasses* from the *AAT* vessels hierarchy into Spanish as *vasos para tostar*, which would seem to have something to do with a toaster oven rather than honoring someone with a toast (toasting glasses are tall, thin wineglasses with a small conical bowl, a stemmed foot, and a very thin stem that can easily be snapped between the fingers).

The names of people and places may also vary in different languages. As illustrated in the example on the previous page, this sixteenth-century Italian sculptor, who was born in Flanders (now Belgium) but worked in Italy, is known by many variations on his name, including the French *Jean de Bologne* and the Italian names *Giam-bologna* and *Giovanni da Bologna*. The name of *Mato Wanartaka*, the Native American artist who painted the Battle of the Little Big Horn, is translated into *Kicking Bear* in English. All these name variations must be linked together within a single vocabulary record as equivalents. Additional variations occur when names are transliterated by different methods into the Roman alphabet; for example, the names *Beijing*, *Peking*, and *Pei-Ching* all refer to the same city in China.

Further issues surrounding multilingual vocabularies and the mapping of terms between languages are discussed in **Chapter 5: Using Multiple Vocabularies**.

Names and terms that are similar or identical except for the use of diacritics should typically be included as variant names. Expressing names and terms in the original character sets or alphabets other than the Roman alphabet introduces additional issues, as discussed in **Chapter 9: Retrieval Using Controlled Vocabularies**.

3.1.2. Near Synonyms

Near synonyms are discussed under 2.3.4. **Synonym Ring Lists**; they may be found in other vocabularies as well. Although it is generally advisable to link only true synonyms and lexical variants as equivalents, in some vocabularies the equivalence relationship may also include near synonyms and generic postings in order to broaden retrieval or cut down on the labor involved in building a vocabulary, among other reasons.

Near synonyms, also known as *quasi-synonyms*, are terms with meanings that are regarded as different, but the terms are treated as equivalents in the controlled vocabulary to broaden retrieval. Near synonyms are words that have similar but not identical meaning, such as *ice cream* and *gelato*. Both are frozen desserts made from dairy products, but ice cream is usually made with cream, and gelato is usually made with milk and has less air incorporated than ice cream. In other cases, antonyms—for example, *smoothness* and *roughness*—may be linked via the equivalence relationship in a vocabulary.

The phrase *generic posting* refers to the practice of putting terms with broader and narrower contexts together in the same record. For example, if *egg-oil tempera* were linked as an equivalent to *tempera*, this would be a generic posting because *egg-oil tempera* is a type of *tempera*.

In a vocabulary striving for more precise relationships, these terms should be linked with appropriate hierarchical relationships or associative relationships rather than as equivalents.

3.1.3. Preferred Terms

When multiple terms refer to the same concept, one term is generally flagged as a preferred term and the others are variant terms. In thesaurus jargon, the preferred term is always called a *descriptor*, and other terms may be called *alternate descriptors*, or *used for* terms.

For each concept or record, builders of a controlled vocabulary should choose one term or name among the synonyms as the preferred term. Preferred terms should be selected to serve the needs of the majority of users, relying upon established and documented criteria. For the sake of predictability, these criteria should be applied consistently throughout the controlled vocabulary. If, for example, American spelling is preferred over British spelling in a particular controlled vocabulary, the preferred terms or names should always be in American English. If the vocabulary is intended for a general audience, the preferred term should be the name or term most often found in contemporary published sources in the language of the users. The criteria for establishing preferred terms should be documented and explained to end users.

In the examples on the following page, *Georgia O’Keeffe* and *Mrs. Alfred Stieglitz* are names that refer to the same artist; the former name is preferred because this is the name by which she is most commonly known. In another example, the terms *still lifes* and *nature morte* refer to the same concept; the former term is preferred in English. In a third example, *Wien*, *Vienna*, and *Vindobona* refer to the same city; *Vienna* is the preferred current name in English, while *Wien* is the current German name, and *Vindobona* is a historical name.

The vocabulary may flag terms or names that are preferred in various languages. Terms preferred in other languages are also descriptors; that is, one record may have multiple descriptors. Each language represented may have a descriptor. However, only one of the descriptors should be flagged as preferred for the entire record.

