Lexicon Utility

Technical Manual & Developer's Guide

Version 2.0

September 1996

Revised May 2009

Revised January 2011

Department of Veterans Affairs

Office of Information and Technology (OI&T)

Office of Enterprise Development (OED)

Revision History

Date	Description of Change	Author Information
10/2003	LEX*2.0*25 CSV changes: pp. 7, 15-16, 22, 24-25, 28-33, 35, 38, 46, 52, 64-69	N/A
04/2008	LEX*2.0*41 Changes related to the implementation of SNOMED CT codes in the Lexicon for the Lab Data Sharing Interoperability (LDSI) project.	Ferdinand Frankson, Kathleen Barnett
04/2009	LEX*2.0*62 Changes designed to implement advanced date testing.	Kimball Rowe, Michelle Dilley, Kathleen Barnett
09/2010	Existing Tech Manual into new template, edit, format. Added changes for LEX*2.0*73.	Kimball Rowe, Ruth Gong, Peri Koester
11/2010	Reviewed version.	Lexicon Team

Table of Contents

Preface

Scope of Manual

This manual provides technical information required to effectively set up and use the VistA (Veterans Information System Technology Architecture, the new name for DHCP) Lexicon Utility. It also contains material useful in linking to the Lexicon Utility.

Audience

This manual's intended audience is Information Resource Management (IRM) personnel, Applications Coordinators (ADPACs), Clinical Coordinators, and developers.

Related Manuals

- Lexicon Utility User Manual
- Lexicon Utility Installation Guide

Introduction

VistA's Lexicon Utility is a dynamic dictionary of medical terms. The Lexicon maps coding schemes such as ICD-9, SNOMED, and DSM-III-R to major medical concepts. Currently there are 18 different coding schemes represented in the Lexicon. The Lexicon Utility can support other coding schemes that are unique to the VA, such as the codes used by the Social Work Service or US Code Title 38 Chapter 4 for Service Connected Disabilities.

Working with outside sources, the Lexicon updates its terminology as the source files incorporate new terminologies and classification codes. The flexibility offered by this approach is tremendous. The Lexicon can draw from sources such as ICD-10, Iliad, READ, SNOMED-3, and, DSM-IV while maintaining compatibility with VA authoritative files. The Lexicon adjusts new terminology for use in the VA while retaining backward compatibility with older coding schemes (for example, transition from DSM-IIIR to DSM-IV). Software Services releases updates to the Lexicon on a periodic basis.

The Lexicon supports usage by all clinical areas. With the mapping of application-specific term files, such as radiology, medicine, etc., to the Lexicon, Veterans Health Administration (VHA) achieves standardized clinical terminology. Terminology associated with Hybrid Open System Technology (HOST) applications can also be mapped to the Lexicon. This standardization on the part of VistA and HOST applications permits information mobility within VHA and with other industry-wide systems.

The Lexicon has the capability of learning from individual users. If you enter a term that is not found in the Lexicon, the computer captures this term and stores it in a special file. The functional application continues to process data as required. On a periodic basis, the Salt Lake IRMFO automatically uploads this file for consideration in the next release of the Lexicon. Expert staff members review the contents of this file for possible inclusion in the next update of the Lexicon.

A specially designed interface permits the user to enter a medical term using familiar natural language. The computer codifies and stores this term, permitting retrieval, and analysis by a wide variety of legitimate users of clinical data. This interface captures exactly what the user enters and maps it to a standardized term that is linked to a major concept. An application using the Lexicon can reflect what the user actually entered while maintaining the links to the needed coding system and the Lexicon.

The Lexicon's initial implementation was with the Problem List Application Version 1.0. It was completed on September 6, 1994 and released to the field on January 28, 1995.

The initial release of the utility was conceived and planned as a proof of concept. While not complete, the design of the Lexicon includes the ability to evolve as new demands are placed upon it.

Requirements

The following software requirements have been stated for the Lexicon Utility. We have marked each Requirement as MET or PENDING.

Problem List Expert Panel

Single unique concepts	MET
Must support natural/native terminology	MET
All terms must map to ICD-9 (rescinded)	
Must specifically include problem list terminology from NANDA, Social Work, and Dental, as well as clinical findings and	MET

symptoms or other terminologies (to be identified)

Must be flexible enough to map various coding schemes MET
(examples follow)

ICD-9-CM	International Classification of Diseases (WHO/HHS)
CPT-4	Current Procedural Terminology (AMA)
HCPCS	HCFA Current Procedural Coding System
DSM-IIIR	Diagnostic & Statistical Manual of Mental Disorders (APA)
SNOMED	Systematized Nomenclature of Medicine (CAP)
SNOMED CT	Systemized Nomenclature of Medicine Clinical Terms (IHTSDO)
NANDA	Classification of Nursing Diagnosis (NANDA)
NIC	Nursing Intervention Classifications
NOC	Nursing Outcomes Classifications
HHCC	Home Health Care Component
OMAHA	Omaha Nursing Diagnosis and Interventions
SCC	Service Connected, US Code, Title 38, Chapter 4
ACR	Index for Radiological Diagnosis (ACR)
AI/RHEUM	Disease/Findings Knowledge Base (NLM)
COSTAR	Computer Stored Ambulatory Records Term File
COSTART	Coding Symbols Thesaurus for Adverse Reaction Terms (FDA)
CRISP	Computer Retrieval of Info. on Scientific Projects (NIH)
DXPLAIN	Diagnostic Prompting System
UMDNS	Universal Medical Device Nomenclature System (ECRI)

Must be usable by a variety of applications and utilities within MET
VISTA

Must support addition of terms at the site level MET

Must be able to migrate to a nomenclature selected for use MET
throughout VISTA when that decision occurs

Site modification to include edit display text (rescinded) and site MET
specific shortcuts and synonyms (MTLU for v1.0, context sensitive
shortcuts for v2.0)

Test Sites/Usability Testing

Group terms by clinical categories (e.g., ICD-9 Major Clinical PENDING

Categories)

Place the most frequently used terms at the top of the selection list	MET
Accept the provider narrative if the search fails or the term was not found	MET
Build subsets of terms (based on specialty or clinic) restricting the lookup domain	MET

Applications

Provide Silent Lookup using a multi-term search (CPRS)	MET
Build shortcuts for terms (based on specialty or clinic) gaining immediate access to terms without the benefit of a search (PL)	MET
Provide shortcut as a user default (PL)	MET
Add CPT terminology and codes to the Lexicon Utility (multiple applications)	MET
Provide entry point to retrieve an internal entry number based on a code from a classification system (PCE)	MET

E3R System

The following E3Rs either directly impact the Lexicon Utility or concern other packages with requirements that may impact the Lexicon Utility.

E3R 5000 **Lexicon** **Lookup Error** **MET**

A term with a known ICD code returned 799.9 rather than the correct ICD. This is caused by a number of ICD codes in the Lexicon being truncated. Review and fix truncated codes.

E3R 5586 **IB** **Flagging Sensitive DX** **MET**

Implication for the Lexicon Utility: The Lexicon Utility should have an entry for Sensitive Diagnosis.

E3R 5762 **Problem List** **Choose Multiple Problems** **MET**

Implication for the Lexicon Utility: While this E3R applies to the Picklist in the Problem List application, it may be reasonable to imply that such functionality be applied to the lookup of the Lexicon Utility using the same justification presented in the E3R Report.

E3R 5841 **Kernel** **Accept Perfect Match** **MET**

If a search finds a perfect match, that entry should be placed at the top of the selection list.

E3R 5874 **Problem List** **Code 799.9 Assigned**

Implication for the Lexicon Utility: Either the .01 field in Problem List must be changed to other than the ICD-9 file or the Lexicon Utility must have ICD codes for every term that could feasibly be considered a patient problem.

E3R 6370   Problem List   Problem List Access to Allergies & Reactions   PENDING

> Implication for the Lexicon Utility: Add Drug Ingredients (50.416), Drug Classes (50.605), Drugs (50.6), Allergies (120.82), and Signs and Symptoms (120.83) to the Lexicon Utility.

Changes since Version 1.0

Terminology   Added

We added the Current Procedural Terminology (CPT-4) and the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) to the Lexicon Utility.

Namespace LEX   Changed

We changed the namespace from GMPT to LEX. We renamed all routines and package variables from GMPT* to LEX* to conform to the new namespace.

Global Root ^LEX   Changed

We changed the global root from ^GMP and ^GMPT to ^LEX and ^LEXT respectively. This helps to prevent inadvertent deletion of Lexicon data. The difference between killing ^TMP and ^GMP is one character on a standard QWERTY keyboard, both controlled by the same finger and located approximately a quarter of an inch from each other.

Concept Usage File 757.001   Added

The Concept Usage file records the usage of Lexicon by application performing lookups using the Special Lookup Routines. This file later determines the order of the selection list during lookup. The more frequently used terms float to the top of the list.

Expression Type File 757.011   Added

The Expression Type field (757.01) has been changed from a set of codes to a pointer to the new file Expression Type, #757.011.

Shortcut Functionality   Added

The Shortcut File 757.4 and the Shortcut Context file 757.41 were added to support shortcuts by context.

Shortcut User Default   Added

Context sensitive shortcuts are now a user default. For example, the user may have one set of shortcuts for searching using the Problem List application and another set defined for another application.

Excluded String File   Deleted

Excluded String File #757.041 was deleted. This file was required to run the Lexicon Special Lookup Routine under the Multi-Term Lookup Utility (MTLU) V. 1.0 running on the VAX. With the upgrade of the MTLU and conversion of VAX to Alpha, this file no longer serves a purpose.

Silent Lookup   Added

A Silent Lookup was added in support of GUI. The Lexicon Special Lookup Routine has been modified to call the Silent Lookup so that the behavior of the loud lookup would be identical to the silent lookup. This lookup also includes:

- Reordering the selection list with the most frequently used at the top
- Placing the exact match at the top of the selection list
- Returning a local array

Codes File 757.02   **Changed**

The Codes file was modified to include a status multiple to record code activation dates and inactivation dates. The ACT cross-reference is generated from this multiple. This cross reference provides the Lexicon the ability to retrieve the appropriate code and text based on a date supplied by the calling routine. If a date is not supplied, then TODAY is used.

Coding Systems File 757.03   **Changed**

The Coding Systems file was modified by making the SOURCE TITLE field #2 an identifier for the purpose of lookup while editing the Change File #757.01.

Lexicon Example Entry – Migraine Headache

Terms

Concept:	Migraine	
Symptoms:	Hemicrania	Directly Linked to Concept
	Migraine Headache	Directly Linked to Concept
Variants:	Hemicrania	Indirectly Linked (via Synonym)
	Hemicranias	Indirectly Linked (via Synonym)
	Migraines	Directly Linked to Concept

Definition

A periodic vascular headache, usually temporal, and unilateral in onset, commonly associated with irritability, nausea, vomiting, constipation or diarrhea, and often photophobia.

Semantic Class/Type

Diseases/Pathologic Processes	Signs and Symptoms
	Disease or Syndrome

Classification Systems/Codes

COSTAR	Computer Stored Ambulatory Records Term File	485/486
COSTART	Coding Symb Thesaurus - Adverse Reaction Terms	MIGRAINE
CRISP	CRISP Thesaurus, Nat Inst of Health	2056-6472
ICD-9-CM	Intl' Class of Diseases, 9th Rev, Clin Mod	346.9/346.
SNOMED D	Sys Nomen of Med, Diagnostic, 2nd Ed	D-8250

Package Components

Manager Options

Lexicon Management Menu

Defaults . . .

[LEX MGR DEFAULTS]   Menu

This menu contains two options, one to modify user defaults and one to list user defaults.

Edit User/User Group Defaults   LEXDMG
[LEX MGR USER DEFAULTS]

This option allows a manager to modify user defaults (filter, display, shortcuts, vocabulary) for either a single user or a group of users (based on service or location).

List User/User Group Defaults   LEXDD1
[LEX MGR LIST DEFAULTS]

This option allows a manager to list user defaults to a device (filter, display, shortcuts, or vocabulary) for either a single user or a group of users (based on service or location). It also allows the manager to limit the listing to users with or without defaults.

Edit Lexicon . . .

[LEX MGR EDIT LEXICON]   Menu

Very few fields in the Lexicon may be edited. This menu option contains two sub-options that allow managers to edit those [few] fields. One sub-option allows a manager to edit a term definition and the other to edit shortcuts (by context).

Edit Term Definition   LEXEDF1
[LEX MGR EDIT DEFN]

This option lets you edit the definition of an expression. This definition is accessible during searches using the Lexicon help routine.

Edit Shortcuts by Context (New)   LEXSC
[LEX MGR EDIT SHORTCUTS]

This option lets managers add or delete shortcuts in a selected context.

Lexicon Utility. . .

[LEX UTILITY]   Menu

This option is described under the User/Manager Options section below.

User Manager/Options

Lexicon Utility Menu

[LEX UTILITY]   Menu

This menu contains two sub-options, Look-up Term and User Defaults.

Look-up Term   LEXLK
[LEX LOOK-UP]

This option lets you perform a simple lookup in the Lexicon and displays all the information known about the term selected.

User Defaults . . .

[LEX USER DEFAULTS]   Menu

This menu contains five sub-options that let a single user modify or list user defaults, including the search filter, the display format, the preferred vocabulary, and shortcuts.

Filter   EN^LEXDFL
[LEX USER FILTER]

This option lets the users either select or create their own filters to use while conducting searches in the Lexicon. The filter limits the response of the lookup based on the conditions found in the filter.

Display   EN^LEXDCC
[LEX USER DISPLAY]

This option lets the user either select or create a display format which is used in presenting the selection list during searches in the Lexicon.

Vocabulary   EN^LEXDVO
[LEX USER VOCABULARY]

This option lets the user select a default vocabulary (or subset of the Lexicon) to be used during a lookup (i.e., Nursing, Social Work, etc.).

Shortcuts   New
[LEX USER SHORTCUTS]   EN^LEXDCX

This option lets the user select a default set of shortcuts to use to rapidly access the Lexicon without the benefit of the special lookup.

List Defaults   EN^LEXDDS
[LEX USER DEFAULT LIST]

This option lets the user list the current defaults (by application) to a device (terminal or printer).

Code Set Versioning Options

Code Sets

[LEX CSV]   Menu

ICD-9 Diagnosis Code Set Query   LEXQID
[LEX CSV ICD QUERY]

This option displays a single versioned entry from the ICD Diagnosis file #80 based on a date provided by the user. The date may be a future date.

ICD-9 Procedure Code Set Query   LEXQIP
[LEX CSV ICP QUERY]

This option displays a single versioned entry from the ICD Operations/Procedure file #80.1 based on a date provided by the user. The date may be a future date.

CPT/HCPCS Procedure Code Set Query   LEXQCP
[LEX CSV CPT QUERY]

This option displays a single versioned entry from the CPT/HCPCS file #81 based on a date provided by the user. The date may be a future date.

CPT Modifier Code Set Query   LEXQCM
[LEX CSV MOD QUERY]

This option displays a single versioned entry from the CPT Modifier file #81.3 based on a date provided by the user. The date may be a future date.

ICD/CPT Code Set Change List   LEXQC
[LEX CSV ICD/CPT CHANGE LIST]

This option produces a listing of ICD/CPT changes effective on the date provided by the user.

Code History

[LEX CSV HISTORY]   LEXQH

This option produces a historical display of the versioned data for a selected code.

Protocols

Lexicon Update

[LEXICAL SERVICES UPDATE]   Extended Action

This Protocol is invoked by the Lexicon each time an update occurs with one of the coding systems that subscribe to this protocol. Currently there are two:

ICD – [ICD CODE UPDATE EVENT]
CPT – [ICPT CODE UPDATE EVENT]

Applications wishing to be notified each time there is an update to ICD-9 coding system may place an action on the [ICD CODE UPDATE EVENT] protocol. Applications wishing to be notified each time there is an update to the CPT-4 coding system may place an action on the [ICPT CODE UPDATE EVENT] protocol.

Files, Pointers and Relationships

LOOK-UP RELATED FILES

Concept Usage 757.001

Coding Systems 757.03

Subsets 757.21

Shortcuts 757.4

Replacement Words 757.05

Excluded Words 757.04

USER DEFAULT FILES

New Person 200

Subset Definition 757.2

Shortcut Context 757.41

Look-Up Screens 757.3

Displays 757.31

Codes 757.02

Major Concept Map 757

Expressions 757.01

Semantic Map 757.1

Other Applications (Problem List, AICS, Text Integration Utility, etc.)

