

6.1.3 Word Equivalents

Introduction

In healthcare, there are many words with equivalent meanings. [Synonyms](#) provide alternative phrases referring to the [concept](#). However, [synonyms](#) are not created automatically for every possible combination of words with an equivalent meaning. The success of simple searches using one or more keyword depends on the text of the available [descriptions](#). Therefore searches will fail or will be incomplete where a different equivalent word is used in the search.

For example: "Kidney stone" and "Renal calculus" are synonymous [descriptions](#) in [SNOMED CT](#). A search of [SNOMED CT](#) for the target phrase "kidney stone fragmentation" yields the result "Percutaneous nephrostomy with fragmentation of kidney stone," while a search for "Renal stone fragmentation" yields no results.

One way of addressing this problem is to maintain a table of [word equivalents](#). A table of this type is a prerequisite for exhaustive [synonym](#) generation.

Word Equivalents Starter Table

A [Word Equivalent](#) starter table is included in the [Lexical Resources archive file](#) (note: this is not supported or maintained). It supports enhanced searches that take into account semantically similar words such as KIDNEY and RENAL. It also provides commonly used abbreviations. This table can be used by implementers to offer additional search capability in applications without greatly increasing the volume of [synonyms](#). It is not intended as a comprehensive dictionary of words. Many searches can be completed without using this table; like the other word search tables, it is completely optional and can be used as an example of a capability that may be customized and extended by implementers.

Word Equivalents Starter Table Structure

Table 6.1.3-2: Word Equivalents Table

Key Fields	
WordBlockNumber	A 32-bit Integer shared by a set of equivalent words or phrases. The WordBlockNumber links together several rows that have an identical or similar meaning.
WordText	A word, phrase, acronym or abbreviation that is equivalent to the WordText of other rows that share the same WordBlockId .
Data Fields	
WordType	An Integer indicating the type of equivalence
WordRole	An Integer indicating the usual role of this word. This should be considered if attempting to find a postcoordinated combination of C concepts that matches a phrase.

Example: Using word equivalents table to extend a failed search

A system user enters the search [String](#) "Fragmentation of renal calculus;" the search returns no results. The search application that the user has been provided with has the option to extend the search by using the [Word equivalents table](#). The user selects this option and searches again using the same search [String](#).

The relevant entries in the starter [word equivalents table](#) are shown in [Table 6.1.3-2](#).

Table 6.1.3-2: Word Equivalents Table Example

WordBlockNumber	WordText	WordType
1021	KIDNEY	2 (word equivalent)
1021	RENAL	2 (word equivalent)
4430	CALCULUS	2 (word equivalent)
4430	CALCULI	1 (word form variant)
4430	STONE	2 (word equivalent)
9870	RENAL STONE	4 (equivalent phrase)

9870	KIDNEY STONE	4 (equivalent phrase)
9870	KIDNEY CALCULUS	4 (equivalent phrase)
9870	RENAL CALCULUS	4 (equivalent phrase)
9870	NEPHROLITH	2 (word equivalent)

The table is used to make substitutions in the search string to produce all possible unique search variants:

- "Fragmentation of renal calculus"
- "Fragmentation of renal stone"
- "Fragmentation of kidney stone"
- "Fragmentation of kidney calculus"
- "Fragmentation of Nephrolith"
- "Fragmentation of renal calculus"
- "Fragmentation of renal calculi"
- "Fragmentation of kidney calculi"

These 8 search string are used as the target phrase for keyword searches on the word pair index. Results from all 8 searches are combined, and duplicate [concepts](#) are eliminated, giving the final list of search results.