3.1.4. Homographs

A homograph is a term that is spelled identically to another term but has a different meaning. For example, *drums* can have at least three

AAT	
still lifes (preferred,C,D,U,English-P)	
still life (C,AD,U,English)	
still lives (C,UF,U,English)	
still-lifes (C,UF,U,English)	
still-life (C,UF,U,English)	
stilleven (C,D,U,Dutch-P)	..... in use from ca. 1650
nature morte (C,D,U,French-P,Italian)	..... used from the mid-18th century
Stilleben (C,D,U,German-P)	
natura morta (C,D,U,Italian-P)	
naturaleza muerta (C,D,U,Spanish-P)	..... in use from the early 19th century
TGN	
Wien (preferred,C,V,N,German-P)	..... name used by 1st century BCE
Vienna (C,O,N,English-P)	
Vienne (C,O,N,French-P)	
Beç (C,O,N,Magyar (Hungarian)-P)	..... Hungarian name
Viden (C,O,N,Czech-P)	..... Czech name
Wienis (H,V,N)	..... name recorded in 1030
Wenia (H,V,N)	..... name recorded in 881
Vindobona (H,V,N,Celtic language)	..... Celtic for "white field"
Vindobna (H,V,N,Celtic language)	
Vindomana (H,V,N)	
ULAN	
O'Keefe, Georgia (preferred,V,index,LC)	
Georgia O'Keefe (V,display)	
Stieglitz, Georgia O'Keefe (V)	
O'Keefe, Georgia Tutto (V)	
Stieglitz, Mrs. Alfred (V)	
Stieglitz, Alfred, Mrs. (V)	.... in use 1924-1946
O'Keefe, Georgia (V)	.... common misspelling

Fig. 9. Examples of preferred and variant names from the *AAT*, *TGN*, and *ULAN*. Preferred names are flagged *preferred* and are located at the top of each list. Names preferred in various languages are indicated with a *P* following the language.

meanings: components of columns, musical instruments classified as membranophones, or walls that support a dome. Words can be homographs whether or not they are pronounced alike. For example, *bows*, the forward-most ends of watercraft or airships, and *bows*, stringed projectile weapons designed to propel arrows, are spelled alike but pronounced differently. *Homophones* are terms that are pronounced the same but spelled differently, for example *bows* and *boughs*; controlled vocabularies generally need not concern themselves with labeling homophones.

Note that a controlled vocabulary is constructed differently from a dictionary. In a dictionary, homographs are listed under a single

heading, with several definitions. For example, in a dictionary, *drum* would be listed as a noun, with several definitions under a single entry. In a controlled vocabulary, each homographic term is in a separate record.

3.1.4.1. Qualifiers

Controlled vocabularies must distinguish between homographs. One way to do this is to add a qualifier. A qualifier consists of one or more words used with the terms to make the specific meaning of each unambiguous, as seen in the examples below.

drums (column components)
 drums (membranophones)
 drums (walls)

Qualifiers should be distinguished from the term itself in displays. Traditionally, parentheses are used to identify the qualifier. In order to make construction of and use of the vocabulary more versatile, it is useful to place the qualifier in a separate field in the database rather than in the same field as the term itself.

If a term is a homograph to another term in the vocabulary, at least one qualifier is necessary. However, it is best to add a qualifier for both terms for clarity. Homographs and their qualifiers may occur not only with descriptors but also with alternate descriptors and *used for* terms. In addition, if a term is a homograph for another common term in standard language, even if the second term is not in the vocabulary, it is useful to add a qualifier for clarity.

A qualifier is sometimes also called a *gloss*; however, in linguistic jargon a gloss actually has the more general meaning of any term or phrase providing meaning or explanation for difficult words or passages. In contrast, a qualifier is used only to disambiguate homographs, not to define the term or provide context (although it may do so coincidentally because these characteristics may be what distinguish a term from its homograph).

Qualifiers should be used only to disambiguate homographs, not to represent a compound concept, define a term, or establish a term's hierarchical context. Some controlled vocabularies create qualifiers for these other purposes, but this is considered bad practice. Other situations should be handled in the following ways: To make a bound compound concept, construct a descriptor rather than using a qualifier (e.g., *phonograph record*, not *record (phonograph)*). Alternatively, if it is an unbound concept, rather than creating a qualified term in the thesaurus, end users should be allowed to construct a multiple-word search phrase in retrieval. For example, neither *cathedral (Baroque)* nor the descriptor *Baroque*

cathedral (because that is an unbound concept) should be created in the thesaurus; instead, *Baroque AND cathedral* should be used in retrieval. The term should be defined in the scope note, not by using a qualifier. To establish context for the term in displays outside of homographic disambiguation, a heading or label for the term should be created rather than trying to do so with a qualifier (see 7.5.3.6.1. **Headings or Labels**).

3.1.4.1.1. How to Choose a Qualifier for a Term

The builders of controlled vocabularies should establish detailed rules for how to compose qualifiers. Qualifiers should be as brief as possible, ideally consisting of one or two words.

In most cases, a word or words from a broader context of the term should be used as the qualifier (e.g., *stained glass (material)*, where *stained glass* is a hierarchical descendant of *materials*). Qualifiers for all homographs should clearly disambiguate the terms in displays. For example, *stained glass (material)* and *stained glass (visual works)* distinguish the material from the artworks made from the material.

If words taken from the broader context do not sufficiently disambiguate between homographs, use words that describe another significant distinguishing characteristic.