Expression Type 757.011

Expression Form 757.014

Semantic Class 757.11

Semantic Type 757.12

LEXICAL ATTRIBUTE FILES

Unresolved Narratives 757.06
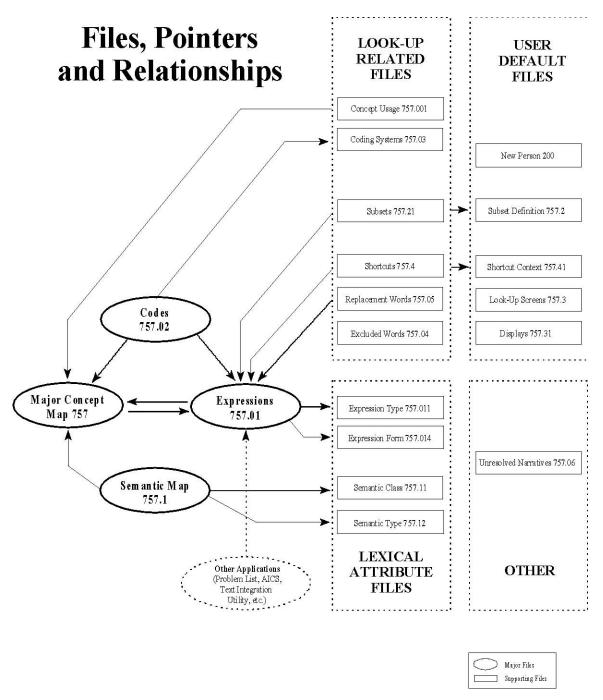
OTHER

Major Files
Supporting Files

Chart of the Relationships between Lexicon File Components

Lexicon Files, Fields, and Indexes

On-line documentation for the Lexicon Utility's files, fields, and cross-references may be obtained by using the FileMan's Data Dictionary Listing Utility for the file range 757-757.41 as follows:

```
>D ^DI
```

```
                   VA FileMan 21.0



           Select OPTION: DATA DICTIONARY UTILITIES
 Select DATA DICTIONARY UTILITY OPTION: LIST FILE ATTRIBUTES
  START WITH WHAT FILE: SHORTCUT CONTEXT// 757 MAJOR CONCEPT MAP
                                    (99861 entries)
      GO TO WHAT FILE: MAJOR CONCEPT MAP// 757.41  SHORTCUT CONTEXT
                                    (3 entries)
           Select LISTING FORMAT: STANDARD//   <Enter>
           DEVICE:    <Enter>  VAX


STANDARD DATA DICTIONARY #757 -- MAJOR CONCEPT MAP FILE
STORED IN ^LEX(757,  (99861 ENTRIES)   SITE: SALT LAKE IRMFO
        DATA    NAME   GLOBAL  DATA
        ELEMENT TITLE   LOCATION TYPE
  ---------------------------------------------------------------------------
------------------------------
This file is a map of Major Concepts within the Lexicon Utility and contained
in the expression file (#757.01). While the primary purpose of this file is
for file maintenance, it also supports various other functions such as the
display of classification codes by linking concepts to codes, and the ability
to filter out unwanted search responses by linking concepts to semantic
classes and types. NOTE: Data Entries in this file should not be altered by
the site.


           DD ACCESS: @
           RD ACCESS: @
           WR ACCESS: @
           DEL ACCESS: @
           LAYGO ACCESS: @
           AUDIT ACCESS: @



POINTED TO BY: MAJOR CONCEPT field (#.01) of the CONCEPT USAGE File
(#757.001)
  MAJOR CONCEPT field (#1) of the EXPRESSIONS File (#757.01)
  MAJOR CONCEPT field (#3) of the CODES File (#757.02)
  MAJOR CONCEPT field (#.01) of the SEMANTIC MAP File (#757.1)


           CROSS
           REFERENCED BY: EXPRESSION(B)

757,.01  EXPRESSION              0;1 POINTER TO EXPRESSIONS FILE
```

```
                            (#757.01) (Required)


                OUTPUT TRANSFORM: S Y=$P(^LEX(757.01,Y,1),U,1)
              LAST EDITED:  APR 19, 1996
 DESCRIPTION: Pointer to the clinical expression in the Expression file
(#757.01) which represents the preferred term for the Major Concept.


                UNEDITABLE


                CROSS-REFERENCE:  757^B
                1)= S ^LEX(757,"B",$E(X,1,30),DA)=""
                2)= K ^LEX(757,"B",$E(X,1,30),DA)


 ^LEX(757,"B",MCE,IEN) - where MCE is a pointer to the expression in the
Expression file #757.01 which represents a clinical Major Concept Expression,
and IEN is the Internal Entry Number in the Major Concept Map file #757
.........................


                .......
```

You may also retrieve the on-line documentation for any single file listed below by entering a single file number at START WITH WHAT FILE: prompt and not entering a file number at the GO TO WHAT FILE: prompt. The following is a listing of file numbers and file names contained in the Lexicon Utility package:

757	MAJOR CONCEPT MAP
757.001	CONCEPT USAGE
757.01	EXPRESSIONS
757.011	EXPRESSION TYPE
757.014	EXPRESSION FORM
757.02	CODES
757.03	CODING SYSTEMS
757.04	EXCLUDED WORDS
757.05	REPLACEMENT WORDS
757.06	UNRESOLVED NARRATIVES
757.1	SEMANTIC MAP
757.11	SEMANTIC CLASSES
757.12	SEMANTIC TYPES
757.13	SOURCE CATEGORY
757.14	SOURCE
757.21	SUBSETS
757.3	LOOK-UP SCREENS
757.31	DISPLAYS
757.32	MAPPING DEFINITIONS
757.33	MAPPINGS
757.4	SHORTCUTS
757.41	SHORTCUT CONTEXT

Routines Supporting the Lexicon

Special Lookup

Description

Because of the requirement to reorder the list after the search and before user selection, this lookup now calls the Silent Lookup so that the search results from the Special Lookup and Silent Lookup remain consistent. The previous special lookup called the API to the Kernel Toolkit Multi-Term Lookup Utility (MTLU).

These routines are responsible for:

- Obtaining the user input search string and passing it to Silent Lookup, then prompting for and getting the user's response.
- Storing and mailing Unresolved Narratives. An Unresolved Narrative occurs when the lookup either does not find a match or when it finds a match but the user, not satisfied with the results, does not select an expression from the list. These Unresolved Narratives are rolled-up into a mail message and submitted for inclusion in later releases of the Lexicon.
- Returning the standard FileMan variables and one additional variable Y(1) containing an active ICD code when one exists.

Routine

LEXA1	Lookup (user input)
LEXA2	Selection
LEXA3	Display
LEXA4	Unresolved Narratives

Silent Lookup (New)

Description

This lookup searches the Lexicon and responds by building global and local arrays.

Routines

Lookup

LEXA	Lookup
LEXASC	Lookup by Shortcuts
LEXAB	Exact Match B Index
LEXABC	Lookup by Codes
LEXALK	Lookup by Keywords
LEXAFIL	Lookup with Filter

Interpret User Response

LEXAR	Interpret User Response

	LEXAR2	Up-arrow, Jump, Null
	LEXAR3	Help, Definition, MAX, Refresh
	LEXAR4	Select Entry
	LEXAR5	Select Entry
	LEXAR6	Unresolved Narratives
	LEXAR7	MAIL Narratives
Application Program Interfaces		
	LEXTRAN	Retrieve Data for Specific Codes or Texts
	LEXTRAN1	Retrieve Designations and Mappings for Specific Codes
Miscellaneous		
	LEXAL	List Builder (Global)
	LEXAL2	List Builder (Array)
	LEXAM	Setup/Parse User Input
	LEXASO	Get Classification Sources
	LEXAS	Check User Input
	LEXAS2	Check User Input
	LEXAS3	Check User Input
	LEXAS4	Check User Input
	LEXAS5	Check User Input
	LEXAS6	Check User Input
	LEXAS7	Check User Input

Setup

Routines

	LEXMTLU	Set up for XTLKKWL API
	LEXSET	Set up App/User for Lookup
	LEXSET2	Set up App/User for Lookup
	LEXSET3	Set up App/User for Lookup
	LEXSET4	Set up Functions
	LEXSET5	Set up App/User for Lookup

Setting/Displaying User Defaults

Description

Currently, there are only four types of user defaults

- Vocabulary: The word index to use during the search.
- Display: A string of classification coding systems to display during the search.
- Filter: A condition for selecting terms based on semantic or classification systems.
- Shortcut Context: A set of keywords resulting in immediate return of an expression.

These routines allow users and managers to either select from pre-existing defined default values or create their own.

Default	Select Default from a List	Create your own Default
Filter	Yes	Yes
Display	Yes	Yes
Shortcuts	Yes	No
Vocabulary	Yes	No

Additionally, managers may set defaults for multiple users based on service or location. Both users and managers may display user defaults. Users can only display their own defaults in a human readable format much like that shown in the section Controlling the View. A manager may display the defaults for a single user or a user group, showing the actual data stored as the default values. Because of the complexity of the filtering by semantic classes and types (see Controlling the View), a large number of these routines (LEXDFL*) are devoted to the creation of these filtering strings.

Routines

Manager

LEXDMG	Manager Options
LEXDMGU	Select User/User Group
LEXDMGV	Verify Selections
LEXDMGO	Overwrite Existing Defaults
LEXDMGT	Task to Modify Defaults

Default Filter

LEXDFL	Default Filter
LEXDFLS	Select a Filter
LEXDFLC	Create a Filter
LEXDFLT	Filter Type
LEXDFST	Filter by Semantics
LEXDFSB	Filter/Exclude Classes/Types
LEXDFSI	Include Semantic Classes/Types
LEXDFSE	Exclude Semantic Classes/Types
LEXDFSO	Filter by Sources
LEXDCCC	Create Filter by Source

LEXDFSS	Filter by Sources and Semantics

Default Display

LEXDCC	Default Display
LEXDCCS	Select a Display
LEXDCCC	Create a Display

Default Vocabulary

LEXDVO	Default Vocabulary
LEXDVOS	Select Default Vocabulary

Default Shortcut Context

LEXDCX	Default Shortcut Context
LEXDCXS	Select Default Shortcut Context

Display Defaults

LEXDD1	Display Defaults
LEXDD2	Build List
LEXDD3	Display List
LEXDD4	List Elements
LEXDDS	Single User Default
LEXDDSD	Single User Display
LEXDDSP	Single User Parse
LEXDDSS	Single User Save

Translate User Defaults

LEXDDT1	Translate String
LEXDDT2	Concatenate Translated String
LEXDDTC	Translate Shortcut String
LEXDDTD	Translate Display String
LEXDDTF	Translate Filter String
LEXDDTV	Translate Vocabulary String

Miscellaneous

LEXDFN	Default Names
LEXDFN2	Default Names
LEXDSV	Save Defaults
LEXDM	Select/Create/Delete Default
LEXDM2	Verify Default Delete
LEXDM3	Default Name
LEXDM4	Get Application/User/Service/Location

Edit

Description

These routines provide managers at a site with the ability to edit the definition and the shortcuts associated with an expression. The definition is used as part of the Lexicon's help routines to assist in the selection of a term from a selection list. An edited definition is mailed to SLC IRMFO for review and possible inclusion into a future release. The shortcuts are used to associate a keyword to a specific expression to rapidly access the Lexicon without engaging the look-up engine.

Routines

LEXEDF1	Select/Display/Mail Edited Definition
LEXEDF2	Edit Definition
LEXSC	Edit Shortcuts
LEXSC2	Edit Shortcuts
LEXSC3	Edit Shortcuts

Indexing and Input Transformations

Description

Entry points for these routines are embedded into the Data Dictionary to maintain indexes and to control input transformations.

The indexes that are controlled in this manner include:

Index	File	Subscript	Routine
Main Word Index	757.01	AWRD	LEXNDX1
Subset Word Index	757.21	"A"_SUBSET	LEXNDX2
Application Index	757.2	APPS	LEXNDX2
Linked Word Index	757.01	AWRD	LEXNDX3
Linkages	757.05	ALINK	LEXNDX4/5
String Index	757.01	ASL	LEXNDX6
Shortcut Index	757.4	ARA	LEXNDX6

Input transformations controlled in this manner include:

Field	File	Routine
Word (Excluded)	757.04	LEXERI
Word (Replace)	757.05	LEXERI
Replacement Term	757.05	LEXERI

Routines

LEXNDX1	Main Word Index
LEXNDX2	Sub-Set Word Index

LEXNDX3	Replacement Words
LEXNDX4	Linked Words Index
LEXNDX5	Linked Words
LEXNDX6	Index Strings/Shortcuts
LEXNDX8	Index Codes (757.02)
KEXNDX9	Index Mappings (757.33)
LEXERF	Functions for Exe/Rep Words
LEXERI	Exe/Rep Input Transformations

Code Set Versioning

Description

Entry points for these routines are embedded called by the [LEX CSV] name spaced options and display ICD or CPT codes and the versioned data associated with those codes.

Routines

LEXQC	Code Set (CSV) – Extract
LEXQC2	Code Set (CSV) – Save
LEXQCM	CPT Modifiers – Extract
LEXQCM2	CPT Modifiers – Save
LEXQCMA	CPT Modifiers – Ask
LEXQCP	CPT Procedures – Extract
LEXQCP2	CPT Procedures – Save
LEXQCPA	CPT Procedures – Ask
LEXQID	ICD Diagnosis – Extract
LEXQID2	ICD Diagnosis – Extract (cont)
LEXQID3	ICD Diagnosis – Extract (cont)
LEXQID4	ICD Diagnosis – Save
LEXQIDA	ICD Diagnosis – Ask
LEXQIP	ICD Procedure – Extract
LEXQIP2	ICD Procedure – Extract (cont)
LEXQIP3	ICD Procedure – Save
LEXQIPA	ICD Procedure – Ask
LEXQH	Code History – Main
LEXQHA	Code History – Ask
LEXQHL1	Code History – ICD Dx Extract
LEXQHL2	Code History – ICD Op Extract

LEXQHL3	Code History – CPT/HCPCS Extract	
LEXQHL4	Code History – CPT Modifier Extract	
LEXQHL5	Code History – Lexicon ICD/CPT Extract	
LEXQHLM	Code History – Extract Misc	
LEXQL	Code Lookup	
LEXQL2	Code Lookup (ICD/ICP)	
LEXQL3	Code Lookup (CPT/MOD)	
LEXQD	Defaults	
LEXQO	Outputs	
LEXQM	Miscellaneous	

Problem List
Routines

LEXPL	Problem List Survey
LEXPLEM	Problem List Update w/Lexicon Exact Match
LEXPLIA	Problem List Update of Inactivated ICD Codes
LEXPLUP	Problem List Update for ICD 799.9

Miscellaneous
Routines

LEXCODE	Convert Code to IEN
LEXSRC	Convert IEN to Code
LEXSRC2	Check Status of a Code
LEXTOLKN	Parse into Words
LEXPRNT	Print Utilities
LEXHLP	Help
LEXU	Miscellaneous Utilities
LEXLK	Demo Lookup
LEXLK2	Demo Lookup

Package Characteristics and Usage

Supported Callable Routines

The following routines are supported upon release of the Lexicon Utility V. 2.0.

LEXSET

CONFIG^LEXSET(<Application>,<Subset>,<Date>)

This entry point sets up the lookup variables for searching the Lexicon. It is not necessary to use this entry point for either Special Lookup or Silent Lookup since this entry point is embedded in Silent Lookup. You should use this entry point when:

- A search is to be conducted using the Kernel Toolkit's Multi-Term Lookup Utility (MTLU).
- It is desirable for an application to control the user defaults for a given situation (for example, the application may require the return of an ICD code).

This entry point searches the Subset Definition file (#757.2) and retrieves the application defaults, the subset defaults, and user defaults. Then it merges the three sets of defaults into a single list of defaults based on the information it has retrieved. For instance, if the application has defined the Overwrite flag as true, then the application defaults have precedence over any user defaults found and the user defaults are ignored. If the global root is anything other than ^LEX(757.01, then the user defaults for vocabulary and filter are ignored while the user defaults for display and shortcuts are used.

Input

<Application> This is the application identification and may be in the form of a name (e.g., PROBLEM LIST), a namespace (e.g., GMPL) or a pointer (e.g., Internal Entry Number—IEN) from an application definition in the Subset Definition file (#757.2). The default value for this parameter, if it is not supplied, is one (1), pointing to the Lexicon application definition. This is the same as the Application input parameter for LOOK^LEXA. A list of appropriate application identifiers is found in the Subset Definition file #757.2 in the AN index. At the time of this writing it included:

Application ID	Application or Purpose
CPT	CPT-4 Procedures
DSM	Mental Health DSM-4
GMPL	Problem List
ICD	ICD-9-CM Diagnosis
LEX	Generic Lexicon Utility
VAC	VA Frequently used Codes

<Subset> This parameter represents the vocabulary subset to use during the search. This parameter is passed as a subset name (e.g., NURSING), or the subset mnemonic (e.g., NUR) or as a pointer to the Subset Definition file (#757.2). The default value for this parameter, if it is not supplied, is one (1) pointing to the main vocabulary (WRD subset) of the Lexicon located in file 757.01 and indexed by AWRD. This is the same as the Subset input parameter for LOOK^LEXA. A list of appropriate vocabulary subsets is found in the Subset Definition file #757.2 in the AA and AB indexes. At the time of this writing it

included:

Subset ID	Purpose
DEN	Dental Terminology
IMM	Immunologic Terminology
NUR	Nursing Terminology
SOC	Social Work Terminology
WRD	General Use (default)
CPT	CPT Procedures
DSM	Mental Health DSM-IV
ICD	ICD-9-CM Diagnosis
NIC	Nursing Interventions
PL1	Problem List #1 General
PL2	Problem List #2 ICD Diagnosis and Procedures
VAC	VA Frequently used codes (ICD, ICP, DSM, CPT)

<Date>   This is a date in FileMan format used to return the code that is active on the date supplied. If the date is not passed, then TODAY is used.

Output

When LEXQ=1   If the variable LEXQ does not exist or is preset to 1, then the merged set of default values are placed in the global array ^TMP("LEXSCH",$J) as in the case of a standard DIC lookup or Silent Lookup. The following is a brief summary of the global array:

Global Array Segment	Purpose
^TMP("LEXSCH",$J,"ADF",0)	Application Default Flag
^TMP("LEXSCH",$J,"APP",0)	Application
^TMP("LEXSCH",$J,"DIS",0)	Display
^TMP("LEXSCH",$J,"FIL",0)	Filter
^TMP("LEXSCH",$J,"FLN",0)	File Number
^TMP("LEXSCH",$J,"GBL",0)	Global (DIC)
^TMP("LEXSCH",$J,"IDX",0)	Index
^TMP("LEXSCH",$J,"LEN",0)	List Length
^TMP("LEXSCH",$J,"LOC",0)	Hospital Location
^TMP("LEXSCH",$J,"OVR",0)	Overwrite User Default Flag
^TMP("LEXSCH",$J,"SCT",0)	Shortcuts
^TMP("LEXSCH",$J,"SVC",0)	Service

^TMP("LEXSCH",$J,"UNR",0)	Unresolved Narrative Flag
^TMP("LEXSCH",$J,"USR",0)	User (DUZ)
^TMP("LEXSCH",$J,"VOC",0)	Vocabulary

When LEXQ=0   If the variable LEXQ=0, then you should define the variable X as the user input and the merged set of default values are set into the appropriate local variables for making a direct call to the MTLU via the entry point ^XTLKKWL. The following variables are returned:

Variable	Content
DIC	Global Reference (root)
DIC ("S")	Search Filter (MUMPS code)
DIC (0)	Search Conditions (codes)
LEXAP	Application (pointer to file 757.2)
LEXQ	Silent lookup flag (codes)
LEXSHOW	Displayable Codes (free text)
LEXSUB	Subset (free text)
LEXUN	Unresolved Narratives (codes)
X	User input (free text)
XTLKGBL	Global Reference (root)
XTKLHLP	Help (MUMPS code)
XTLKKSCH("DSPLY")	Display (routine entry point)
XTLKKSCH("GBL")	Global Reference (root)
XTLKKSCH("INDEX")	Index to use ("A"_Subset)
XTLKSAY	MTLU display (codes)
XTLKX	User input (free text, same as X)

LEXU

$$ICDONE^LEXU(<IEN>,<Date>)
$$CPTONE^LEXU(<IEN>,<Date>)
$$DSMONE^LEXU(<IEN>,<Date>)

These entry points (extrinsic functions) allow an application to retrieve a single code for a given classification system (ICD-9, CPT-4, and DSM-IV) and for a given internal entry number (IEN).

Input

<IEN>	This is an Internal Entry Number from the Lexicon Expression file #757.01.
<Date>	This is a date in FileMan format used to return the code that is active on the date supplied. If the date is not passed, then TODAY is used.

Output

        Code   A single classification code, if one is found, or null, if no code is found.

$$ICD^LEXU(<IEN>)

This entry point (extrinsic function) allows an application to retrieve a series of ICD codes for a given internal entry number (IEN).

Input

<IEN>	This is an Internal Entry Number from the Lexicon Expression file #757.01.

Output

Codes	A string of ICD codes (one or more) delineated by a semi-colon or null if no codes are found.

Example

If **Y=33677^Diabetic Neuropathies** then the call **$$ICD^LEXU(+Y)** returns the string **250.60;357.2**, containing the ICD code for Diabetes with Neurological Manifestations and the ICD code for Polyneuropathy in Diabetes.