Qualifiers should be standardized as much as possible within a controlled vocabulary. For example, *films* and *motion pictures* should not both be used as qualifiers because *films* is a *used for* term for *motion pictures*. When possible, the qualifier should have the same grammatical form as the term, as with the nouns and gerunds in the examples below.

Term: trailers **Qualifier:** motion pictures

Term: trailers **Qualifier:** vehicles

Term: forging **Qualifier:** copying

Term: forging **Qualifier:** metal forming

3.1.4.2 Other Ways to Disambiguate Names

Qualifiers are used frequently in controlled vocabularies containing terminology for object types, generic concepts, and so on, as illustrated above. For other vocabularies, such as personal name and geographic name vocabularies, data from various fields may be concatenated with the name or term to disambiguate entries. For example, the name of a person could be displayed with biographical information to create a heading—e.g., *Johnson, John (English architect, 1754–1814)*—or the name of a place could be displayed with place type and broader contexts taken directly from the hierarchy—e.g., *Springfield (inhabited place) (Tuolumne county, California, United States)*. Headings and labels may be used not only

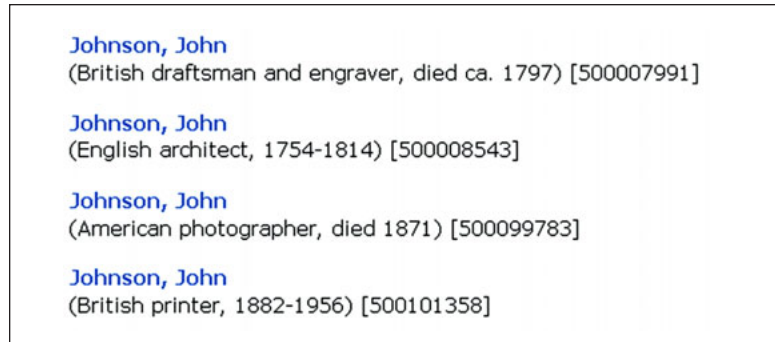


Fig. 10. A ULAN display containing homographs with additional distinguishing information for *John Johnson*, including a short biographical string and the unique numeric identification of the record in the ULAN.

to disambiguate homographs but also to provide context for terms and names when displayed in any horizontal string (see 7.5.3.6.1. **Headings or Labels**).

3.2. Hierarchical Relationships

Hierarchical relationships are the broader and narrower (parent/child) relationships between logical records (where each record represents a concept). The hierarchical relationship is the primary feature that distinguishes a thesaurus or taxonomy from simple controlled lists and lists of synonym rings.

Hierarchical relationships are referred to by genealogical terms such as *child*, *children*, *siblings*, *parent*, *grandparent*, *ancestors*, *descendants*, etc. In the example on the following page, the *Upper Egypt* region is the parent of *Qinā* governorate; *Karnak* and *Luxor* are children of *Qinā* governorate and siblings of each other; and *Africa* is an ancestor of all these places. The display of hierarchical relationships is discussed in **Chapter 7: Constructing a Vocabulary or Authority**.

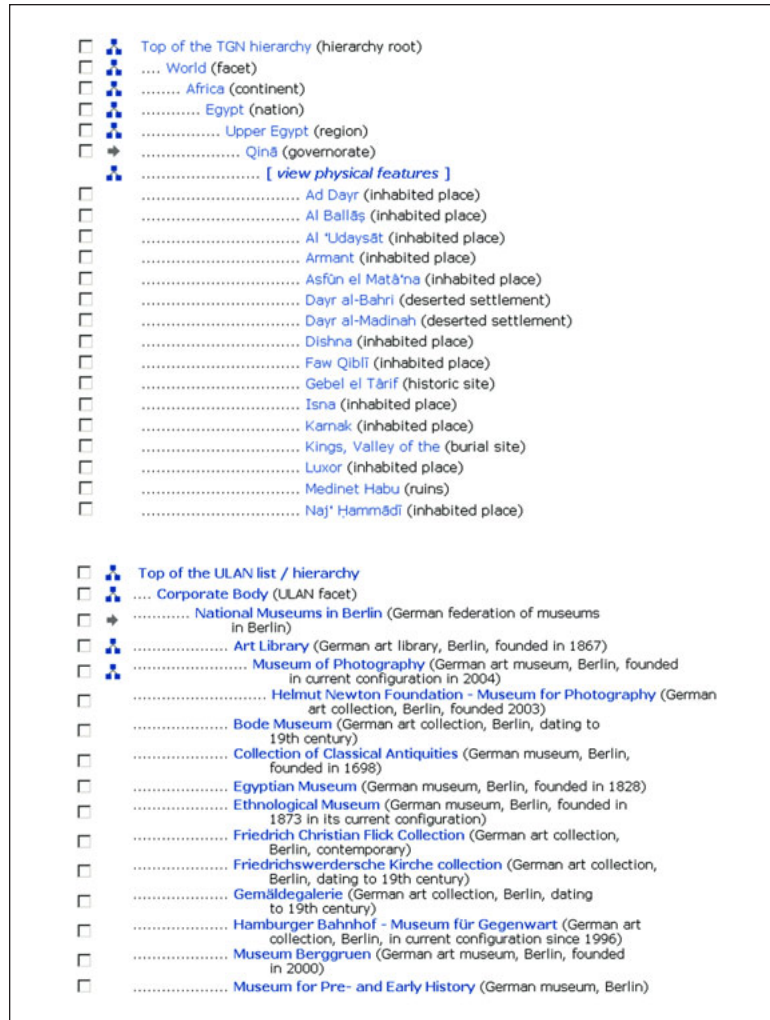
There are several types of hierarchical relationships, including whole/part, genus/species, and instance relationships.