LEXA

INFO^LEXA(<IEN>,<Date>)

This entry point allows an application to build the LEX("SEL") selection array for any term in the Lexicon based on the internal entry number from the Expression file (757.01). This entry point is meant to be used outside of the Lexicon lookup. It allows the application to retrieve information pertaining to the term to include synonyms, lexical variants, definitions, classification codes, semantic class and type, and linkages to the major VA classification files (e.g., ICD, CPT, DSM).

Input

<IEN>	This is an Internal Entry Number from the Lexicon Expression file #757.01.
<Date>	This is a date in FileMan format used to control which classification codes are returned based on the date supplied. If the date is not passed, then TODAY is used. Only active codes are returned.

Output

LEX("SEL")   Local array LEX("SEL") containing the following segments:

Array Segment	Content
LEX("SEL","EXP")	Expressions
LEX("SEL","SIG")	Definitions when one exists
LEX("SEL","SRC")	Sources (classification codes)
LEX("SEL","STY")	Semantic Class and Type

LEX("SEL","VAS")	VA Sources

The LEX("SEL") array and all of its segments are described in the section titled Special Variables under the subheading Local Arrays.

LEXCODE

EN^LEXCODE(<Code>,<Date>)

This entry point allows an application to retrieve the internal entry numbers (IENs) and the text (as the FileMan Y variable) of the expressions associated with a classification code.

Input

<Code>	(Required) Code taken from a classification system listed in Coding Systems file #757.03
<Date>	(Optional) The date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. If not passed, TODAY's date will be used.

Output   Local Array **LEXS**

LEXS(0)=Code
LEXS(SAB,0)=Number of Terms found for SAB
LEXS(SAB,0,"SAB")=Source Nomenclature ^ Name
LEXS(SAB,#)=IEN file 757.01^Display Text (term)

Example of returned array LEXS using code V62.4

LEXS(0)="V62.4"
LEXS("DS4",0)=1
LEXS("DS4",0,"SAB")="DSM-IV^Diagnostic & Statistical Manual of Mental Disorders"
LEXS("DS4",1)="303722^Acculturation Problem"
LEXS("ICD",0)=5
LEXS("ICD",0,"SAB")="ICD-9-CM^International Classification of Diseases, Diagnosis"
LEXS("ICD",1)="111638^Social maladjustment"
LEXS("ICD",2)="29696^Cultural Deprivation"
LEXS("ICD",3)="100676^Psychosocial Deprivation"
LEXS("ICD",4)="303722^Acculturation Problem"
LEXS("ICD",5)="111507^Social Behavior

EXP^LEXCODE(<Code>,<Source>,<Date>)

This entry point allows an application to retrieve an active preferred term for a coding system on the date provided.

Input

<Code>	(Required) Code taken from the Codes file 757.02.
<Source>	(Required) This is either the three character Source Abbreviation or a pointer to the Coding Systems file 757.03. Source abbreviations

(SAB) may be found in Appendix A or the "ASAB" cross-reference if the Coding Systems file 757.03. It is used to distinguish between different coding systems with the same code (i.e., the code 300.01 occurs in both the ICD-9-CM and DSM-IV coding systems).

<Date>   (Optional) The date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. If not passed, TODAY's date will be used.

Output

$$EXP   2 Piece "^" delimited string containing

Either:

1 Pointer to Expression file #757.01
2 Display Text (Expression)

or:

1 -1
2 Error Message

LEXSRC2

$$STATCHK^LEXSRC2(<Code>,<Date>,.ARY,<Source>)

This entry point allows an application to retrieve the status of a code (active or inactive) and the effective date of the status. An optional array may be included to provide additional information about the code.

Input

<Code>   (Required) Code taken from the Codes file 757.02 (ICD/CPT/DSM etc).

<Date>   (Optional) Date to screen against (default TODAY).

.ARY   (Optional) Output Array, passed by reference.

<Source>   (Optional)Source Abbreviation. Source abbreviations (SAB) may be found in Appendix A or the ASAB cross-reference if the Coding Systems file 757.03. It is used to distinguish between different coding systems with the same code.

Output

$$STATCHK   2 or 3 Piece String containing the code's status, the IEN, and if the status exist, the effective date, else -1 in lieu of the IEN.

The following are possible outputs:

1 ^ IEN ^ Effective Date   Active Code

	0 ^ IEN ^ Effective Date	Inactive Code
	0 ^ IEN	Not Active
	0 ^ -1	Code not Found

.ARY (Optional) A local array (when passed by reference) containing the ASTM Triplet, the Major Concept Map and the Semantic Map.

ARY(0) Code, a 2 Piece String containing:
1   IEN in the CODES file #757.02
2   A Code (external)

ARY(1) Expression, a 2 Piece String containing:
1   IEN in the EXPRESSION file #757.01
2   The Code's Expression (external)Code is Inactive, and not found in the Lexicon

ARY(2) Coding System, a 4 Piece String containing:
1   IEN in the CODING SYSTEMS file #757.03
2   Source Abbreviation (i.e., ICD or CPT)
3   Source Nomenclature (i.e., ICD-9-CM or CPT-4)
4   Source Full Name

ARY(3) Major Concept, a 3 Piece String containing:
1   IEN in the MAJOR CONCEPT MAP file #757
2   IEN in the EXPRESSIONS file #757.01
3   The Major Concept expression, which may be different from the code's expression in ARY(1)

ARY(4,#) Semantics (multiple), a 5 Piece String:
1   IEN in the SEMANTIC MAP file #757.1
2   IEN in the SEMANTIC CLASS file #757.11
3   IEN in the SEMANTIC TYPE file #757.12
4   External Semantic Class
5   External Semantic Type

LEXTRAN

CODE^LEXTRAN(LEXCODE, LEXSRC, LEXVDT, LEXRAY)

This API retrieves concept data for a given code and coding system.

Input

<LEXCODE> This is a source code taken from one of the classification systems listed in Coding Systems file #757.03. e.g., ICD, CPT, DSM, NANDA, etc.

<LEXSRC> This is a coding system identifier that identifies one of the coding systems listed in Coding Systems file #757.03. e.g., ICD, CPT, DSM, NANDA, etc.

<LEXVDT>	This is a date in FileMan format used to ensure that the expressions returned are for active codes on the date supplied. If the date is not passed, then TODAY is used.
<LEXRAY>	This is the output array (defaults to LEX if none specified).

Output

LEX	if call finds an active code for the source

    "1^LEXCODE"

    LEX - an array containing information about the code

    LEX(0) - a five piece string:

1. code
2. hierarchy
3. version
4. legacy code
5. code status

    LEX("F") fully specified name

    LEX("P") preferred term

    LEX("S",n) synonyms (n is the nth synonym)

if call cannot find specified code on file

    "-2^"_LEXSCNM_" code "_LEXCODE_" not on file"

    where LEXSCNM is the source name

        LEXCODE is the code

if call finds an inactive code for the source

    "-4^"_LEXSCNM_" code "_LEXCODE_" not active for "_LEXVDT

    LEX - an array containing information about the code

    LEX(0) - a five piece string:

1. code
2. hierarchy
3. version
4. legacy code
5. code status

otherwise

    "-1^error text"

example of LEX array:

    LEX(0)="67922002^Substance^20050701^T-C2500^1"

    LEX("F")="Serum (Substance)"

    LEX("P")="Serum"

TEXT^LEXTRAN(LEXTEXT, LEXVDT, LEXSUB, LEXSRC, LEXRAY)

This API retrieves concept data for a given designation and coding system.

Input

<LEXTEXT>	This is a designation.
<LEXVDT>	This is a date in FileMan format used to ensure that the expressions returned are for active codes on the date supplied. If the date is not passed, then TODAY is used.
<LEXSUB>	This is a subset identifier. The subset specified must be one of the subsets defined in the subset definitions file (757.2).
<LEXSRC>	This is a coding system identifier that identifies one of the coding systems listed in Coding Systems file #757.03. E.g., ICD, CPT, DSM, NANDA, etc.
<LEXRAY>	This is the output array (defaults to LEX if none specified).

Output

LEX   or passed array name - an array containing information about the code

  LEX(0) - a five piece string:

1. code
2. hierarchy
3. version
4. legacy code
5. code status

otherwise

 "-1^error text"

example of LEX array:

 LEX(0)="67922002^Substance^20050701^T-C2500^1"
 LEX("F")="Serum (Substance)"
 LEX("P")="Serum"

VERSION^LEXTRAN(LEXSRC, LEXCODE, LEXVDT)

This API retrieves version information for a given coding system and code.

Input

<LEXVDT>	This is a date in FileMan format used to ensure that the expressions returned are for active codes on the date supplied. If the date is not passed, then TODAY is used.
<LEXSRC>	This is a coding system identifier that identifies one of the coding systems listed in Coding Systems file #757.03. e.g., ICD, CPT, DSM, NANDA, etc.
<LEXCODE>	This is a source code taken from one of the classification systems listed in Coding Systems file #757.03. e.g., ICD, CPT, DSM, NANDA, etc.

Output

1^Version

or

-1^error message

TXT4CS^LEXTRAN(LEXTEXT, LEXSRC, LEXRAY, LEXSUB)

This API determines whether a given designation is valid for a specified coding system.

Input

<LEXTEXT>	This is a designation.
<LEXSUB>	This is a subset identifier. The subset specified must be one of the subsets defined in the subset definitions file (757.2).
<LEXSRC>	This is a coding system identifier that identifies one of the coding systems listed in Coding Systems file #757.03. E.g., ICD, CPT, DSM, NANDA, etc.
<LEXRAY>	This is the output array (defaults to LEX if none specified).

Output

1^number of finds

plus

LEX or passed array name - an array containing discovered
  concept IDs and expression type for finds

  e.g. LEX(113912006)="MAJOR CONCEPT"

      or

  -1^error message

Callable Routines by Agreement

LEXA
LOOK^LEXA(<User Input>,<Application>,<Page Length>, <Subset>,<Date>)

This entry point is silent and intended to support Graphical User Interface (GUI) development.

Input

<User's Input>	Equivalent to FileMan's variable X and contains the text to search for.
<Application>	This is the application identification and may be in the form of a name, namespace, or a pointer (Internal Entry Number - IEN) from an application definition in the Subset Definition file (#757.2).
	The default value for this parameter, if it is not supplied, is one (1), pointing to the Lexicon application definition.
	Included in this application definition are a number of application defaults which assist in searching the Lexicon. Application defaults include the global root, index, filter, display format, vocabulary, shortcuts, user default flag, overwrite user default flag, and the

unresolved narrative flag. These are described in the Special Variable section of this manual.

At the time of this writing, there are six (6) application definitions:

Name	Namespace	IEN
Lexicon	LEX	1
Problem List	GMPL	4
ICD Diagnosis	ICD	12
CPT Procedures	CPT	13
Mental Health	DSM	14
ICD, CPT, and DSM Terminology	VAC	15

To conduct a search of the Lexicon using the application defaults for the Problem List, you may pass this parameter as:

Name	"PROBLEM LIST" - This form is not case sensitive, and can be found in either the "B" or "C" index of file 757.2.
Namespace	"GMPL" - Namespace - This form is not case sensitive, and can be found in the "AN" index of file 757.2.
Pointer	4 - This form is numeric, and is an Internal Entry Number (IEN) of file 757.2.

<Page Length> This is a numeric value which controls the returning list length in the local array LEX("LIST"). See the section Building/Re-ordering the List for how this variable is used. The default value for this parameter when not supplied is five (5).

<Subset> This parameter represents the vocabulary subset to use during the search. These subsets are defined in the Subset Definition file (#757.2). This parameter may be in one of three forms. To use the Nursing subset, you may pass the parameter as:

Name	NURSING - This form is not case sensitive and may be found in either the B or C index of file 757.2.
Mnemonic	NUR - This form is not case sensitive. The mnemonic may be found in either the AA" or AB index of file 757.2.
Pointer	2 - This form is numeric, and it is an Internal Entry Number (IEN) of file 757.2.

<Date> This date is used to return the appropriate coding and classification information with the expression found during the search.

The default value for this parameter is TODAY.

Lookup by Code - When the user searches the Lexicon for a specific classification code (i.e., ICD, CPT etc.), the date will be used to return the expression of the code that was active on the date supplied.

Lookup by Expression (text) - When the list of possible expressions is

presented to the user for selection, codes displayed with the expressions include only those codes that were active on the date supplied.

Output

Full descriptions of the global and local arrays may be found in the section on Special Variables.

^TMP("LEXFND",$J,<freq>,<IEN>)

> This global array contains all of the entries found during the search. The <freq> is a negative number based on the frequency of use for a given term. IEN is the internal entry number in the Lexicon Expression File (757.01).

^TMP("LEXHIT",$J,<seq>)

> This global array contains the entries reviewed by the user. The Lexicon Utility reorders the list based on frequency of use and assigns a sequence number representing where on the list this entry is located.

LEX("LIST")

> This local array contains only those entries on the list which are currently being reviewed by the user. The third parameter to the look-up defines the length of this list.

LEXAR

EN^LEXAR(<Response >,<Date>)

<Response> This entry point is designed to interpret the user's response to the selection list. It takes two types of input:

1. A user's response
2. A comment from an application

<Date> This date is used to return the appropriate coding and classification information with the expression found during the search. This parameter only comes into play when the <Response> from the user is a number where the user is selecting an expression from the list.

User Responses

User Response	Action	Results
Null	PGDN	A null response has the effect of advancing the list by the number of entries defined by the third input parameter of the lookup.
		1. If a null response is received from the user and the user is not at the end of the list, then the next # of entries is placed on the list in the local array.

```
LEX=<total matches found>
LEX("EXC")=<exact match concept - optional>
LEX("EXM")=<exact match - optional>
```