3.2.1. Whole/Part Relationships

Hierarchical relationships are generally either whole/part, also called a *partitive relationship* (e.g., *Karnak* is a part of *Qinā* governorate), or genus/species, also called a *generic relationship* (e.g., *bronze* is a type of *metal*).

Whole/part relationships are typically applied to geographic locations, parts of corporate bodies, parts of the body, and other types of

Fig. 11. Examples of hierarchical displays from the *TGN* and *ULAN*. Note that in these displays, the parenthetical words accompanying the names are place types (for the *TGN*) and biographical strings (for the *ULAN*); they are not generated from the qualifier field.

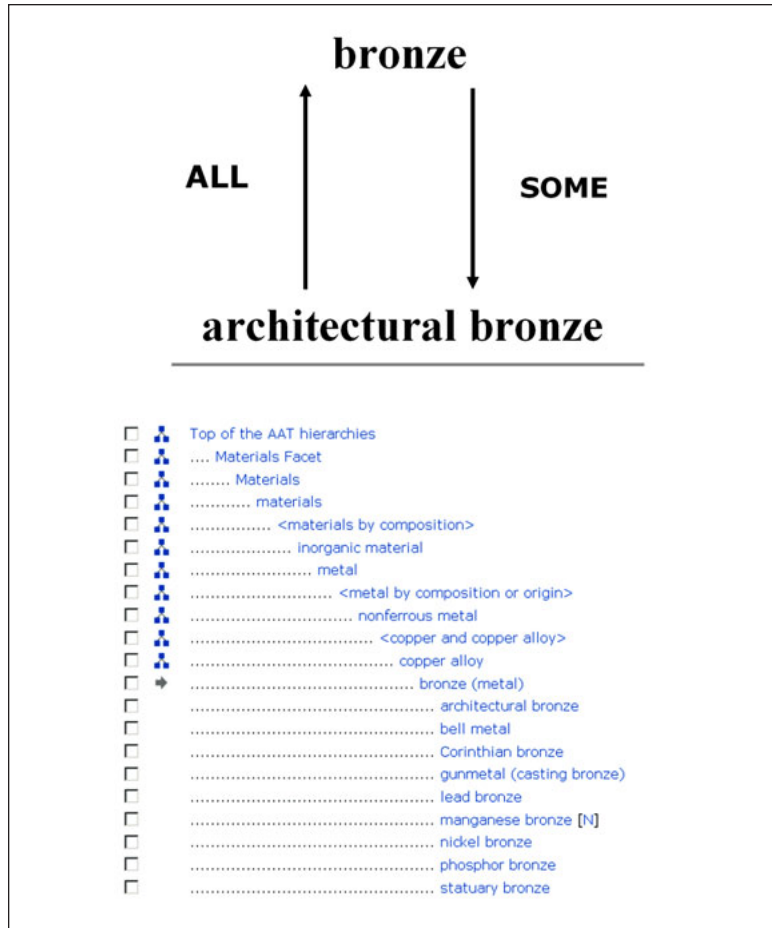


concepts that are not readily placed into genus/species relationships. Each child should be a part of the parent and all the other ancestors above it.

3.2.2. Genus/Species Relationships

The genus/species, or generic relationship, is the most common relationship in thesauri and taxonomies because it is applicable to a wide range of topics. All children in a genus/species relationship should be a *kind of*, *type of*, or *manifestation of* the parent (compare instance relationships

Fig. 12. Illustration of the all/some test for *architectural bronze* and the AAT hierarchical display for *architectural bronze* in a genus/species relationship as a child of *bronze*.



below). The placement of a child may be tested by the all/some argument. In the example of *bronze* above, *all* architectural bronze is bronze, but only *some* bronze is architectural bronze.