User Response	Action	Results
| | | ```
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("MAX")=<last entry reviewed>
LEX("MIN")=<first entry review>
LEX("NAR")=<user input - optional>
``` |
| | | 2. If a null response is received from the user and the user is at the end of the list, then the list is killed and the dialog with the user is considered over. If the application uses the Unresolved Narratives the user narrative may be returned as the user's response to save the narrative in the Unresolved Narrative file (757.06). |
| | | ```
LEX=0
LEX("NAR")=<user input>
``` |
| ^ | QUIT | Ends the dialog with the user by quitting the selection process, killing the selection list and setting LEX=0 |
| | | ```
LEX=0
LEX("NAR")=<user input>
``` |
| ^^ | EXIT | Ends the dialog with the application and kills all LEX namespaced variables. |
| ^# | JUMP | An up-arrow followed by a numeric value where the number is a specified entry on the list allows the user to jump from one location on the list to another. |
| | | ```
LEX=<total matches found>
LEX("EXC")=<exact match concept - optional>
LEX("EXM")=<exact match - optional>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("MAX")=<last entry reviewed>
LEX("MIN")=<first entry review>
LEX("NAR")=<user input - optional>
``` |
| ? | HELP | Places standard help in the array LEX("HLP"). |
| | | ```
LEX=<total matches found>
LEX("EXC")=<exact match concept - optional>
LEX("EXM")=<exact match - optional>
LEX("HLP",#)=<help text>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("MAX")=<last entry reviewed>
LEX("MIN")=<first entry review>
LEX("NAR")=<user input - optional>
``` |

User Response	Action	Results
| | | ```
LEX("LIST",#)=<entry>
LEX("MAX")=<last entry reviewed>
LEX("MIN")=<first entry review>
LEX("NAR")=<user input - optional>
``` |
| ?# | HELP | A question mark followed by a numeric value where the number is a specified entry on the list. If the entry specified has a definition, that definition is placed in the array LEX("HLP").<br><br>```
LEX=<total matches found>
LEX("EXC")=<exact match concept - optional>
LEX("EXM")=<exact match - optional>
LEX("HLP",#)=<definition text>
LEX("HLP",#)=<definition text>
LEX("HLP",#)=<definition text>
LEX("HLP",#)=<definition text>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("MAX")=<last entry reviewed>
LEX("MIN")=<first entry review>
LEX("NAR")=<user input - optional>
``` |
| - | PGUP | Backs up the list by the number of entries defined by the third parameter of the lookup.<br><br>```
LEX=<total matches found>
LEX("EXC")=<exact match concept - optional>
LEX("EXM")=<exact match - optional>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("LIST",#)=<entry>
LEX("MAX")=<last entry reviewed>
LEX("MIN")=<first entry review>
LEX("NAR")=<user input - optional>
``` |
| # | SELECT | Selects an entry from the list and kills the list. The selected entry, and information pertaining to the entry, is placed in the array LEX("SEL").<br><br>```
LEX=<total matches found>
LEX("SEL")=<exact match - optional>
LEX("SEL","EXP",0)=<expressions>
LEX("SEL","EXP",#)=<IEN^expression text>
LEX("SEL","SIG",0)=<definition>
LEX("SEL","SIG",#)=<definition text>
LEX("SEL","SRC",0)=<sources>
LEX("SEL","SRC",#)=<source^code>
LEX("SEL","VAS",0)=<VA sources>
LEX("SEL","VAS",#)=<file^VP^code^IEN>
```<br><br>If a date is passed, then the sources listed in the LEX("SEL","SRC") array will contain active codes based on the |

User Response	Action	Results
		date provided. If no date is passed, only active codes for TODAY will be listed.
User Input	Unresolved Narrative	If the list does not exist (in the case of receiving a null response at the end of the list), and the application uses unresolved narratives, and the user's original input string to the lookup is returned to the Lexicon, then the user's input and pertinent information about the search are saved in the Unresolved Narrative file (757.06).

Application Comment

Application Comment	Action
IEN^"Comment"	This is a special case of this entry point (similar to the use of Unresolved Narratives), and can only be used outside of the Lexicon Lookup (i.e. LEX does not exist). This response to this entry point allows an application to comment on an actual term contained in the Lexicon, save this comment in the Unresolved Narratives file (757.06), and have that comment returned to the developers along with the user's unresolved narratives. This special case is left up to the discretion of the calling application developers.
	Examples of application comments might be:
	IEN^Diagnostic term maps to 799.9
	This type of comment might be used by an application that requires a valid ICD with a diagnostic term (as is the case with Problem List). If the Lexicon returns the term without an ICD or with an ICD code not found in the ICD-9 file (80), then the application could take advantage of this entry point to instruct the developers of the Lexicon to have Medical Records Technicians take a look at the term and evaluate the term to an appropriate ICD code for future iterations of the Lexicon.
	IEN^RBBB suggested shortcut - Right bundle branch block
	This type of comment might be used when the user input RBBB fails to return a selection list, and on a subsequent search the user entered bundle branch block and selected Right bundle branch block, implying that RBBB was intended to have found "Right bundle branch block."

LEXD*

EN1^LEXD*(<Application>)

This is a series of callable routines established for the expressed purpose of setting user defaults for a given application and intended for applications to create options to change the user lookup defaults for that application. All of these routines assume DUZ is set to the current user. Two conditions must be met for these routines to be used:

1. The application indicated by the input parameter has an application definition in the Subset Definition file (#757.2).
2. The application definition permits user defaults (Application User Defaults flag in file 757.2 is set to 1).

Input

<Application>	This is the application identification and may be in the form of a name (i.e., PROBLEM LIST", a namespace (i.e., GMPL) or a pointer (Internal Entry Number - IEN) from an application definition in the Subset Definition file (#757.2). The default value for this parameter, if not supplied, is one (1), pointing to the Lexicon application definition. This is the same as the Application input parameter for LOOK^LEXA.

EN1^LEXDFL(<Application>)

This entry point allows a user to select or create a default filter for the application identified by the input parameter application.

EN1^LEXDCC(<Application>)

This entry point allows a user to select or create a default display for the application identified by the input parameter application.

EN1^LEXDVO(<Application>)

This entry point allows a user to select a default vocabulary for the application identified by the input parameter application.

EN1^LEXDCX(<Application>)

This entry point allows a user to select a set of shortcuts (based on context) for the application identified by the input parameter application.

Special Variables

Variables Affecting the Lookup

LEXLL

This variable is taken from the third parameter to the entry point LOOK^LEXA and is a numeric value and controls the returning list length in the local array LEX("LIST").

LEXSUB

This variable is taken from the fourth parameter to the entry point LOOK^LEXA and the second input parameter to the entry point CONFIG^LEXSET. It represents the vocabulary subset to use during the search. This subset is indexed at either the AA or AB index of the Subset Definition file (#757.2). This parameter may be in one of three forms:

For example, to use the Nursing subset you may pass the parameter as:

Name	NURSING	The name is found in either the B or C index of file 757.2.
Mnemonic	NUR	The mnemonic is found in either the AA or AB index of file 757.2.
Pointer	2	This is an Internal Entry Number (IEN) of file 757.2.

LEXQ

This variable is used to tell the setup routine CONFIG^LEXSET which type of search variable to return:

LEXQ=1

Returns search variables for the silent lookup LOOK^LEXA (version 2+) and the loud lookup ^LEXA1 (version 2+) which is called by ^DIC and uses silent calls. These search variables are placed in the global array ^TMP("LEXSCH",$J). **The default for LEXQ when it does not exist is 1.**

LEXQ=0

Returns the search variables for the loud lookup using the Kernel Toolkit's Multi-Term Lookup Utility (MTLU) entry point ^XTLKKWL (Version 1.0).

NOTE: X must be preset to the user input prior to calling CONFIG^LEXSET with LEXQ=0.

LEX

This variable indicates the current status of the dialog between the Lexicon and either the user or the calling application.

LEX > 0

The lookup is still engaged, the selection list stored at ^TMP("LEXHIT") still exists, and the lookup is waiting for a user response.

LEX = 0

The lookup has disengaged, the selection lists stored at ^TMP("LEXHIT") and ^TMP("LEXFND") have been deleted, and the lookup is waiting for a response from the application. There are only two conditions that can set LEX to 0. They are:

a. The user has reviewed the entire selection list and not made a selection. If this is the case, the global array ^TMP("LEXSCH",$J) still exists. At this point, the Lexicon is waiting to receive either the user narrative (to be saved in the Unresolved Narratives file 757.06) or any other response to proceed with cleaning up the environment before disengaging the dialog with the application.

b. The user has made a selection from the list. If this is the case, the local array LEX("SEL") is present. The Lexicon considers the dialog with the application over, and leaves the cleanup of the environment to the calling application (by killing LEX).

LEX does not exist.

This condition occurs when:

a. The user's input to LOOK^LEXA is null or contains an up-arrow (^) ending the dialog between the application and the Lexicon.

b. The user's response while reviewing the list contains double up-arrows (^^) ending the dialog between the user and the Lexicon.

Global Arrays

Found Array   ^TMP("LEXFND")

This global array contains the list of expressions found during the search. This global array continually grows smaller as ^TMP("LEXHIT") grows larger.

Hit Array   ^TMP("LEXHIT")

This global array contains the list of expressions found during the search. It is built by reordering the list in ^TMP("LEXFND") as the user reviews the list. The exact match (if any) at the top of the list, is immediately followed by other expressions found in the order of frequency of use. This array grows larger as the user reviews the list by adding entries to the list from ^TMP("LEXFND"). It is deleted when the Lexicon disengages the dialog with the user (the user either entered an up-arrow ^ or has reviewed the entire list and did not make a selection).

Search Conditions

^TMP("LEXSCH")

^TMP("LEXSCH",$J,<mnemonic>,0)

This global array contains all of the conditions under which the search was conducted. These conditions include:

ID	Search Conditions	Version 1.0 Equivalent
APP	Calling Applications	LEXAP
DIS	Display	LEXSHOW
EXC	Exact Match Concept	
EXM	Exact Match	
FIL	Filter	DIC("S")
FLN	File Number	
GBL	Global	DIC, XTLKGBL, XTLKKSCH("GBL")
IDX	Index to Search on	XTLKKSCH("INDEX")
LEN	List Length	
LOC	User's Hospital Location	
LST	Last entry reviewed	
NAR	User input Narrative	X, XTLKX
NUM	Number of matches found	^TMP("XTLKHITS",$J)
OVR	Overwrite user defaults flag	
RES	Last user response	
SCH	Search string	
SCT	Shortcut preference	
SVC	User's Service	
TOL	Top of the List flag	
UNR	Unresolved Narrative flag	LEXUN
USR	User ID	DUZ
VDT	Code Set Version Date	

VOC	Subset (vocabulary)		LEXSUB

Local Arrays

There is only one local array, LEX. It contains the following segments:

LEX("ERR",#)	Errors
LEX("EXC")	Location of an Exact Match Major Concept
LEX("EXM")	Location of an Exact Match Major Concept
LEX("HLP",#)	Help Text to Display
LEX("LIST",#)	Selection List to Display
LEX("NAR")	User Narrative
LEX("MAT")	Matches Found String
LEX("MAX")	The Maximum allowable Selection
LEX("MIN")	The minimum allowable Selection
LEX("RES")	Last Response from the User
LEX("UNR")	Unresolved Narrative flag
LEX("SEL",SEG,#)	The Results of a User Selection

Error Array   LEX("ERR")

This segment only exists if an exact match is found during the lookup. It provides the location where the exact match is stored. There are two forms of this segment:

1. The list still exists and the user is reviewing the entries on the list for selection:

    LEX("EXM")=<position on the list>^<term>

    In this case, the position on the list is set to 1 (exact matches are placed on the top of the selection list). A calling application could use the position on the list (the first piece) as a default value (formerly DIC("B")) when offering the user a choice.

    > 22 matches found
    > 1. Exact match
    > 2. Exact match Major Concept - see LEX("EXC") below
    > 3. Other match
    > 4. Yet another match
    > 5. ....
    >
    > Select 1-5: 1//

2. The list no longer exists because the user has either made a selection from the entries on the list or has reviewed all the entries on the list without making a selection:

    LEX("EXM")=<IEN>^<term>

    In this case, the position on the list has been replaced with the internal entry number in the Lexicon Expression file (757.01) and remains available for further use (i.e., Unresolved Narratives).

Exact Match Concept   LEX("EXC")

This segment only exists if an exact match is found during the lookup (see EXM above) and the exact match is not a Major Concept (i.e., synonym or lexical variant to a Major Concept). It provides the location where the Major Concept of the exact match is stored. Like EXM, there are two forms of this segment, they are:

1. The list still exists and the user is reviewing the entries on the list for selection:

    LEX("EXC")=<position on the list>^<term>

    Example: User searches the Lexicon for "CHF"

    > 5 matches found
    >
    > 1. CHF (exact match, synonym to Major Concept)
    > 2. Congestive Heart Failure (Major Concept of exact match)
    > 3. Other match
    > 4. Yet another match
    > 5. ....
    >
    > Select 1-5: 1//

2. The list no longer exists because the user has either made a selection from the entries on the list or has reviewed all the entries on the list without making a selection:

    LEX("EXC")=<IEN>^<term>

Help Array   LEX("HLP")

Help text to be displayed (or term definition) when the user's response contains a "?"

List Array   LEX("LIST")

Contains only those entries that should be displayed to the user for selection. It differs from ^TMP("LEXFND") which contains all matches found and ^TMP("LEXHIT") which contains all entries reviewed by the user. It can be thought of as a single page of the selection list with a page length defined by the calling application at the time the search is initiated (the third input parameter of LOOK^LEXA). The default page length of the displayable list is 5, displaying 5 entries at a time until the user has reviewed all the entries on the list or made a selection from the list.

User Narrative   LEX("NAR")

This is the text string that the user inputs to the lookup. It only exists if the calling application uses the Unresolved Narrative function of the Lexicon.

Matches Found String   LEX("MAT")

This text string indicates the total number of entries found during the search, and it is only available during the initial review of the list and when the user is at the top of the list. Examples might be 1 match found or 36 matches found, and could be used as:

> 22 matches found
>
> 1. Condition
> 2. Condition without mention of complications
> 3. Condition in late stages of development
> 4. Condition ....
> 5. Condition ....
>
> Select 1-5:

Maximum Selection   LEX("MAX")

This segment only exists if a selection from the list is possible. When it exists, it sets to the number of the last entry on the list that the user has reviewed, not the total number of entries found. The total number of entries found is stored at LEX. LEX is frequently greater that LEX("MAX") until the user has reached the end of the list, then they are the same. If the last entry on the list that a user has reviewed was 30, and the user jumps backwards on the list (jumps from entry 30 to entry 8), LEX("MAX") remains at 30.

We suggest that both LEX("MIN") and LEX("MAX") may be used to build a selection prompt (formerly DIC("A")) for the user. For example:

        Select _LEX("MIN")_-_LEX("MAX")_:

Minimum Selection   LEX("MIN")

This segment only exists if a selection from the list is possible. When it exists, it should always be set to 1.

Response from the User   LEX("RES")

This segment contains the last response from the user. It only exists if the global array ^TMP("LEXSCH") exists.

Selection Array   LEX("SEL")

Returned information about the user's selection (formerly a non-negative Y in Version 1.0). The absence of this array segment at the conclusion of the user's review of the list implies that no selection was made or that the user up-arrowed out of the selection process (implied -Y). The calling application must extract from the array the information needed and delete the array. The following is an example of the SEL array:

```
LEX("SEL","EXP",0)=5
LEX("SEL","EXP",1)=22600^Sexual Abuse of Child
LEX("SEL","EXP",2)=22601^Child Molestation, Sexual
LEX("SEL","EXP",3)=22604^Abuses, Child Sexual
LEX("SEL","EXP",4)=22608^Child Sexual Abuses
LEX("SEL","EXP",5)=22610^Sexual Abuses, Child
LEX("SEL","EXP","B",22600,1)=
LEX("SEL","EXP","B",22601,2)=
LEX("SEL","EXP","B",22604,3)=
LEX("SEL","EXP","B",22608,4)=
LEX("SEL","EXP","B",22610,5)=
LEX("SEL","EXP","C","LEX",3)=
LEX("SEL","EXP","C","LEX",4)=
LEX("SEL","EXP","C","LEX",5)=
LEX("SEL","EXP","C","MAJ",1)=
LEX("SEL","EXP","C","SYN",2)=
LEX("SEL","SIG",0)=1
LEX("SEL","SIG",1)=Sexual maltreatment of the child or
minor.
LEX("SEL","SRC",0)=3
LEX("SEL","SRC",1)=ICD-9-CM^995.5^22600
LEX("SEL","SRC",2)=ICD-9-CM^V61.21^22600
LEX("SEL","SRC",3)=DSM-IV^V61.21^22600
LEX("SEL","SRC","B","DSM-IV",3)=
LEX("SEL","SRC","B","ICD-9-CM",1)=
LEX("SEL","SRC","B","ICD-9-CM",2)=
LEX("SEL","SRC","C",995.5,1)=
LEX("SEL","SRC","C","V61.21",2)=
```