3.2.3. Instance Relationships

In addition to the whole/part and genus/species relationships, some vocabularies may utilize a third type of hierarchical relationship, the *instance relationship*. This is most commonly seen in vocabularies where proper names are organized by general categories of things or events, for example, if the proper names of mountains and rivers were organized under the general categories *mountains* and *rivers*.

mountains
 Alps
 Apennines
 Rocky Mountains
 Himalayas

rivers
 Amazon River
 Colorado River
 Mississippi River
 Nile River
 Ohio River
 Thames
 Yellow River

3.2.4. Facets and Guide Terms

Facets provide the primary subdivisions of a hierarchy, typically located directly under the *root* or top of the hierarchy. Subfacets, also called *hierarchies*, may subdivide the facets. Guide terms (types of *node labels*) are additional levels that collocate similar sets or classes of records (illustrated in the example below with angled brackets). They should logically illustrate the principles of division among a set of sibling terms, as discussed in **Chapter 7: Constructing a Vocabulary or Authority**.

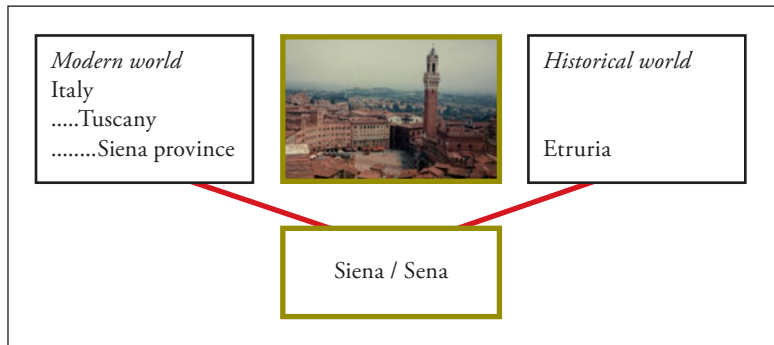
Fig. 13. A partial hierarchical display for *Visual Works* in the *AAT*, illustrating the logical classification of the terms under the top of the hierarchy, a facet, subfacet (hierarchy), and guide terms in angled brackets, which organize the terms by form, function, and other logical divisions.



3.2.5. Polyhierarchies

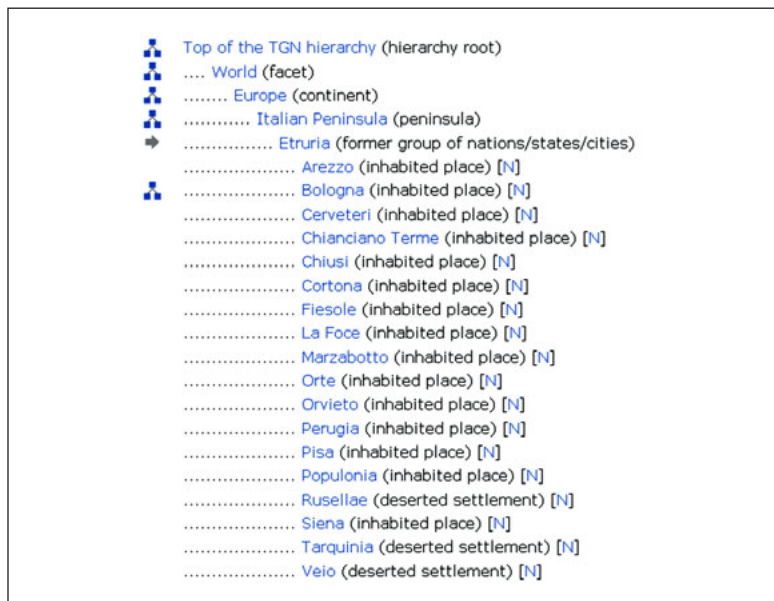
Some concepts logically belong to more than one broader context. To accommodate this situation, the data structure of a properly constructed thesaurus should allow *polyhierarchical relationships*, meaning that each record exists only once in the vocabulary but may be linked to multiple parents and can thus appear in multiple hierarchical views. Polyhierarchical relationships may exist in whole/part, genus/species, and instance relationship models. In the example below, *Sienna* is part of the modern nation of *Italy*, but it was also part of the ancient confederation of *Etruria*.

Fig. 14. Diagram of poly-hierarchical relationships for *Sienna*, linked to both *modern Italy* and *historic Etruria*.



The criteria for creating polyhierarchical relationships should be explicitly established. In the example below, the polyhierarchy is used to link a place to both its current and historical parents; the nonpreferred parent relationship is indicated with an *N* in brackets.

Fig. 15. A TGN hierarchical display showing *Sienna* and other Italian towns linked to *Etruria*, where *N* indicates that this historical relationship is a nonpreferred hierarchical relationship.




The established classification scheme of the hierarchy should be considered, and terms should be placed under multiple parents when they logically belong to those parents. For example, in the *AAT*, a *backing hammer* should be located under the guide term *<bookbinding equipment>*, but it also belongs under *hammers (tools)*.

3.3. Associative Relationships

Associative relationships exist between records that are conceptually close, but where the relationship is neither equivalent nor hierarchical. The most basic type of associative relationship is simply *related to*. In some vocabularies, more specific types of associative relationships may be designated.

AAT


 **Final Neolithic** (<transitional periods Stone Age to Bronze Age>, <three-age system>, ... Styles and Periods)

Note: Refers to the last stage of a Neolithic culture, which often partially overlaps with the Early Bronze Age. It is generally held to have occurred from around 4,000 BCE to around 3,000 BCE in Europe, lasting until around 2,000 BCE in parts of the British Isles.

Terms:
Final Neolithic (preferred,C,D,U,English-P)
Neolithic, Final (C,UF,U,English)

Related concepts:
 meaning/usage overlaps with [Early Bronze Age](#)
 (Bronze Age, <three-age system>, ... Styles and Periods) [300019276]

ULAN

 **Master of Moulins** (painter, probably Netherlandish, active ca. 1480-1504 in France)

Note: Painter of South Netherlandish origin active in France. The Master of Moulins is possibly identified as Jean Hey. He is named after the triptych of the Virgin and Child Adored by Angels with Saints and Donors in Moulins Cathedral. Many of the works attributed to the Master of Moulins can be associated with members of the Bourbon court at Moulins, and he may have been their court painter. Given the poor survival rate of French 15th-century panels, a surprising number of works can be attributed to him and his workshop. His works combine the daring color and compositional ideas of van der Goes with the looser technique and Italianate motifs fashionable in France at the time.

Names:
Master of Moulins (preferred,V,display)
Maître de Moulins (V)
Master of the Bourbons (V)

Related People or Corporate Bodies:
 patron was [Cardinal Charles of Bourbon](#)
 (French cardinal and patron, 1426-1488) [500122258]
 patron was [Jean II, Duke of Bourbon](#)
 (French patron and collector, 1426-1488) [500122320]
 possibly identified with [Hey, Jean](#)
 (Netherlandish painter, active ca.1480-ca.1504, active in France) [500012005]
 possibly identified with [Prevost, Jean](#)
 (French glass painter and glazier, died 1503 or 1504) [500122083]



Fig. 16. Examples of associative relationships in the *AAT* and *ULAN*. In the *AAT*, concepts that may have overlapping meaning are linked—for example, *Final Neolithic* and *Early Bronze Age*. In the *ULAN*, patrons and a possible identification with a named artist are linked to the anonymous *Master of Moulins*.

3.3.1. Types of Associative Relationships

Associative relationships may be made between records in the same hierarchy or in different hierarchies. There may be relationships between overlapping siblings or other terms where the meanings are similar and the terms are occasionally (but not generally) used as synonyms.

In general, terms that are mutually exclusive do not require associative relationships, particularly if they cannot be confused with one another, whether or not they share the same parent. For example, it is not necessary to link *baluster columns* and *spiral columns* below because there is no reason why a user would confuse the two.

Fig. 17. Examples of the sibling AAT terms *baluster columns* and *spiral columns*, which are not linked by associative relationships.

<p>ID: 300001577</p> <p> baluster columns (<columns by form>, columns (architectural elements), ... Components (Hierarchy Name))</p> <p>Note: Columns resembling balusters, composed of a base, a potlike element, a bulbous shaft, and a capital.</p> <p>Terms:</p> <ul style="list-style-type: none"> baluster columns (preferred,C,D,U,English-P) baluster column (C,AD,U,English) columns, baluster (C,UF,U,English) baluster shafts (C,UF,U,English) 	<p>Record Type: concept</p>
<hr/>	
<p>ID: 300001626</p> <p> spiral columns (<columns by form>, columns (architectural elements), ... Components (Hierarchy Name))</p> <p>Note: Columns so shaped as to present a twisted or spiral form.</p> <p>Terms:</p> <ul style="list-style-type: none"> spiral columns (preferred,C,D,U,English-P) spiral column (C,AD,U,English) columns, spiral (C,UF,U,English) salomónicas (C,UF,U,English) Solomonic columns (C,UF,U,English) twisted columns (C,UF,U,English) wreathed columns (C,UF,U,English) 	<p>Record Type: concept</p>

However, there should be associative relationships between terms that are intended to be used as separate concepts but may be confused by users. In the first example on the following page, Lorraine, the current administrative region, and Lorraine, the historical entity, share the same name and some of the same territory; thus an associative relationship helps distinguish between the two and at the same time links them for possible retrieval. In the second example, the term *military bases* is distinguished from *military camps*, with which it is sometimes confused. If it is necessary to mention the second concept in the scope note in order to distinguish the two, the records should be linked through associative relationships.