```
LEX("SEL","SRC","C","V61.21",3)=
LEX("SEL","SRC","D",22600,1)=
LEX("SEL","SRC","D",22600,2)=
LEX("SEL","SRC","D",22600,3)=
LEX("SEL","STY",0)=1
LEX("SEL","STY",1)=Diseases/Pathologic Processes^Mental or
Behavioral Dysfunction
LEX("SEL","VAS",0)=11
LEX("SEL","VAS",1)=80^11656;ICD9(^V61.21^22600
LEX("SEL","VAS",2)=80^7571;ICD9(^^995.5^22600
LEX("SEL","VAS",3)=627.7^1055;YSD(627.7,^V61.21^22600
LEX("SEL","VAS","B",80,1)=
LEX("SEL","VAS","B",80,2)=
LEX("SEL","VAS","B",627.7,3)=
LEX("SEL","VAS","C",995.5,2)=
LEX("SEL","VAS","C","V61.21",1)=
LEX("SEL","VAS","C","V61.21",3)=
LEX("SEL","VAS","D",22600,1)=
LEX("SEL","VAS","D",22600,2)=
LEX("SEL","VAS","D",22600,3)=
LEX("SEL","VAS","V","1055;YSD(627.7,",3)=
LEX("SEL","VAS","V","11656;ICD9(",1)=
LEX("SEL","VAS","V","7571;ICD9(",2)=
```

The LEX("SEL") array is in 5 segments:

Expressions   LEX("SEL","EXP")

Contains the expressions selected by the user in the same format as FileMan's returned variable Y. This portion of the array includes the Major Concept and all Synonyms and Lexical Variants. LEX("SEL","EXP",1) is always the expression selected by the user. This segment has two indexes:

B Internal Entry Point of the Expression file #757.01.

C Expression type; (MAJ)or concept, (SYN)onym, and (LEX)ical variants

Significance   LEX("SEL","SIG")

Contains the definition of the Major Concept, if one exists.

Sources   LEX("SEL","SRC")

Contains source codes for specified classification systems (i.e., ICD, CPT, DSM, etc.) for the expressions contained in LEX("SEL","EXP"). Each entry contains the classification system nomenclature, the classification code, and the internal entry number to the expression in file 757.01 to which it is mapped.

All classification codes returned in this segment are active codes based on the versioning date provided. If no date is provided, then all codes returned in this array are active as of TODAY (default).

This segment has three indexes:

B Classification System Nomenclature

C Classification Code

D Internal Entry Number to file 757.01

Semantics   LEX("SEL","STY")

Contains the Semantic Class and the Semantic Type of the Major Concept contained in LEX("SEL","EXP").

VA Sources   LEX("SEL","VAS")

If one or more of the sources in LEX("SEL","SRC") is found in one of the primary VA authoritative files, then this section contains the file number, variable pointer, the source code, and an internal entry number to the Lexicon. The primary VA authoritative files pointed to include file 80 (ICD Diagnosis), file 80.1 (ICD Procedures), file 81 (CPT), and file 627.7 (DSM-IV).

All classification codes returned in this segment are active codes based on the versioning date provided. If no date is provided, then all codes returned in this array are active as of TODAY (default).

This segment has four indexes:

       B VA authoritative file number

       C Classification Code

       D Internal Entry Number to file 757.01

       V Variable pointer to the authoritative file

Controlling the View

View by Semantic Class and Types

The Lexicon provides for filtering the search to view only those terms that semantically fit into a class and type, or a group of classes and types. We listed these classes and types in Appendix A of this document. The Lexicon uses a string of identifiers indicating the classes and types to either include or exclude in a search. This string is in two parts (delimited by a ";") of those classes and types to include in the search and those classes and types to exclude. The include portion of the string has precedence over the exclude. The insertion of a class into the string represents all of the types belonging to that class; consequently, it is not necessary to repeat all of the types with the class. The absence of a class/type in the include portion of the string automatically excludes it from the search. Semantic classes are represented by a 3-character mnemonic and semantic types are represented numerically (provided by NLM UMLS). For example:

The string BEH/DIS/44/45/49/167/4/5/7/PHY/PRO;50 translates to:

INCLUDE:	EXCLUDE:	
Behaviors	Activities	Nucleic Acid
Diseases/Pathologic Process	Anatomy	Nucleoside or Nucleotide
Physiology	Chemicals and Drugs	Amino Acid, Peptide or Protein
Procedures	Concepts and Ideas	Gene Product
Fungus	Geographic Areas	Plant
Virus	Groups	Alga
Bacterium	Physical Objects	Rickettsia or Chlamydia
Molecular Functions	Occupations/Organizations	Animal
Genetic Functions	Macromolecular Structure	Invertebrate

Cell/Molecular Dysfunctions	Gene or Genome	Vertebrate
Substances	Molecular Function	Amphibian
	Genetic Function	Bird
	Research Technique	Fish
	Molecular Sequence	Reptile
	Nucleotide Sequence	Mammal
	Amino Acid Sequence	Human
	Carbohydrate Sequence	

View by Classification System

The Lexicon lets you filter the search to view only those terms linked to a specified classification system. These classification systems (provided by both the NLM and the VA) are represented by a 3 character mnemonic and are listed in Appendix B of this document. The Lexicon uses a string of mnemonic identifiers indicating the classification systems to include in a search. For example:

The string: "ICD/CPT/DS4"

translates to:

Include terms linked to:

ICD-9   International Classification of Diseases

CPT-4   Current Procedural Terminology

DSM-IV   Diagnostic and Statistical Manual of Mental Disorders

View by both Semantics and Classification Systems

This is a combination of the two previous views. In this scenario, if the search encounters a term which is to be excluded from the search by virtue of the semantics, but the term is found to be linked to one of the specified classification systems, then the term is included in the search, ignoring the instruction to exclude the term based on semantics. An example of this type of string would be:

"BEH/DIS/44/45/49/4/5/7/PHY/PRO;50;ICD/CPT"

View by Subset

This is not a filtered view in the sense of including/excluding terms from a selection list. A sub-set is a group of terms based on a common theme (e.g., specialty, function, etc.) which are indexed separately from the main word index in the Lexicon. This type of view has two distinct advantages over filtering: 1) it is significantly faster since it does not have the additional burden of deciding whether to include or exclude a term, and 2) it imposes a limit on the search, making it impossible to find a term not contained in the sub-set (e.g., Diabetes Mellitus could not be found within the Dental sub-set).

Other Views

The Lexicon is always open to new methods of changing the view to suit the client application using the existing structures and fields. New fields can be created to support new functionality; however, it should be done with great care and thought (an 8-character mandatory field adds 2 megabytes to the Lexicon). Generally, if the view can be described, then it can be created.

Searching the Lexicon: Building and Re-ordering the List

The Lexicon reorders the results of a search beginning with the exact match (if found) followed by other matches in descending order of frequency of use. The reordering of the search results occurs after the search has been completed and while the user is reviewing the matches found. In order to do this, the Lexicon must build three lists. These lists include:

Matches Found   ^TMP("LEXFND",$J)

This list is built while the search is in progress. Each time a match is found that term is placed on this list in an order based on a term's frequency of use and Internal Entry Number (IEN) from the Expression file (#757.01). When the search is completed, this list contains all of the matches found.

As the user reviews the matches found, entries are taken off this list and placed on the review list ^TMP("LEXHIT") until the user either selects an entry, terminates the selection process by entering an up-arrow (^), or reaches the end of the list. As the user continues to review the matches found, this list continues to shrink until it no longer exists.

Matches Reviewed   ^TMP("LEXHIT",$J)

The Lexicon begins to build this list only after the search has completed. This list is initially populated with the first few entries to be reviewed by the user (the exact number is determined by the third input parameter of LOOK^LEXA). Entries on this list are ordered sequentially from one to the total number of matches reviewed by the user.

As the user reviews the matches found, entries are added to this list from the list of matches found in ^TMP("LEXFND") until the user either selects an entry, terminates the selection process by entering an up-arrow ("^"), or reaches the end of the list. As the user continues to review the matches found, this list continues to grow until it contains all of the matches found.

Matches Displayed   LEX("LIST")

This list contains only those entries to be displayed. The length of this list does not exceed the list length as specified by the calling application in the third input parameter of LOOK^LEXA. If the list length is not specified by the calling application, then the default list length is set to 5.

Example Search

The user searches the Lexicon with the following results:

Matches found	20
List Length (specified by the calling application)	5

Initially the list of matches found in ^TMP("LEXFND") would contain 20 entries. However, when the search is completed and the selection process begins, the first five entries are taken off the list of matches found in ^TMP("LEXFND") and placed on both the review list in ^TMP("LEXHIT") and the display list in LEX("LIST"). The calling application should display the contents of the display list LEX("LIST") for the user to review.

If the user does not select one of the first five entries on the display list in LEX("LIST") and presses <Return> to review the next five, then an additional five entries are taken from the list of matches found in ^TMP("LEXFND") and placed on the review list in ^TMP("LEXHIT") with only the current five entries being placed on the display list in LEX("LIST"). The calling application should again only display the five entries on the display list LEX("LIST").

As long as the user does not make a selection, and keeps pressing <Return>, entries are taken from the list of matches found in ^TMP("LEXFND") and placed on the review list in ^TMP("LEXHIT") with the current five entries on the display list in LEX("LIST"). Once the user gets to the end of the list, the list of matches found in ^TMP("LEXFND") is depleted, and the list of entries reviewed in ^TMP("LEXHIT") has 20 entries. The display list in LEX("LIST") always has the number of entries specified by the calling application (in this case, five).

If the user has reviewed some or all of the matches found and decides to jump backwards on the list, then the display list in LEX("LIST") is populated from the list of entries reviewed in ^TMP("LEXHIT").

Unresolved Narratives

It is possible for users and applications to provide feedback from the sites regarding the content of the Lexicon. This is done either by a user through a calling application (user unresolved narratives) or by the calling application (application unresolved narratives).

Which applications should use Unresolved Narratives? Chances are if the vocabulary which the targeted users are employing is subject to a myriad of synonyms and lexical variants (e.g. plurals, singular form, etc.), then the application should use the Unresolved Narrative functionality. Applications which would not want to use Unresolved Narratives are those which use an extremely controlled vocabulary where a single concept has only one acceptable form or if adding terminology would disrupt the content and purpose of the controlled vocabulary.

User Unresolved Narratives

There are three prerequisites the calling application must meet to use and return User Unresolved Narratives:

1. The calling application must be able to store the text within the calling application or store the text in an alternate file (i.e., the Provider Narrative file) and point to the text.
2. The calling application must be defined in the Subset Definition file (757.2).
3. The Unresolved Narrative flag in the Subset Definition file for the calling application must be set to 1.

There are two prerequisites the Lexicon must meet to save and return the User Unresolved Narrative:

1. The lookup must have completed with no selection made. This is determined by the absence of the following arrays:

    ^TMP("LEXFND",$J)

    ^TMP("LEXHIT",$J)

    LEX("LIST")

    LEX("SEL")

2. The Lexicon must have knowledge of the conditions under which the User Unresolved Narrative occurred. This is determined by the presence of the array:

    ^TMP("LEXSCH",$J)

When a User Unresolved Narrative occurs, and the conditions above are met, the calling application may store and return the User Unresolved Narrative by calling the entry point:

    EN^LEXAR(<user unresolved narrative text>)

When this is done, the User Unresolved Narrative is temporarily stored in the Unresolved Narratives file (757.06). Periodically the Lexicon Utility packs the entries in this file into a mail message and sends them

to G.LEXICON@ISC-SLC.VA.GOV for consideration for inclusion in the Lexicon. After the Lexicon Utility sends this message, it deletes the entries in this file.

The following information about the narrative and the conditions of the search is returned to the IRM Field Office:

Narrative	Mandatory	User Input
Date-Time	Mandatory	When the search was conducted
Search String	Mandatory	Actual search string
Matches	Mandatory	Number of matches found
Application	Mandatory	Name of the calling application
Service	Optional	Service of the user
Location	Optional	Hospital Location of the user
File	Mandatory	Number of file searched
Index	Mandatory	Name of the index used
Shortcuts	Optional	Name of the Shortcut set used
Screen	Optional	Screen used (MUMPS code)

User Unresolved Narratives received at the IRM Field Office are reviewed and classified as:

1. A valid expression to be linked (e.g., synonym or lexical variant).
2. A valid expression to be added (no equivalent concept in the current version).
3. A valid expression in the current version containing a spelling error, acronym, or abbreviation not previously defined. Only the spelling error, acronym, or abbreviation is linked to the existing expression while the remainder of the expression is ignored.
4. A valid expression in the current version.
5. An invalid expression is ignored (e.g., XXXX?).

If the User Unresolved Narrative is included in a future release of the Lexicon and exported to the site, it becomes the responsibility of the calling application to resolve the entry at the site. The Problem List application is the only exception at this time. When a new release of the Lexicon Utility is installed at a site, the Problem List is updated by a series of routines (LEXPL*) called by the Lexicon Utility's Post-Install.

Application Unresolved Narratives

The purpose of this type of unresolved narrative is to permit the calling application to return a comment about an existing term in the Lexicon. This occurs when an application detects a problem with an expression in the Expression file (757.01). The application can return the Internal Entry Number (IEN) of that expression along with a short comment stating the problem. These commented, unresolved narratives are also temporarily stored and periodically packed up into a mail message that is sent to G.LEXICON@ISC-SLC.VA.GOV. However, instead of considering these narratives for inclusion in the Lexicon (since they already exist), the problem stated in the comment field is reviewed and action is taken where appropriate.

There are no prerequisites for the calling application; however, the lookup for the Lexicon must not be engaged (determined by the absence of all Lexicon variables and arrays).

The following information about the expression is returned to the IRM Field Office:

Narrative	Mandatory	User Input
Expression	Mandatory	Pointer to file 757.01
Comment	Mandatory	Brief description of the problem

When an Application Unresolved Narrative occurs, the calling application may store and return the Application Unresolved Narrative by calling the entry point:

EN^LEXAR(<IEN^Comment>)

An application comment is in the general format IEN^COMMENT, where IEN is a pointer to an expression in the Expression file (757.01) and the COMMENT is a text string comment about the expression.

Examples of application comments might be:

IEN^Diagnostic term maps to 799.9

This type of comment might be used by an application which requires a valid ICD with a diagnostic term (as is the case with Problem List). If the Lexicon returns the term without an ICD or with ICD code not found in the ICD-9 file (80), then the application could take advantage of this entry point to instruct the developers of the Lexicon to have Medical Records Technicians look at, evaluate, and match the term to an appropriate ICD code for future iterations of the Lexicon.

IEN^RBBB suggested shortcut for Right bundle branch block

This type of comment might be used when the user input RBBB fails to return a selection list, and on a subsequent search the user entered bundle branch block and selected Right bundle branch block, implying that RBBB was intended to have found Right bundle branch block.

Re-indexing the Lexicon

For re-indexing, the Lexicon can be divided into two types of files: Those which can be re-indexed independently and those which are re-indexed conditionally. If there is a need to re-index the Lexicon, the files should be re-indexed as follows.

These files may be independently re-indexed.

757	Major Concept Map
757.011	Expression Type
757.014	Expression Form
757.03	Coding System
757.04	Excluded Words
757.06	Unresolved Narratives
757.11	Semantic Classes
757.12	Sub-Set Definitions
757.3	Lookup Screens
757.4	Shortcuts
757.41	Shortcut Context

These files have conditions placed on the re-indexing.

757.01		Expressions
		Immediately after re-indexing this file, re-index the Replacement Word file #757.05 (also see 757.05 listed below).
757.02		Codes
		Re-index the Coding Systems file #757.03 first.
757.05		Replacement Words
		Re-indexing of this file depends on indexes in the Expressions file #757.01. If the indexes in file #757.01 are intact and current, then proceed with re-indexing of the Replacement Word file; otherwise, re-index file #757.01 first.
757.1		Semantic Map
		Re-index both the Semantic Class file #757.11 and the Semantic Type file #757.12 first.
757.21		Sub-Sets
		Re-indexing of this file depends on indexes in the Sub-Set Definition file #757.2. If the indexes in file #757.2 are intact and current, then proceed with re-indexing of the Sub-Sets file; otherwise, re-index file #757.2 first.

Database Integration Agreements

Lexicon Utility V2.0 as the Custodian

Supported References

1571   NAME: LEXICON UTILITY EXPRESSIONS
       CUSTODIAL PACKAGE: LEXICON UTILITY Salt Lake City
       SUBSCRIBING PACKAGE:

USAGE:	Supported	APPROVED:	APPROVED
STATUS:	Active	EXPIRES:	
DURATION:	Till Otherwise Agr	VERSION:	
FILE:	757.01	ROOT:	LEX(757.01,
DESCTIPTION:		TYPE:	File

The Lexicon Utility (Version 2.0 and greater) maintains static internal entry numbers (IENs) for the Expression file (#757.01). As a result, this file may be pointed to retrieve the Display Text (.01) for both current Expressions and deactivated Expressions (Deactivation Flag 757.01;9 1;5 set to 1). This agreement is a follow-on to DBIA 457 (Version 1.0) and is re-issued to include the package name, namespace, and global root changes occurring in Version 2.0. This is not an amendment to 457.

	Version 1.0	Version2.0
Package name	Clinical Lexicon Utility	Lexicon Utility
Namespace	GMPT	LEX
Expression File Root	^GMP(757.01,	^LEX(757.01,

1573 NAME: LEXU

CUSTODIAL PACKAGE:		LEXICON UTILITY Salt Lake City	
SUBSCRIBING PACKAGE:			
USAGE:	Supported	APPROVED:	APPROVED
STATUS:	Active	EXPIRES:	
DURATION:	Till Otherwise Agr	VERSION:	
DESCRIPTION :		TYPE:	Routine

LEXU is a utility routine for the Lexicon Utility which contains functions useful in retrieving classification code(s) for a term. This agreement is a follow-on to DBIA 10148 (Version 1.0) and is re-issued to include the package name, namespace, routine name, and global root changes occurring in Version 2.0. This is not an amendment to 10148.

ROUTINE:	LEXU	
COMPONENT:	$$ICDONE(IEN,DATE)	
VARIABLES:	IEN	Input
	Internal Entry Number in the Expression file ^LEX(757.01). Returns either a single ICD-9 code linked to the Lexicon expression or Null if no ICD-9 code is found.	
VARIABLES:	DATE	Input
	This is a date in FileMan format used to check if a code is active or inactive on a specified date. If not supplied, it will default to TODAY.	
COMPONENT:	$$ICD(IEN,DATE)	
VARIABLES:	IEN	Input
	Internal Entry Number in the Expression file ^LEX(757.01). Returns either a string of ICD-9 codes linked to an expression (separated by semicolons, i.e., ICD;ICD;ICD) or Null if no ICD-9 codes are found.	
VARIABLES:	DATE	Input
	This is a date in FileMan format used to check if a code is active or inactive on a specified date. If not supplied, it will default to TODAY.	
COMPONENT:	$$CPTONE(IEN,DATE)	
VARIABLES:	IEN	Input
	Internal Entry Number in the Expression file ^LEX(757.01). Returns either a single CPT-4 code linked to the Lexicon expression or Null if	

no CPT-4 code is found.

| VARIABLES: | DATE | Input |

This is a date in FileMan format used to check if a code is active or inactive on a specified date. If not supplied, it will default to TODAY.

COMPONENT: $$DSMONE(IEN)

| VARIABLES: | IEN | Input |

Internal Entry Number in the Expression file ^LEX(757.01). Returns either a single DSM-IV code linked to the Lexicon expression or Null if no DSM-IV code is found.