TGN

ID: 7024272 Record Type: administrative

Lorraine (historical region)

Coordinates:
 Lat: 49 00 00 N degrees minutes Lat: 49.0000 decimal degrees
 Long: 006 00 00 E degrees minutes Long: 6.0000 decimal degrees

Note: Area of northwestern Europe contained in modern Belgium, the Netherlands, Luxembourg, Alsace-Lorraine (France), and northwestern Germany. The kingdom was established when the Carolingian empire split; it was divided into two duchies in 959. It was ruled by a ducal family from the 11th century. It was held permanently by France from 1766, except when it went to Germany (with Alsace) for a time after the Franco-Prussian War in 1871. See also the modern region of Lorraine, France.

Names:

Lorraine	(preferred, C, V, N, English-P, French-P)	
Lothringen	(H, V, N, Germanic language)	..... named for grandson of Charlemagne, Lothair I
Lotharingia	(H, V, N)	..... name really applies to medieval kingdom of Lorraine, later divided
Lotharii Regnum	(H, V, N, Latin-P)	..... Latin for "kingdom of Lothair," named by Lothair II (died 869)

Hierarchical Position:

- World (facet)
- Europe (continent)
- Lorraine (historical region) (H)

Place Types:

historical region (preferred, C)
 kingdom (H) established 843

Related geographic places:
 distinguished from Lorraine (region)
 (World, Europe, France) [7002888]

AAT

ID: 300000476 Record Type: concept

military camps (military installations, <complexes by function>, ... Built Environment (Hierarchy Name))

Note: In contemporary military contexts this refers to groups of huts, tents, or other shelters set up temporarily for troops. In historical contexts the term connotes permanent or semipermanent places of encampment. Use "military bases" for contemporary permanent installations.

Terms:

- military camps (preferred, C, D, U, English-P)
- military camp (C, AD, U, English)
- camps (military) (C, UF, U, LC, English)
- camps, military (C, UF, U, English)
- military encampments (C, UF, U, English)
- military posts (camps) (C, UF, U, English)

Facet/Hierarchy Code: V.RG

Hierarchical Position:

- Objects Facet
- Built Environment (Hierarchy Name)
- Built Complexes and Districts
- complexes
- <complexes by function>
- military installations
- military camps

Related concepts:
 distinguished from military bases
 (military installations, <complexes by function>, ... Built Environment (Hierarchy Name)) [300000455]

Fig. 18. Examples of associative relationships from the TGN and AAT linking records that are mentioned in the notes and linked as *distinguished from* one another.

Fig. 19. Partial lists of relationship types from the *ULAN*, *TGN*, and *AAT*, with each list reflecting the characteristic requirements of the vocabulary. Relationships are identified by numeric codes and text values. Where the reciprocal relationship differs from the target relationship, the reciprocal relationship is listed immediately following the target relationship (e.g., *1101/teacher of—1102/student of*).

<p>ULAN</p> <p>1000/related to 1003/associated with 1005/possibly identified with 1007/distinguished from 1100/<person to person – teaching/learning> 1101/teacher of – 1102/student of 1102/student of – 1101/teacher of 1105/apprentice of – 1106/apprentice was 1106/apprentice was – 1105/apprentice of</p> <p>TGN</p> <p>3000/related to 3001/formerly related to 3005/possibly identified as 3101/adjacent to 3102/coextensive with 3201/capital of – 3202/capital is 3202/capital is – 3201/capital of 3301/ally of 3401/moved from – 3402/moved to 3402/moved to – 3401/moved from</p> <p>AAT</p> <p>2000/related to 2001/formerly related to 2100/distinguished from 2110/meaning/usage overlaps with 2204/<thing caused by/causes an action> (e.g., carvings are caused by carving) 2205/resulting thing(s) are – 2206/causative action is 2206/causative action is – 2205/resulting thing(s) are 2207/<thing exists in location setting> (e.g., computers are located in computer rooms) 2208/locational context/setting is – 2208/thing(s) involved are</p>

In addition to the relationships described above, antonyms may be treated as associative relationships. In fact, a vocabulary may require a substantial number of very specific additional associative relationships. These types of relationships vary from vocabulary to vocabulary, depending upon the nature of the terms and how they are intended for use in retrieval. For example, relationships between generic terms would differ from relationships between people, which could include familial and professional relationships. A vocabulary should list and define the types of associative relationships used. Partial lists of associative relationships for the Getty vocabularies appear above.

3.3.2. When to Make Associative Relationships

Only clear and direct associative relationships should be recorded. These direct relationships are typically current but occasionally may be historical. Given that associative relationships are more challenging to define than hierarchical relationships, care must be taken to consistently apply

rules when assigning associative relationships in a vocabulary in order to prevent an excessive number of such relationships, which can have a negative effect when the thesaurus is used for retrieval.

Since associative relationships are often used not only for the reference of a user but also for retrieval, it is important to avoid making unnecessary links between related concepts. Relationships should be made only between records that are directly related, but where hierarchical and equivalent relationships are inappropriate. If a thesaurus is bound together by too many associative relationships between entities that are only loosely or indirectly related, the value of the relationships in retrieval is lost. Consider this question: if the end user is interested in retrieving Concept X, might he or she possibly also want to retrieve Concept Y? If not, there probably should not be an associative relationship between the two records.


Associative relationships may be displayed and described explicitly as in the example below or by using the generic notation *RT*, for *related term*, or the phrase *see also*.

collections
 RT collecting

 collections
 see also *collecting*

Fig. 20. Example of an associative relationship for *collections*, to which the activity *collecting* is related.

Associative relationships are always reciprocal. For some relationships, the relationship type is the same on both sides of the link (e.g., *related to*); however, for others it is different depending upon






 **collections (object groupings)** (<object groupings by general context>, <object groupings>, Object Groupings and Systems)

Note: Refers to groups of objects that have been brought together by an individual or organization.

Terms:
collections (object groupings) (preferred,C,D,U,English-P)
collection (object grouping) (C,AD,U,English)

Facet/Hierarchy Code: V.PC


Hierarchical Position:

-  Objects Facet
-  Object Groupings and Systems
-  <object groupings>
-  <object groupings by general context>
-  collections (object groupings)

Related concepts:
 causative action is **collecting**
 (collections management, <information handling functions>, ... Functions)
 [300077121]


Fig. 21. Illustrations of associative relationships for *Katsushika Taito II* and *Katsushika Hokusai*. The relationships are reciprocal, meaning the link displays the records for both artists, one as *student of* and the other as *teacher of*.

student of **→** <name of teacher>
 teacher of **→** <name of student>

 **Taito, Katsushika, II** (Japanese printmaker, active ca. 1820-1850)

Names:
 Taito, Katsushika, II (preferred,V,index)
 Katsushika Taito II (V,display)
 Taito, Katsushika II (V)
 Hokusen (V)

student of [Hokusai, Katsushika](#)
 (Japanese printmaker and painter, 1760-1849) [500060426]

 **Hokusai, Katsushika** (Japanese printmaker and painter, 1760-1849)

Names:
 Hokusai, Katsushika (preferred,V,index)
 Katsushika Hokusai (V,display)
 Hokusai (V)
 Shunrō (V)

teacher of [Taito, Katsushika, II](#)
 (Japanese printmaker, active ca. 1820-1850) [500065516]

which record is the focus. Vocabulary editors must be very careful to choose the correct relationship for the focus record (i.e., the record being edited when the relationship is made). It is important to consider what will make sense when displayed to a user. For example, in an associative relationship between artists, *Katsushika Hokusai* was the *teacher of Katsushika Taito II*; their relationship is *teacher/student*. In the record of a student, the relationship type linking to the teacher is *student of*, because the artist in the focus record is the student of the artist in the linked record. In the record for the linked artist, the reciprocal relationship type is *teacher of*.

If a vocabulary has relationships that are homographs, or if values may change over time, it is best to identify the relationships with unique numeric codes rather than simply by text values.

When relationship types are homographs, the vocabulary editor must be careful to link to the correct code. As illustrated in the *ULAN* example on the following page, in linking an uncle to his niece, the vocabulary editor must be sure to link to *uncle of #1533*, which has the code for *niece of #1534* as its reciprocal code. The editor should not link to the homograph *uncle of #1532*, because its reciprocal code is for *nephew of*.

Fig. 22. Examples of relationship types for *uncle* in the *ULAN*, which may be reciprocally linked to *niece of* or *nephew of*.

Code	Focus Entity	Related Code
1531	nephew of	1532
1532	uncle of	1531
1533	niece of	1534
1534	uncle of	1533
1535	nephew of	1536
1536	aunt of	1535
1537	niece of	1538
1538	aunt of	1537

Peale, Mary Jane (American painter, 1826-1902)

Names:

Peale, Mary Jane (preferred,V,index)

Mary Jane Peale (V,display)

Peale, Mary Jean (V)

Peale, Miss Mary Jean (V)

Peale, Jean (V)

niece of Peale, Raphaelle

..... (American painter, 1774-1825) [500004821]

niece of Peale, Rembrandt

..... (American painter, 1778-1860) [500019719]

niece of Peale, Titian Ramsay

..... (American painter and naturalist, 1799-1885) [500017044]

Francken, Hieronymus, III (Flemish painter, 1611-after 1661)

Names:

Francken, Hieronymus, III (preferred,V,index)

Hieronymus Francken III (V,display)

Francken, Hieronymus III (V)

Hieronymus III Francken (V)

nephew of Francken, Ambrosius, II

..... (Flemish painter, ca. 1590 - 1632) [500092972]

nephew of Francken, Hieronymus, II

..... (Flemish painter, 1578-1623) [500024695]

nephew of Francken, Thomas

..... (Flemish artist, 1574-ca. 1625) [500000020]