COMPONENT: $$CPCONE(IEN,DATE)

Returns either a single active HCPCS code linked to the Lexicon expression or Null if no HCPCS codes exist. HCPCS stands for Healthcare Financing Administration (HCFA) Common Procedure Coding System.

| VARIABLES: | IEN | Input |

Internal Entry Number in the Expression file ^LEX(757.01).

| VARIABLES: | DATE | Input |

This is a date in FileMan format used to check if a code is active or inactive on a specified date. If not supplied, it will default to TODAY.

1597 NAME: LEXICON EXPRESSION INFORMATION

CUSTODIAL PACKAGE: LEXICON UTILITY Salt Lake City

SUBSCRIBING PACKAGE:

USAGE:	Supported	APPROVED:	
STATUS:	Active	EXPIRES:	
DURATION:	Till Otherwise Agr	VERSION:	
DESCRIPTION :		TYPE:	Routine

LEXA is used by the Lexicon Utility to perform a silent lookup and return an array of information about the expression found.

ROUTINE: LEXA

COMPONENT: INFO(IEN,DATE)

This entry point allows applications to retrieve information about an expression without conducting a search.

| VARIABLES: | IEN | Input |

Internal Entry Number in the Expression file ^LEX(757.01).

| VARIABLES: | DATE | Input |

This is a date in FileMan format used to check if a code is active or

inactive on a specified date. If not supplied, it will default to TODAY.

VARIABLES:	LEX	Output

The local array LEX("SEL") contains the major concept, synonyms, lexical variants, associated codes (i.e., ICD, CPT, DSM, etc.), the expression definition (if one exists), the semantic class, the semantic type, and all VA classification sources. See the Lexicon Utility's Technical Manual for a detailed description of this array.

1609	NAME:		LEXICON SETUP SEARCH PARAMETERS
	CUSTODIAL PACKAGE:		LEXICON UTILITY Salt Lake City
	SUBSCRIBING PACKAGE:		
	USAGE:	Supported	APPROVED:
	STATUS:	Active	EXPIRES:
	DURATION:	Till Otherwise Agr	VERSION:
	DESCRIPTION :		TYPE: Routine

The Lexicon Utility uses LEXSET to set up search parameters based on applications definitions, subset definitions, and user defaults stored in the Subsets Definition file (#757.2). These search parameters are stored in the global array ^TMP("LEXSCH",$J).

ROUTINE:	LEXSET
COMPONENT:	CONFIG(LEXNS,LEXSS,DATE)

This entry point may be used by other applications to set up parameters for conducting a search of the Lexicon Utility.

VARIABLES:	LEXNS	Input

LEXNS is an application identifier (formerly namespace) which tells the setup routines which application definition in file 757.2 to use to retrieve application defaults (i.e., global, display, filter, etc.). Acceptable values for LEXNS are found in file 757.2 at the "AN" index - ^LEXT(757.2,"AN",LEXNS).

VARIABLES:	LEXSS	Input

LEXSS is a subset identifier which tells the setup routines which subset definition in file 757.2 to use to retrieve subset and user defaults (i.e., global, display, filter, etc.). Acceptable values for LEXSS may be found in file 757.2 at either the "AA" or the "AB" indexes - ^LEXT(757.2,"AA",LEXSS) or ^LEXT(757.2,"AB",LEXSS).

VARIABLES:	DATE	Input

This is a date in FileMan format used to check classification codes to determine if they are active or inactive on the specified date. If not supplied, it will default to TODAY.

VARIABLES:	^TMP("LEXSCH",$J)	Output

^TMP("LEXSCH",$J) is a global array used by the Lexicon Utility to

control how a search of the Lexicon is to be conducted. It contains the following segments:

APP	Application (from LEXNS)
DIS	Display format
FIL	Filter
FLN	File Number
GBL	Global (FileMan DIC)
IDX	Index used during the search
LEN	Length of list to display
LOC	Hospital Location
OVR	Overwrite User Defaults flag
SCT	Shortcuts
SVC	Service
UNR	Unresolved Narrative flag
USR	User (DUZ)
VDT	Version Data Check (for classification codes)
VOC	Vocabulary

A detailed description of this global array may be found in the Lexicon Utility's Technical Manual.

1614	NAME:		LEXICON EXPRESSIONS FROM CODES
	CUSTODIAL PACKAGE:		LEXICON UTILITY Salt Lake City

SUSCRIBING PACKAGE:

USAGE:	Supported	APPROVED:	
STATUS:	Active	EXPIRES:	
DURATION:	Till Otherwise Agr	VERSION:	
DESCRIPTION :		TYPE:	Routine

The Lexicon Utility uses the LEXCODE routine to extract expressions (terms) in the form of FileMan's output variable Y based on a classification code.

ROUTINE:	LEXCODE
COMPONENT:	EN(LEXSO,DATE)

This entry point builds a local array containing expressions linked to a classification code.

VARIABLES:	LEXSO	Input

LEXSO is a classification code from one of several sources (i.e., ICD, CPT, DSM). A complete list of these sources can be found in the

Lexicon Utility's Technical Manual.

VARIABLES:	DATE		Input

This is a date in FileMan format used to check if a code is active or inactive on a specified date. If not supplied, it will default to TODAY.

VARIABLES:	LEXS(SAB,#)		Output

LEXS(SAB,#)=IEN^TERM is a local array containing references to expressions linked to the classification code. SAB refers to the three-character source abbreviation of the classification system (i.e., ICD-9-CM = ICD). A description of this array and a list of the source abbreviations can be found in the Lexicon Utility's Technical Manual.

4083	NAME:		LEXICON CODE STATUS	
	CUSTODIAL PACKAGE:	LEXICON UTILITY Dallas		
	SUSCRIBING PACKAGE:			
	USAGE:	Supported	ENTERED:	APR 14, 2003
	STATUS:	Active	EXPIRES:	
	DURATION:	Till Otherwise Agr	VERSION:	
	DESCRIPTION:		TYPE:	Routine
	ROUTINE:	LEXSRC2		
	COMPONENT:	$$STATCHK(CODE,DATE)		

This entry point is used to check the activation status of a code in the Lexicon Utility.

This function returns the following outputs:

1 ^ IEN Code is Active, and stored at ^LEX(757.02,IEN,0)

0 ^ IEN Code is Inactive, and stored at ^LEX(757.02,IEN,0)

0 ^ -1 Code is Inactive, and not found in the Lexicon

VARIABLES:	CODE		Input

This is a code taken from a classification system contained in the Lexicon (i.e., ICD, CPT, etc.).

VARIABLES:	DATE		Input

This is the date used to determine if a code was either active or inactive on a specific date. If not supplied, TODAY will be used as the date.

4912	NAME:		LEXICON CONCEPT DATA FOR CODE	
	CUSTODIAL PACKAGE:	LEXICON UTILITY		
	SUSCRIBING PACKAGE:			
	USAGE:	Supported	ENTERED:	OCT 5, 2006

STATUS:	Active	EXPIRES:	
DURATION:	Till Otherwise Agr	VERSION:	
FILE:		ROOT:	
DESCRIPTION :		TYPE:	Routine

This API will return an array of data for a given code, code source, optional date, and optional return array name. The data returned will include:

code

hierarchy or subset (if available)

version (if available)

legacy code (if available)

code status

fully specified name (if available)

preferred term

any applicable synonyms

If any of the data in the passed parameters is incorrect or unrecognizable, the API will return an error message indicating the nature of the error. If no date is specified, then the date will default to the current system date. This API was developed specifically for the SNOMED CT coding system in support of the LDSI project, but is applicable to any coding system.

ROUTINE:	LEXTRAN	
VARIABLES:	CODE	Type: Input

This is a code of a classification system that is stored in the Lexicon. Classification systems include SNOMED CT, ICD, CPT, HCPCS, etc.

SOURCE   Type: Input

This is the mnemonic for a coding system (mandatory). The allowable coding system mnemonics are those that exist in the B index of the coding systems file (757.03). This is the coding system source abbreviation.

DATE   Type: Input

This is the effective date; the default if no date is specified is the current system date (optional).

ARRAY   Type: Both

This is the name of the output array. The default, if no array name is specified, is LEX (optional). The format of the output is as follows:

Output

if call finds an active code for the source

"1^LEXCODE"

LEX - an array containing information about the code

LEX(0) - a five piece string:

1. code
2. hierarchy
3. version
4. legacy code
5. code status

LEX("F") fully specified name

LEX("P") preferred term

LEX("S",n) synonyms (n is the nth synonym)

if call cannot find specified code on file

"-2^"_LEXSCNM_" code

"_LEXCODE_" not on file"

where LEXSCNM is the source name

LEXCODE is the code

if call finds an inactive code for the source

"-4^"_LEXSCNM_" code

"_LEXCODE_" not active for "_LEXVDT

LEX - an array containing information about the code

LEX(0) - a five piece string:
1. code
2. hierarchy
3. version
4. legacy code
5. code status

otherwise

"-1^error text"

Example of LEX array:

LEX(0)="67922002^Substance^20050701^T-C2500^1"

LEX("F")="Serum (Substance)"

LEX("P")="Serum"

****

4913	NAME:		LEXICON CONCEPT DATA FOR TEXT	
	CUSTODIAL PACKAGE:		LEXICON UTILITY	
	SUBSCRIBING PACKAGE:			
	USAGE:	Supported	ENTERED:	OCT 5, 2006
	STATUS:	Active	EXPIRES:	
	DURATION:	Till Otherwise Agr	VERSION:	
	FILE:		ROOT:	
	DESCRIPTION :		TYPE:	Routine

This API will return an array of data for a given text, optional code source, optional date, optional subset, and optional return array name. The API will display a pick list based on the parameters passed and allow a user to select an item from the list. The API will then return the array for the item selected. The data returned will include:

code

hierarchy or subset (if available)

version (if available)

legacy code (if available)

code status

fully specified name (if available)

preferred term

any applicable synonyms

If any of the data in the passed parameters is incorrect or unrecognizable, the API will return an error message indicating the nature of the error. If no date is specified, then the date will default to the current system date. This API was developed specifically for the SNOMED CT coding system in support of the LDSI project, but is applicable to any coding system.

ROUTINE:	LEXTRAN
COMPONENT:	$$TEXT(TEXT,DATE,SUBSET,SOURCE,ARRAY)
VARIABLES: TEXT	Type: Input

This is the search text string (mandatory).

DATE   Type: Input

This is the effective date (optional); the default, if no date is specified, is the current system date.

SUBSET   Type: Input

This is any coding system subset mnemonic (optional). The allowable subset mnemonics are those that exist in the AA index of the subset definitions file (757.2).

SOURCE   Type: Input

This is the mnemonic for a coding system (mandatory). The allowable coding system mnemonics are those that exist in the B index of the coding systems file (757.03).

ARRAY   Type: Both

This is the name of the output array. The default, if no array name is specified, is LEX (optional) The format of the output is as follows:

Output

if call finds an active code for the source

"1^LEXCODE"

LEX - an array containing information about the code

LEX(0) - a five piece string:

1. code

           2. hierarchy

           3. version

           4. legacy code

           5. code status

LEX("F") fully specified name

LEX("P") preferred term

LEX("S",n) synonyms (n is the nth synonym)

if call cannot find specified code on file

"-2^"_LEXSCNM_" code

"_LEXCODE_" not on file"

"-2^"_LEXSCNM_" code

"_LEXCODE_" not on file"

where LEXSCNM is the source name

LEXCODE is the code

if call finds an inactive code for the source

"-4^"_LEXSCNM_" code

"_LEXCODE_" not active for "_LEXVDT

LEX - an array containing information about the code

LEX(0) - a five piece string:

           1. code

           2. hierarchy

           3. version

           4. legacy code

           5. code status

otherwise

"-1^error text"

Example of LEX array:

LEX(0)="67922002^Substance^20050701^T-C2500^1"

LEX("F")="Serum (Substance)"

LEX("P")="Serum"

4914	NAME:		LEXICON VALIDATE CODE FOR SOURCE	
	CUSTODIAL PACKAGE:		LEXICON UTILITY Salt Lake City	
	SUBSCRIBING PACKAGE:			
	USAGE:	Supported	ENTERED:	OCT 5, 2006
	STATUS:	Active	EXPIRES:	
	DURATION:	Till Otherwise Agr	VERSION:	
	FILE:		ROOT:	
	DESCRIPTION:		TYPE:	Routine

This API will return an array for a given text and coding system indicating whether the text is valid for the specified coding system.

The data array returned will include the following:

An indicator of whether the text is valid for the coding system

The code in the coding system to which the text, if valid for coding system, belongs.

If any of the passed parameters are incorrect or unrecognizable, the API will return an error message indicating the nature of the error.

ROUTINE: LEXTRAN

COMPONENT: $$TXT4CS(TEXT,SOURCE)

VARIABLES: TEXT   Type: Input

This is the search text string (mandatory).

SOURCE Type: Input

This is the mnemonic for a coding system (mandatory). The allowable coding system mnemonics are those that exist in the B index of the Coding Systems file (757.03).

Type: Output

This API returns the following output:

1^code

or

-1^error message

Private Agreements

1599   NAME: LEXICON USER DEFAULTS - FILTER

CUSTODIAL PACKAGE: LEXICON UTILITY Salt Lake City

SUBSCRIBING PACKAGE: PROBLEM LIST Salt Lake City

USAGE:	Private	APPROVED:	APPROVED
STATUS:	Active	EXPIRES:	
DURATION:	Till Otherwise Agr	VERSION:	
DESCRIPTION:		TYPE:	Routine

The entry point EN1^LEXDFL is used to set up a user default filter for conducting searches in the Lexicon Utility. This entry point, along with EN1^LEXDCC, EN1^LEXDVO, EN1^LEXDCX, and EN1^LEXDDS replaces ^GMPTDUSR used in Version 1.0 of the Clinical Lexicon (see DBIA 339).

ROUTINE: LEXDFL

COMPONENT: EN1(LEXAP)

This entry point allows a single user to edit the default lookup filter for the Lexicon Utility.

VARIABLES: LEXAP Input

LEXAP is the Internal Entry Number of the Subset Definition file (#757.2) where the application definition is located.

1601 NAME: LEXICON USER DEFAULTS – DISPLAY

CUSTODIAL PACKAGE: LEXICON UTILITY Salt Lake City

SUBSCRIBING PACKAGE: PROBLEM LIST Salt Lake City

USAGE:	Private	APPROVED:	
STATUS:	Active	EXPIRES:	
DURATION:	Till Otherwise Agr	VERSION:	
DESCRIPTION:		TYPE:	Routine

The entry point EN1^LEXDCC(LEXAP) is used to set up a user default display (classification codes) for conducting searches in the Lexicon Utility. This entry point along with EN1^LEXDFL, EN1^LEXDVO, EN1^LEXDCX, and EN1^LEXDDS replaces ^GMPTDUSR used in Version 1.0 of the Clinical Lexicon Utility (see DBIA 339).

ROUTINE: LEXDCC

COMPONENT: EN1(LEXAP)

This entry point allows a single user to edit the default lookup display for the Lexicon Utility.

VARIABLES: LEXAP Input

LEXAP is the Internal Entry Number of the Subset Definition file (#757.2) where the application definition is located.

1603 NAME: LEXICON USER DEFAULTS – VOCABULARY

CUSTODIAL PACKAGE: LEXICON UTILITY Salt Lake City

SUBSCRIBING PACKAGE: PROBLEM LIST Salt Lake City

USAGE:	Private	APPROVED:	
STATUS:	Active	EXPIRES:	
DURATION:	Till Otherwise Agr	VERSION:	
DESCRIPTION:		TYPE:	Routine

The entry point EN1^LEXDVO is used to set up user default vocabulary for conducting searches in the Lexicon Utility. This entry point, along with EN1^LEXDFL, EN1^LEXDCC, EN1^LEXDCX, and EN1^LEXDDS replaces ^GMPTDUSR used in Version 1.0 of the Clinical Lexicon Utility (see DBIA 339).

ROUTINE: LEXDVO

COMPONENT: EN1(LEXAP)

This entry point allows a single user to edit the default lookup vocabulary for the Lexicon Utility.

VARIABLES: LEXAP Input

LEXAP is the Internal Entry Number of the Subset Definition file (#757.2) where the application definition is located.

1605   NAME: LEXICON USER DEFAULTS – SHORTCUTS

          CUSTODIAL PACKAGE: LEXICON UTILITY Salt Lake City

          SUBSCRIBING PACKAGE: PROBLEM LIST Salt Lake City

USAGE:	Private	APPROVED:
STATUS:	Active	EXPIRES:
DURATION:	Till Otherwise Agr	VERSION:
DESCRIPTION:		TYPE: Routine

The entry point EN1^LEXDCX is used to set up user default shortcuts by context for conducting searches in the Lexicon Utility. This entry point along with EN1^LEXDFL, EN1^LEXDCC, EN1^LEXDVO, and EN1^LEXDDS replaces ^GMPTDUSR used in Version 1.0 of the Clinical Lexicon Utility (see DBIA 339).

          ROUTINE: LEXDCX

          COMPONENT: EN1(LEXAP)

                                This entry point allows a single user to edit the default lookup shortcuts for the Lexicon Utility.

          VARIABLES: LEXAP Input

                                LEXAP is the Internal Entry Number of the Subset Definition file (#757.2) where the application definition is located.

1607   NAME: LEXICON USER DEFAULTS – LIST

          CUSTODIAL PACKAGE: LEXICON UTILITY Salt Lake City

          SUBSCRIBING PACKAGE: PROBLEM LIST Salt Lake City

USAGE:	Private	APPROVED:
STATUS:	Active	EXPIRES:
DURATION:	Till Otherwise Agr	VERSION:
DESCRIPTION:		TYPE: Routine

The entry point EN1^LEXDCX is used to set up user default shortcuts by context for conducting searches in the Lexicon Utility. This entry point along with EN1^LEXDFL, EN1^LEXDCC, EN1^LEXDVO, and EN1^LEXDDS replaces ^GMPTDUSR used in Version 1.0 of the Clinical Lexicon Utility (see DBIA 339).

          ROUTINE: LEXDDS

          COMPONENT: EN1(LEXAP)

                                This entry point allows a single user to list the Lexicon Utility defaults to a device (terminal or printer).

          VARIABLES: LEXAP Input

LEXAP is the Internal Entry Number of the Subset Definition file (#757.2) where the application definition is located.

Lexicon Utility V. 2.0 as the Subscriber

1611	NAME:		PROBLEM FILE UPDATE BY LEXICON	
	CUSTODIAL PACKAGE:		PROBLEM LIST Salt Lake City	
	SUBSCRIBING PACKAGE:		LEXICON UTILITY Salt Lake City	
	USAGE:	Private	APPROVED:	
	STATUS:	Active	EXPIRES:	
	DURATION:	Till Otherwise Agr	VERSION:	
	FILE:	9000011	ROOT:	AUPNPROB(
	DESCRIPTION:		TYPE:	File

This gives the Lexicon Utility the ability to update the ICD codes and the Lexicon pointer (Problem) in the Problem List application with each new release of the Lexicon.

GLOBAL REFERENCE:		^AUPNPROB(D0,0)		
.01	DIAGNOSIS	0;1	Both R/W w/FileMan	
		Pointer to ICD-9 file #80.		

GLOBAL REFERENCE:		^AUPNPROB(D0,1)		
1.01	PROBLEM	1;1	Both R/W w/FileMan	
		Pointer to Expressions file #757.01.		

DBIAs to be Discontinued

By Next Version: Release/Install of Lexicon Utility V. 2.0

457	NAME:		CLINICAL LEXICON EXPRESSIONS	
	CUSTODIAL PACKAGE:		CLINICAL LEXICON U Salt Lake City	
	SUBSCRIBING PACKAGE:			
	USAGE:	Private	APPROVED:	APPROVED
	STATUS:	Active	EXPIRES:	
	DURATION:	Next Version	VERSION:	1.0
	FILE:	757.01	ROOT:	GMP(757.01,
	DESCRIPTION:		TYPE:	File

The Clinical Lexicon Utility maintains static internal entry numbers (IENs) for the Expression file (#757.01). As a result, this file may be pointed to retrieve the Display Text (.01) for both current Expressions and formerly used (deleted) Expressions.

GLOBAL REFERENCE: ^GMP(757.01,D0,0)

.01   DISPLAY TEXT   0;1   Direct Global Read

> The Display Text contained in the Clinical Lexicon is the text that is used in all display/print routines.

By Patch: GMP*2.0*7 Accompanying Lexicon Utility V. 2.0

339   NAME: DBIA339

       CUSTODIAL PACKAGE: CLINICAL LEXICON U Salt Lake City

       SUBSCRIBING PACKAGE: PROBLEM LIST Salt Lake City

       USAGE: Private   APPROVED: APPROVED

       STATUS: Active   EXPIRES:

       DURATION: Till Otherwise Agreed   VERSION:

       DESCRIPTION: TYPE: File

The Problem List Application has permission to use the entry point ^GMPTDUSR. This entry point is used to set up user-specific lookup defaults.

       ROUTINE: GMPTDUSR

       COMPONENT: GMPTDUSR

       VARIABLES: GMPTAP Input

                              Where GMPTAP = Application Namespace ('GMPL')

339   NAME: DBIA340

       CUSTODIAL PACKAGE: CLINICAL LEXICON U Salt Lake City

       SUBSCRIBING PACKAGE: PROBLEM LIST Salt Lake City

       USAGE: Private   APPROVED: APPROVED

       STATUS: Active   EXPIRES:

       DURATION: Till Otherwise Agreed   VERSION:

       DESCRIPTION: TYPE: Routine

       ROUTINE: GMPTSET

       COMPONENT: CONFIG(GMPTNS,GMPTSS)

       VARIABLES: GMPTNS Input

                                           Application Namespace ('GMPL')

                                           GMPTSS Input

                                           Any valid subset mnemonic indexed at either ^GMP(757.2,"AA"or ^GMP(757.2,"AB"

                                           GMPTSHOW Output

Display, when not defined by the user.

DIC('S') Output

Filter, when not defined by the user.

GMPTSUB Output

Vocabulary, when not defined by the user.

GMPTUN Output

Unresolved Narratives flag

By Inter-Package Agreement upon Install of Lexicon Utility V. 2.0

1578	NAME:		CLINICAL LEXICON UTILITY	
	CUSTODIAL PACKAGE:		CLINICAL LEXICON U Salt Lake City	
	SUBSCRIBING PACKAGE:		AUTOMATED INFO COL Washington	
	USAGE:	Controlled Subscrip	APPROVED:	
	STATUS:		EXPIRES:	
	DURATION:	Till Otherwise Agreed	VERSION:	
	DESCRIPTION:		TYPE:	Routine

AICS would like to request access to call linetag CONFIG^GMPTSET until the new version of the Clinical Lexicon Utility is released. At that point, we reference routine ^LEXSET.

	ROUTINE:	GMPTSET
	COMPONENT:	CONFIG
	VARIABLES:	GMPL Input
		PL1 Input

1511	NAME:		USE OF ICDONE	
	CUSTODIAL PACKAGE:		CLINICAL LEXICON U Salt Lake City	
	SUBSCRIBING PACKAGE:		AUTOMATED INFO COL Albany	
	USAGE:	Private	APPROVED:	APPROVED
	STATUS:	Active	EXPIRES:	
	DURATION:	Till Otherwise Agreed	VERSION:	
	DESCRIPTION:		TYPE:	Routine

The Automated Information Collection System has the ability to print lists of terms based on the Clinical Lexicon on Encounter Forms. When the forms are scanned and data is passed to the PCE, the ICD9 diagnosis code associated with the term is required to populate the Purpose of Visit. This agreement is to allow AICS to use the call ICDONE^GMPTU (and its successor) ICDONE^LEXU to determine the correct, or

best, ICD9 Diagnosis code associated with the selected term. Input variable is the pointer to the clinical lexicon entry in file 757.01. Output is the ICD9 code, or null if none is found. This will be coded in such a way that, when Clinical Lexicon converts to the LEX namespace, no changes will be required.

ROUTINE: GMPTU

COMPONENT: ICDONE

VARIABLES: INPUT Input

           The input to this function is the pointer to the Clinical Lexicon file (757.01) as the only parameter. This value is retrieved for other calls to the clinical lexicon.

           OUTPUT Output

           The function returns the ICD9 Diagnosis most appropriate for the term, or null if none exists. Returns the best ICD9 code to associate with a clinical lexicon entry.

By Time: 18 months After Release of Lexicon Utility V. 2.0

10148	NAME:		GMPTU	
	CUSTODIAL PACKAGE:		CLINICAL LEXICON U Salt Lake City	
	SUBSCRIBING PACKAGE:			
	USAGE:	Supported	APPROVED:	APPROVED
	STATUS:	Active	EXPIRES:	
	DURATION:		VERSION:	
	DESCRIPTION:		TYPE:	Routine
	ROUTINE:	GMPTU		
	COMPONENT:	$$ICDONE(IEN)		
	VARIABLES:	IEN Input		

           Internal Entry Number of an expression (term) contained in the Expressions File (#757.01). Returns: Either 1) the first ICD code linked to the expression or 2) Null (if there are no ICD codes linked to the expression).

COMPONENT: $$ICD(IEN)

VARIABLES: IEN Input

           Internal Entry Number of an expression contained in the Expression file (#757.01). Returns: Either 1) a string of all ICD codes linked to the expression (separated by semicolons, i.e., ICD;ICD;ICD) or 2) Null (if there are no ICD codes linked to the expression).

Package Security

Package Security for the Lexicon Utility is maintained through option assignments and VA FileMan Security Codes. We recommend that options and menus be assigned as shown below.

Options recommended for all users:

Option Name	Menu	Routine
Lexicon Utility	LEX UTILITY	Menu
Lookup Term	LEX LOOK-UP	LEXLK
User Defaults	LEX USER DEFAULTS	Menu
Filter	LEX USER FILTER	EN^LEXDFL
Display	LEX USER DISPLAY	EN^LEXDCC
Vocabulary	LEX USER VOCABULARY	EN^LEXDVO
Shortcuts	LEX USER SHORTCUTS	EN^LEXDCX
List Defaults	LEX USER DEFAULT LIST	EN^LEXDDS

Options recommended for managers only:

Option Name	Menu	Routine
Lexicon Management Menu	LEX MGT MENU	Menu
Defaults	LEX MGR DEFAULTS	Menu
Edit User/User Group Defaults	LEX MGR USER DEFAULTS	LEXDMG
Edit User/User Group Defaults	LEX MGR LIST DEFAULTS	LEXDD1
Edit Lexicon	LEX MGR EDIT LEXICON	Menu
Edit Term Definition	LEX MGR EDIT DEFN	LEXEDF1
Edit Shortcuts by Context	LEX MGR EDIT SHORTCUTS	LEXSC

Use of data by Salt Lake City IRM Field Office Developers:

Unresolved Narratives:

To expand the Lexicon Utility's terms, synonyms, abbreviations, etc., the Salt Lake City IRM Field Office developers have created a program which captures and stores user-entered terminology that doesn't match existing Lexicon terminology.

When users conduct searches in the Lexicon Utility and a match is not found, the text that is entered is saved into the Unresolved Narratives file (#757.06). When the file contains 50 entries, a mail message is generated to transmit the contents of this file to the developers and then entries are purged from the file. This terminology is considered for inclusion in future releases of the Lexicon Utility.

Term Definitions:

When a site edits the content of the Definition field in the Expression file (#757.01), the changes are recorded and a mail message is generated sending the changes to the Salt Lake City IRM Field Office developers. The changes are considered for updating the Lexicon Utility.

VA FileMan Security Codes:

All files are exported with the following security codes:

Action	Security Code
DD	@
Delete	@
Read	@
LAYGO	@
Write	@

Appendix A: Classification Systems

ID	Nomenclature	Name	Total Codes	Total Unique
ICD	ICD-9-CM	International Classification of Diseases, Diagnosis	19183	12517
ICP	ICD Proc	International Classification of Diseases, Procedures	1001	638
CPT	CPT-4	Current Procedural Terminology	7338	7338
CPC	HCPCS	Current Procedural Codes		
DS3	DSM-IIIR	Diagnostic & Statistical Manual of Mental Disorders	265	191
DS4	DSM-IV	Diagnostic & Statistical Manual of Mental Disorders	404	269
SNM	SNOMED 2	Systematized Nomenclature of Medicine	11113	6818
NAN	NANDA	Classification of Nursing Diagnosis	102	94
NIC	NIC	Nursing Intervention Classifications	341	336
NOC	NOC	Nursing Outcomes Classifications		
HHC	HHCC	Home Health Care Component Classifications		
OMA	Omaha	Omaha Nursing Diagnosis and Interventions	78	76
SCC	SCC	Service Connected Disabilities		
ACR	ACR	Index for Radiological Diagnosis	119	118
AIR	AI/Rheum	Disease/Findings Knowledge Base	757	753
COS	COSTAR	Computer Stored Ambulatory records Terminology	1397	1392
CST	COSTART	Coding Symbols Thes. for Adverse Reaction Terms	1675	1124
CSP	CRISP	Computer Retrieval of Info. on Scientific Projects	5123	4588

DXP	DxPlain	Diagnostic Prompting System	488	487
MCM	McMaster	Glossary of Epidemiology Terms	22	18
UMD	UMDNS	Universal Medical Device Nomenclature System	78	78
UWA	UWA	Glossary of Neuronames	586	586
MSH	MeSH	Medical Subject Headings		
LCH	Congress	Subject Headings		
DOR	Dorland	Dorland's Medical Dictionary		
UND	Undef	Undefined Code/Coding System (Code = "None")		
SCT	SNOMED CT	SNOMED Clinical Terms		

Appendix B: Semantic Classes and Types

1. Activities ACT

Event 51

A broad type for grouping activities, processes, and states. The children of this type are Activity and Phenomenon or Process.

Activity 52

An operation or series of operations that an organism or machine carries out or participates in. The children of this type are Behavior, Daily or Recreational Activity, Occupational Activity, and Machine Activity. Examples include Development Planning, Expeditions, Information Distribution, Migration, and Voting.

Daily or Recreational Activity 56

An activity carried out for recreation or exercise. Examples include Swimming, Camping, Child Care, and Exercise.

Occupational Activity 57

An activity carried out as part of an occupation or job. The children of this type are Health Care Activity, Research Activity, Governmental or Regulatory Activity, and Educational Activity. Examples include Financial Management, Collective Bargaining, Commerce, and Book Classification.

Health Care Activity 58

An activity of or relating to the practice of medicine or involving the care of patients. The children of this type are Diagnostic Procedure, Laboratory Procedure, and Therapeutic or Preventive Procedure. Examples include Preventive Health Services, Ambulatory Care, Clinic Activities, and Geriatric Nursing.

Research Activity 62

An activity carried out as part of research or experimentation. This type has one child in the network, Molecular Biology Research Technique. Examples include Study Design, Animal Experimentation, Biomedical Research, and Cluster Analysis.

Governmental or Regulatory Activity 64

An activity carried out by officially constituted governments, or an activity related to the creation or enforcement of the rules or regulations governing some field of endeavor. Examples include Facility Regulation and Control, Public Assistance, Credentialing, and Certification.

Educational Activity   65

An activity related to the organization and provision of education. Examples include Community Health Education, Preceptorship, Academic Training, and Family Planning Training.

Machine Activity   66

An activity carried out primarily or exclusively by machines. Examples include Air Conditioning, Equipment Failure, Natural Language Processing, Computer Simulation, and Word Processing.

Phenomenon or Process   67

A process or state which occurs naturally or because of an activity. The children of this type are Human-caused Phenomenon or Process, Natural Phenomenon or Process, and Injury or Poisoning. Examples include Disasters, Famine, and Noise.

Human-caused Phenomenon or Process   68

A phenomenon or process that is a result of the activities of human beings. If the term refers to the activity itself, rather than the result of that activity, a type from the Activity hierarchy is assigned instead. This type has one child in the network, Environmental Effect of Humans. Examples include Social Change, Baby Boom, and International Cooperation.

Environmental Effect of Humans   69

A change in the natural environment that is a result of the activities of human beings. Examples include Water Pollution, Acid Rain, Soil Degradation, and Smog.

Natural Phenomenon or Process   70

A phenomenon or process that occurs irrespective of the activities of human beings. This type has one child in the network, Biologic Function. Examples include Lightning, Air Movements, Sunlight, Biological Phenomena, and Corrosion.

2. Anatomy   ANT

Anatomical Structure   17

A normal or pathological part of the anatomy or structural organization of an organism. If the term refers to a structure found only in non-humans, the Non-Human flag is assigned as well. Examples of this would be such terms as Feathers, Gills, and Horns. The children of this type are Embryonic Structure, Congenital Abnormality, Acquired Abnormality, and Fully Formed Anatomical Structure.

Embryonic Structure   18

An anatomical structure that exists only before the organism is fully formed; in mammals, for example, a structure that exists only prior to the birth of the organism. This structure may be normal or abnormal. Examples include Neural Crest, Blastoderm, and Fetal Heart.

Congenital Abnormality   19

An abnormal structure, or one that is abnormal in size or location, present at birth or evolving over time because of a defect in embryogenesis. Examples include Congenital cranial meningocel and Syndactylia.

Acquired Abnormality   20

An abnormal structure or one that is abnormal in size or location, found in or deriving from a previously normal structure. Examples include Hernia, Fistula, Hemorrhoids, and Varicose Veins.

Fully Formed Anatomical Structure   21

An anatomical structure in a fully formed organism; in mammals, for example, a structure in the body after the birth of the organism. The children of this type in the network are Body Part, Organ, or Organ Component, Tissue, Cell, Cell Component, and Macromolecular Structure. They are linked to each other by the part_of relationship in the network. Thus, a Macromolecular Structure is part of a Cell Component, which is part of a Cell, etc. A term is assigned to the most specific type available.

Body System   22

A complex of anatomical structures that performs a common function. Examples include Renin-Angiotensin System, Limbic System, Skeleton, and Reticuloendothelial System.

Body Part, Organ, or Organ Component   23

A collection of cells and tissues which are localized to a specific area or combine and carry out one or more specialized functions of an organism. This ranges from gross structures to small components of complex organs. These structures are relatively localized in comparison to tissues. Examples include Eye, Liver, Pulmonary Artery, and Laryngeal Mucosa.

Tissue   24

An aggregation of similarly specialized cells and the associated intercellular substance. Tissues are relatively non-localized in comparison to body parts, organs, or organ components. Examples include Cartilage, Epidermis, Basophilic muscle fibers, and Endothelium.

Cell   25

The fundamental structural and functional unit of living organisms. Examples include Erythrocytes, Dendritic Cells, and Histiocytes.

Cell Component   26

A part of a cell or the intercellular matrix, generally visible by light microscopy. Examples include Golgi Apparatus, Microsomes, and Organelles.

Body Location or Region   29

An area, subdivision, or region of the body demarcated for the purpose of topographical description. If the term refers to a body location or region found only in non-humans, the Non-Human flag is assigned as well. Examples include Abdomen, Thorax, Back, and Gluteal Region.

Body Space or Junction   30

An area enclosed or surrounded by body parts or organs or the place where two anatomical structures meet or connect. If the term refers to a body space or junction found only in non-humans, the Non-Human flag is assigned as well. Examples include Synapses, Peritoneal Cavity, Neuromuscular Junction, and Knee Joint.

Body Substance   31

Extracellular material, or mixtures of cells and extracellular material, produced, excreted, or accreted by the body. Included here are substances such as saliva, dental enamel, sweat, and gastric acid. If the term refers to a body substance found only in non-humans, the Non-Human flag is assigned as well. Examples include Saliva, Necrotic debris, Mucus, and Amniotic Fluid.

3. Behavior   BEH

Behavior   53

Any of the activities of humans or animals that can be observed directly by others or can be made systematically observable by the use of special strategies. If the term refers to a behavior exhibited only by non-humans, the Non-Human flag is assigned as well. The children of this type are Social Behavior and Individual Behavior.

Social Behavior   54

Behavior that is a direct result or function of the interaction of humans or animals with their fellows. Examples include Interpersonal Relations, Social Conformity, Acculturation, and Communication.

Individual Behavior   55

Behavior exhibited by a human or an animal that is not a direct result of interaction with other members of the species, but which may have an effect on others. Examples include Assertiveness, Self Disclosure, Nail Biting, and Risk-Taking.

4. Chemicals and Drugs   CHM

Chemical   103

Chemicals are viewed from two distinct perspectives in the network, functionally and structurally. Almost every chemical term is assigned at least two types, one from the structure hierarchy and at least one from the function hierarchy. The children of this type are Chemical Viewed Functionally and Chemical Viewed Structurally.

Chemical Viewed Structurally   104

A chemical viewed from the perspective of its structural characteristics. Included here are terms which can mean a salt, an ion, or a compound (e.g., Bromates and Bromides). The children of this type are Inorganic Chemical and Organic Chemical. Examples include Free Radicals, Onium Compounds, Salts, and Sulfur Compounds.

Inorganic Chemical   105

The general class of substances including the elements, their ionic and isotopic counterparts, and any chemical compound whose molecules are bound together ionically rather than covalently. This includes all compounds which do not contain carbon as a principal component. The children of this type are Element or Ion, Isotope, and Inorganic Compound. Examples include Electrolytes, Dithionite, and Technetium Tc 99m Sulfur Colloid.

Element or Ion   106

One of the 109 presently known kinds of substance that comprise all matter at and above the atomic level. This includes elemental metals, rare gases, and naturally occurring radioactive elements, as well as the ionic counterparts of elements. This does not include the less abundant isotopic forms, for which the type Isotope is assigned. Examples include Aluminum, Carbon, Uranium, Beryllium, and Oxygen Ion.

Isotope   107

A form of element having the same atomic number (i.e., the same number of protons), but differing in atomic weight or mass due to the presence of one or more additional neutrons. Included here are both stable and radioactive isotopes. Examples include Radioisotopes, Chromium Isotopes, Cobalt Radioisotopes, Co-58 (8), and Deuterium.

Inorganic Compound   108

A single compound, generally with ionic bonding, not containing carbon as a principal component (except carbides, carbonates, cyanides, cyanates, and carbon disulfide). The bonding between elements in inorganic compounds is generally ionic. Included here are inorganic acids and salts, alloys, alkalies, and minerals. Excluded are hydrocarbons. Examples include Ferrocyanide salt, Ammonia, and Aluminum Hydroxide.

Organic Chemical   109

The general class of carbon-containing compounds usually based on carbon chains or rings, and containing hydrogen (hydrocarbons), with or without nitrogen, oxygen, or other elements. The bonding between elements is generally covalent. The children of this type are Steroid, Eicosanoid, Lactam, Alkaloid, Nucleic Acid, Nucleoside, or Nucleotide, Organophosphorus Compound, Amino Acid, Peptide, or Protein, Carbohydrate, and Lipid.'Examples include Busulfan, Carotene, Trinitrobenzene, and Metanephrine.

Steroid   110

One of a group of polycyclic, 17-carbon-atom, fused-ring compounds occurring both in natural and synthetic forms. Included here are naturally occurring and synthetic steroids, bufanolides, cardanolides, homosteroids, norsteroids, and secosteroids. Examples include Bufanolides, Norandrostanes, 17-Hydroxycorticosteroids, and Prednisone.

Eicosanoid   111

A compound structurally related to arachidonic acid. Included here are arachidonic acid, eicosanoic acid, and saturated or unsaturated derivatives of each. Examples include Thromboxane B2, n-Eicosanoic acid, 8,11,14-Eicosatrienoic Acid, and Leokotriene C-4.

Lactam   112

A cyclic amide, usually with 4- or 5-membered rings that may or may not be fused to other rings, as in compounds structurally related to the penicillins and cephalosporins. Examples include Penicillanic Acid, Caprolactam, Alloxan, and Ticarcillin.

Alkaloid   113

A basic, nitrogen-containing compound of plant origin. Included here are aporphines, cinchona, curare, ergot, opium, belladonna, rauwolfia, and vinca alkaloids, among others. Examples include Quinidine, Aconitine, 3-Hydroxy-N-Methylmorphinan, Vincamine, and Rauwolfia Alkaloids.

Organophosphorus Compound   115

An organic compound containing phosphorus as a constituent. Included here are organic phosphinic, phosphonic and phosphoric acid derivatives and their thiophosphorus counterparts. Excluded are phospholipids and sugar phosphates. Examples include Phosphonoacetic Acid, Phosphoric Acid Esters, Diphosphonates, and Thiamine Triphosphate.

Carbohydrate   118

A compound consisting of carbon, hydrogen, and oxygen in which the hydrogen/oxygen ratio is the same as in water, and in which repeating units are joined through oxygen linkages. Carbohydrates are generally characterized as sugars and include mono-, di-, oligo-, and polysaccharides, glycosides, glycans, and starches. Included here are sugar phosphates. Excluded are glycolipids. Examples include Glycosides, Polysaccharides, Deoxyglucose, and Sepharose.

Lipid   119

A fat or fat-derived substance, such as fatty acids, fatty alcohols, and waxes. Included here are glyco- and phospholipids. Examples include Ceroid, Sphingolipids, Glycerides, and Calcifediol.

Chemical Viewed Functionally   120

A chemical viewed from the perspective of its functional characteristics or pharmacological activities. The children of this type are Pharmacologic Substance, Biomedical or Dental Material, Biologically Active Substance, Indicator or Reagent, and Hazardous or Poisonous Substance. Examples include Aerosol Propellants, Soaps, and Food Additives.

Pharmacologic Substance   121

A substance used in the treatment, diagnosis, prevention, or analysis of normal and abnormal body function. This includes substances that occur naturally in the body and are administered therapeutically. Examples include Codeine, Antipruritics, Ampicillin, Cardiovascular Agents, Insulin, and Ganglionic Blockaders.

Biomedical or Dental Material   122

A substance used in biomedicine or dentistry predominantly for its physical, as opposed to chemical, properties. Included here are biocompatible materials, tissue adhesives, bone cements, resins, etc. Examples include Anion Exchange Resins, Dental Casting Investment, Elastosil, Bone Cements, and Drug Implants.

Biologically Active Substance   123

A substance produced or required by an organism, of primary interest because of its role in the biologic functioning of the organism that produces it. The children of this type are Neuroreactive Substance or Biogenic Amine, Hormone, Enzyme, Vitamin, Prostaglandin, and Immunologic Factor. Examples include Myelin, Gastric Acid, Growth Substances, and Enzyme Precursors.

Neuroreactive Substance or Biogenic Amine   124

A biologic factor whose activities affect or play a role in the functioning of the nervous system. Included here are catecholamines, neuroregulators, neurophysins, etc. Examples include Catecholamine, Tryptamines, and Neurotensin.

Hormone   125

In animals, a chemical secreted by an endocrine gland that releases its products into the circulating fluid. Plant hormones or synthetic hormones that are used only to alter or control various physiologic processes, e.g., reproductive control agents, are assigned only to the type Pharmacologic Substance. Hormones act as chemical messengers and regulate various physiologic processes such as growth, reproduction, metabolism, etc. They usually fall into two broad classes, steroid hormones and peptide hormones. Examples include Gonadotropins, Epicortisol, Glucocorticoids, Pentagastrin, and MSH Release Inhibiting Hormone.

Enzyme   126

A complex protein that living cells produce and which catalyzes specific biochemical reactions. There are six main types of enzymes, oxidoreductases, transferases, hydrolases, lyases, isomerases, and ligases. Examples include ATP Citrate Lyase, Acetyl CoA Acetyltransferase, Complement Activating Enzymes, and Glucose Oxidase.

Vitamin   127

A substance, usually an organic chemical complex, present in natural products or made synthetically, which is essential in the diet of humans or other higher animals. Included here are vitamin precursors and provitamins. Examples include Vitamin A, Ascorbic Acid, Biotin, Riboflavin, and 25-Hydroxyvitamin D 2.

Prostaglandin   128

A member of the group of physiologically active compounds derived from arachidonic acid. Members of the group play major roles in the reproductive process, smooth muscle stimulation, blood pressure levels, inflammation, etc. Included here are prostacyclins, thromboxanes, and leukotrienes. Examples include Alprostadil, Prostaglandins F, Thromboxane A2, and Rioprostil.

Immunologic Factor   129

A biologic factor whose activities affect or play a role in the functioning of the immune system. Examples include Autocrine Motility Factor, Antilymphocyte Globulin, HIV Antigens, and Hepatitis surface antigen.

Indicator or Reagent   130

A substance used in laboratory reactions, or laboratory or diagnostic tests and procedures to detect, measure, examine, or analyze other chemicals, processes, or conditions. Examples include Contrast Media, Buffers, Affinity Labels, and Dansyl Compounds.

Hazardous or Poisonous Substance   131

A substance of concern because of its potentially hazardous or toxic effects. This would include most drugs of abuse, as well as agents that require special handling because of their toxicity. Most pharmaceutical agents, although potentially harmful, we exclude here and assign to the type Pharmacologic Substance. Examples include Paraquat, Crack Cocaine, Plant poison, Carcinogens, and Sodium Cyanide.

5. Concepts and Ideas   CON

Conceptual Entity   77

A broad type for grouping abstract entities or concepts. The children of this type in the network are Idea or Concept, Finding, Organism Attribute, Intellectual Product, Language, Occupation or Discipline, Organization, Group Attribute, and Group.

Idea or Concept   78

An abstract concept, such as a social, religious, or philosophical concept. The children of this type are Temporal Concept, Qualitative Concept, Quantitative Concept, Functional Concept, and Spatial Concept. Examples include Civil Rights, Freedom, Ethics, Spiritualism, and Capitalism.

Temporal Concept   79

A concept that pertains to time or duration. Examples include Half-Life, Postoperative Period, Puerperium, Birth Intervals, and Postimplantation Phase.

Qualitative Concept   80

A concept that is an assessment of some quality, rather than a direct measurement. Examples include Clinical Competence, Quality of Health Care, Abuse of Health Services, and Consumer Satisfaction.

Quantitative Concept   81

A concept that involves the dimensions, quantity or capacity of something using some unit of measure, or which involves the quantitative comparison of entities. Examples include Metric System, Body Height, Age Distribution, and Secretory Rate.

Spatial Concept   82

A location, region, or space, generally having definite boundaries. The children of this type are Body Space or Junction, Body Location or Region, Molecular Sequence, and 'Geographic Area.

Regulation or Law   89

An intellectual product resulting from legislative or regulatory activity. Examples include Building Codes, Criminal Law, Health Planning Guidelines, and Security Measures.

Group Attribute   102

A conceptual entity that refers to the frequency or distribution of certain characteristics or phenomena in certain groups. Examples include Neonatal Mortality, Life Expectancy, Family Size, Population Characteristics, and Group Structure.

Functional Concept   169

A concept that is of interest because it pertains to the carrying out of a process or activity. This type has one child in the network, Body System. Examples include Solar System.

Intellectual Product   170

A conceptual entity resulting from human endeavor. Terms assigned to this type generally refer to information created by humans for some purpose. This type has one child in the network, ' Regulation or Law. Examples include Bayes Theorem, Information Systems, and Literature.

Language   171

The system of communication used by a particular nation or people. Examples include Afrikaans, Greek, Modern, Braille, and Welsh.

6. Diseases and Pathologic Processes   DIS

Pathologic Function   46

A disordered process, activity, or state of the organism as a whole, of a body system or systems, or of multiple organs or tissues. Included here are normal responses to a negative stimulus as well as pathololgic conditions or states that are less specific than a disease. Pathologic functions frequently have systemic effects. The children of this type are Disease or Syndrome, Cell or Molecular Dysfunction, and Experimental Model of Disease. Examples include Shock, Infarction, Cerebral Anoxia, Inflammation, Anaphylaxis, and Acid-Base Imbalance.

Disease or Syndrome   47

A condition that alters or interferes with a normal process, state, or activity of an organism. It is usually characterized by the abnormal functioning of one or more of the host's systems, parts, or organs. Included here is a complex of symptoms descriptive of a disorder. This type has one child in the network, Mental or Behavioral Dysfunction. Examples include Diabetes Mellitus, Brain Neoplasms, Nephrotic Syndrome, Dumping Syndrome, and Malabsorption Syndromes.

Mental or Behavioral Dysfunction   48

A clinically significant dysfunction whose major manifestation is behavioral or psychological. These dysfunctions may have identified or presumed biological etiologies or manifestations. Examples include Memory Disorders, Agoraphobia, Hallucinations, Anxiety States, Neurotic, and Cyclothymic Disorder.

Experimental Model of Disease   50

A representation in a non-human organism of a human disease for the purpose of research into its mechanism or treatment. Examples include Avian Leukosis, Streptozotocin Diabetes, Ehrlich Ascites Tumor, and Melanoma, Experimental.

Finding   33

That which is discovered by direct observation or measurement of an organism attribute or condition, including the clinical history of the patient. The children of this type are Laboratory or Test Result, and Sign or Symptom. Examples include Occupational problem, Birth History, and Downward displacement of diaphragm.

Laboratory or Test Result   34

The outcome of a specific test to measure an attribute or to determine the presence, absence, or degree of a condition. Laboratory or test results are inherently quantitative and, thus, we do not assign the additional type Quantitative Concept. Examples include Apgar Score, Gastric acidity, Blood Volume, and Hypernatremia.

Sign or Symptom   184

An observable manifestation of a disease or condition based on clinical judgment, or a manifestation of a disease or condition that the patient experiences and reports as a subjective observation. Examples include Pallor, Body Weight Changes, Echolalia, Hyperventilation, Pain, Toothache, Nausea, and Cough. Formerly semantic types Signs (# 35) and Symptoms (# 36).

Injury or Poisoning   37

A traumatic wound, injury, or poisoning caused by an external agent or force. Examples include Frostbite, Mushroom Poisoning, Acid burn, Snake Bites, and Ergotism.

7.   Geographic Areas   GEO

Geographic Area   83

A geographic location, generally having definite boundaries. Examples include Canada, Baltimore, Far East, Arctic Regions, and Cities.

8.   Groups   GRP

Group   96

A conceptual entity referring to the classification of individuals according to certain shared characteristics. The children of this type are Professional or Occupational Group, Population Group, Family Group, Age Group, and Patient or Disabled Group.

Professional or Occupational Group   97

An individual or individuals classified according to their vocation. Examples include Zoologist, Physicians, Hospital Volunteers, Clergy, Military Personnel, and Demographers.

Population Group   98

An individual or individuals classified according to their sex, racial origin, religion, common place of living, financial or social status, or some other cultural or behavioral attribute. Examples include Asian Americans, Ethnic Groups, Homeless Persons, and Low-Income Population.

Family Group   99

An individual or individuals classified according to their family relationships or relative position in the family unit. Examples include Only Child, Single Parent, Surrogate Mothers, and Twins.

Age Group   100

An individual or individuals classified according to their age. Examples include Adult, Infant, Premature, Adolescents, and Octogenarian.

Patient or Disabled Group   101

An individual or individuals classified according to a disability, disease, condition, or treatment. Examples include Amputees, Child, Institutionalized, and Inpatients.

9. Molecular Biology   MOL

Macromolecular Structure   27

A very large molecule whose structure contributes to the physiology of the cell. This type has one child in the network, Gene or Genome. Examples include Scleroproteins, Histone H5, and Collagen.

Gene or Genome   28

A specific sequence, or in the case of the genome the complete sequence, of nucleotides along a molecule of DNA or RNA (in the case of some viruses) which represent the functional units of heredity. Examples include Alleles, Genes, Structural, Genome, Human, and c-Ha-ras Genes.

Molecular Function   44

A physiologic function occurring at the molecular level. This type has one child in the network, Genetic Function. Examples include Electron Transport, Glycolysis, and Binding, Competitive.

Genetic Function   45

Functions of or related to the maintenance, translation, or expression of the genetic material. Examples include Amino Acid Activation, Early Gene Transcription, Gene Amplification, and RNA Splicing.

Cell or Molecular Dysfunction   49

A pathologic function inherent to cells, parts of cells, or molecules. Examples include Cellular necrosis, Wallerian Degeneration, Cell Transformation, Neoplastic, and DNA Damage.

Molecular Biology Research Technique   63

Any of the techniques used in the study of or the directed modification of the gene complement of a living organism. Examples include Genetic Engineering, Heterozygote Detection, Sequence Homology Determination, and Blotting, Northern.

Molecular Sequence   85

A broad type for grouping the collected sequences of amino acids, carbohydrates, and nucleotide sequences. Descriptions of these sequences are generally reported in the published literature and/or are deposited in and maintained by data banks such as GenBank, European Molecular Biology Laboratory (EMBL), National Biomedical Research Foundation (NBRF), or other sequence repositories. The children of this type are Nucleotide Sequence, Amino Acid Sequence, and Carbohydrate Sequence.

Nucleotide Sequence   86

The sequence of purines and pyrimidines in nucleic acids and polynucleotides. Included here are nucleotide-rich regions, conserved sequence, and DNA transforming region. Examples include AT Rich Region, Base Sequence, Direct Repeat, and Exons.

Amino Acid Sequence   87

The sequence of amino acids as arrayed in chains, sheets, etc., within the protein molecule. It is of fundamental importance in determining protein structure.

Carbohydrate Sequence   88

The sequence of carbohydrates within polysaccharides, glycoproteins, and glycolipids.

Nucleic Acid, Nucleoside, or Nucleotide   114

A complex compound of high molecular weight occurring in living cells. These are of two types, ribonucleic (RNA) and deoxyribo-nucleic (DNA) acids, both of which consist of nucleotides (nucleoside phosphates linked together by phosphate bridges). Examples include Adenosine, Dibutyryl Cyclic AMP, Deoxyadenosines, and Nicotinamide Mononucleotide.

Amino Acid, Peptide, or Protein   116

Amino acids and chains of amino acids connected by peptide linkages. Examples include Glycoproteins, Myoglobin, Alanine, Sulfatase, and Acetylcysteine.

Gene Product   <deleted>

Formerly semantic type # 117.

10. Physical Objects   OBJ

Entity   71

A physical or conceptual entity. The children of this type are Physical Object and Conceptual Entity.

Physical Object   72

An object perceptible to the sense of vision or touch. The children of this type in the network are Organism, Anatomical Structure, Manufactured Object, and Substance.

Manufactured Object   73

A physical object made by human beings. The children of this type in the network are Medical Device and Research Device. Examples include Cooking and Eating Utensils, Bookplates, Adhesive tape, and Car Seats.

Medical Device   74

A manufactured object used primarily in the diagnosis, treatment, or prevention of physiologic or anatomic disorders. Examples include Hip Prosthesis, Oxygenators, Syringes, and Obstetrical Forceps.

Research Device   75

A manufactured object used primarily in carrying out scientific research or experimentation. Examples include Questionnaires, Atmosphere Exposure Chambers, and Cell-Free System.

Substance   167

A material with definite or fairly definite chemical composition. The children of this type are Chemical, Body Substance, and Food. Examples include Charcoal, Foreign Bodies, Air, Fossils," and Electrons.

Food   168

Any substance containing nutrients, such as carbohydrates, proteins, and fats that a living organism can ingest and metabolize into energy and body tissue. Some foods are naturally occurring; others are either partially or entirely synthetic. Examples include Egg Yolk, Nuts, Beverages, and Margarine.

11. Occupations and Organizations   OCC

Occupation or Discipline   90

A vocation, academic discipline, or field of study, or a subpart of an occupation or discipline. If the term refers to the individuals who have the vocation, then we assign the type Professional or Occupational Group. This type has one child in the network, Biomedical Occupation or Discipline. Examples include Anthropology, Ecology, Linguistics, Air Microbiology, and Craniology.

Biomedical Occupation or Discipline   91

A vocation, academic discipline, or field of study related to biomedicine. Examples include Dermatology, Emergency Nursing, Dentistry, Family Practice, and Cellular Neurobiology.

Organization   92

The result of uniting for a common purpose or function. The continued existence of an organization is not dependent on any of its members, its location, or particular facility. Components or subparts of organizations are also included here. The children of this type are Health Care Related Organization, Professional Society, and Self-help or Relief Organization.' Examples include Universities, United Nations, United States Environmental Protection Agency, European Economic Community, and Labor Unions.

Health Care Related Organization   93

An established organization which carries out specific functions related to health care delivery or research in the life sciences. Terms for health care related professional societies are assigned the type Professional Society. Examples include American Cancer Society Health Care Coalitions, Ambulatory Care Facilities, and Pan American Health Organization.

Professional Society   94

An organization uniting those who have a common vocation or who are involved with a common field of study. Examples include American Medical Association, Library Associations, and International Council of Nurses.

Self-help or Relief Organization   95

An organization whose purpose and function is to provide assistance to the needy or to offer support to those sharing similar problems. Examples include Alcoholics Anonymous, Red Cross, Charities, and Tuberculosis Societies.

12. Organism   ORG

Organism   1

Generally, a living individual, including all plants and animals. The children of this type are Plant, Fungus, Virus, Rickettsia or Chlamydia, Bacterium, and Animal. Examples include Plankton, Homozygote, and Radiation Chimera.

Plant   2

An organism having cellulose cell walls, growing by synthesis of inorganic substances, generally distinguished by the presence of chlorophyll, and lacking the power of locomotion. Plant parts are included here as well. This type has one child in the network, Alga. Examples include Potatoes, Pollen, and Vegetables.

Alga   3

A chiefly aquatic plant that contains chlorophyll, but does not form embryos during development and lacks vascular tissue. Examples include Chlorella, Laminaria, Seaweed, and Anabaena.

Fungus   4

A eukaryotic organism characterized by the absence of chlorophyll and the presence of a rigid cell wall. Included here are both slime molds and true fungi such as yeasts, molds, mildews, and mushrooms. Examples include Blastomyces, Neurospora, Aspergillus clavatus, and Helminthosporium.

Virus   5

An organism consisting of a core of a single nucleic acid enclosed in a protective coat of protein. A virus may replicate only inside a host living cell. A virus exhibits some but not all of the usual characteristics of living things. Examples include Parvoviridae, Foot-and-Mouth Disease Virus, and Echovirus 6.

Rickettsia or Chlamydia   6

An organism intermediate in size and complexity between a virus and a bacterium, and which is parasitic within the cells of insects and ticks. Included here are all the chlamydias, also called PLT for psittacosis- lymphogranuloma venereum-trachoma. Examples include Anaplasma, Bartonella, and Chlamydia trachomatis.

Bacterium   7

A small, typically one-celled, prokaryotic micro-organism. Examples include Bacillus cereus, Acetobacter, Bordetella pertussis, and Cytophaga.

Animal   8

An organism with eukaryotic cells, and lacking stiff cell walls, plastids and photosynthetic pigments. The children of this type are Invertebrate and Vertebrate. Examples include Animals, Poisonous; Animals, Newborn; and Animals, Laboratory.

Invertebrate   9

An animal which has no spinal column. This type has no children in the network and is assigned to all invertebrate animals. Examples include Helminths, Octopus, Wasps, and Protozoa.

Vertebrate   10

An animal which has a spinal column. The children of this type are Amphibian, Bird, Fish, Reptile, and Mammal.

Amphibian   11

A cold-blooded, smooth-skinned vertebrate which characteristically hatches as an aquatic larva, breathing by gills. When mature, the amphibian breathes with lungs. Examples include Salamandra, Urodela, and Frog.

Bird   12

A vertebrate having a constant body temperature and characterized by the presence of feathers. Examples include Canaries, Pigeons, and Quail.

Fish   13

A cold-blooded aquatic vertebrate characterized by fins and breathing by gills. Included here are fishes having either a bony skeleton, such as a perch, or a cartilaginous skeleton, such as a shark, or those lacking a jaw, such as a lamprey or hagfish. Examples include Bass, Eels, and Carp.

Reptile   14

A cold-blooded vertebrate having an external covering of scales or horny plates. Reptiles breathe by means of lungs and are generally egg-laying. Examples include Lizards, Snakes, Turtles, and Iguanas.

Mammal   15

A vertebrate having a constant body temperature and characterized by the presence of hair, mammary glands, and sweat glands. This type has one child in the network, Human. Examples include Bears, Macaca, Hamsters, and Kangaroos.

Human   16

Modern man, the only remaining species of the Homo genus. If a term describes a human being from the point of view of occupational, family, social status, etc., then a type from the Group hierarchy is assigned instead. A small number of terms have been assigned this type, e.g., Hominidae, Man, and Homo sapiens.

13. Physiology   PHY

Biologic Function   38

A state, activity, or process of the body or one of its systems or parts. If the term refers to a biologic function found only in non-humans, the Non-Human flag is assigned as well. The children of this type are Physiologic Function and Pathologic Function.

Physiologic Function   39

A normal process, activity, or state of the body. The children of this type in the network are Organism Function, Organ or Tissue Function, Cell Function, and Molecular Function.

Organism Function   40

A physiologic function of the organism as a whole, of multiple organ systems, or of multiple organs or tissues. This type has one child in the network, Mental Process. Examples include Growth, Sleep, Hibernation, and Homeostasis.

Mental Process   41

A physiologic function involving the mind or cognitive processing. Examples include Avoidance Learning, Pattern Recognition, Anger, and Cognition."

Organ or Tissue Function   42

A physiologic function of a particular organ, organ system, or tissue. Examples include Osteogenesis, Tooth Calcification, and Renal Circulation.

Cell Function   43

A physiologic function inherent to cells or cell components. Examples include Cell Division, Cell Cycle, Erythrocyte Aggregation, and Lymphocyte Transformation.

Organism Attribute   32

A property of the organism or its major parts. If the term refers to an attribute found only in non-humans, the Non-Human flag is assigned as well. Examples include Body Weight, Body Temperature, Ambidexterity, and Eye Color.

14. Procedures   PRO

Laboratory Procedure   59

A procedure, method, or technique used to determine the composition, quantity, or concentration of a specimen, which is carried out in a clinical laboratory. Included here are procedures which measure the times and rates of reactions. Examples include Radioimmunoassay, Legionella titer, Blood Protein Electrophoresis, and Spectrophotometry.

Diagnostic Procedure   60

A procedure, method, or technique used to determine the nature or identity of a disease or disorder. This excludes procedures which are primarily carried out on specimens in a laboratory. Examples include Electrocardiography, Ultrasonography, Heart Auscultation, and Personality Assessment.

Therapeutic or Preventive Procedure   61

A procedure, method, or technique designed to prevent a disease or a disorder, or to improve physical function, or used in the process of treating a disease or injury. Examples include Cesarean Section, Counseling, Vaccine Therapy, and Cochlear Implant.

15. Unknown/Untyped   UNK

Unknown/Untyped   999

A vocabulary concept where the semantic type is either unknown or by its recent addition to the vocabulary, remains untyped. Most untyped concepts acquire a semantic assignment by either further investigation or usage.