Selected Cases for Study of Ambiguity in the UMLS®
Metathesaurus®
July 5, 2000

1. Selected Cases

The Metathesaurus terms below are the remaining candidates for use as test cases in the Word Sense Disambiguation Test Collection (WSD TC).


Adjustment <4>@clas [ Classification ]
Adjustment <3> (Adjustment Action)@ftcn [ Functional Concept ]
RCD98
Attribute [X75Mq]
Action [XC00r]
Adjustment [Xa09s]
Adjustment, NOS (Clinical Adjustment)@hlca [ Health Care Activity ]
RCD98
Additional values [X78tJ]
Activities, functions and processes [XaBfV]
Clinical action [XM0Zw]
Clinical actions A-O [XM0Il]
Adjustments [X79tc]
Adjustment <1> (Individual Adjustment)@inbe [ Individual Behavior ]
Conceptually broad array term referring to a state of harmony between internal needs and external demands and the processes used in achieving this condition. Use a more specific term if possible. Differentiate from ADAPTATION, which refers to physiological or biological adaptation.
adjustment <5> (Psychological adjustment)@menp [ Mental Process ]
AOD95
concepts in psychology and thought [F]
psychology [FA]
adjustment [FM]

See 1999 ambiguity study.

1.2 Match Phrase: association Count: 270967 --- Example Seq_No: 3527

association <1> (Mental association)@menp [ Mental Process ]
A functional relationship between psychological phenomena of such nature that the presence of one tends to evoke the other; also, the process by which such a relationship is established.
MSH99
Psychiatry and Psychology (MeSH Category) [F]
Psychological Phenomena and Processes [F2]
Mental Processes [F2.463]
Learning [F2.463.425]
Association [F2.463.425.69]
association <2> (Relationship by association)@soeb [ Social Behavior ]
AOD95
social sciences, economics, and law [L]
social psychology [LA]
type of relationship and interaction [LU]
relatedness, relationship [LV2.2]
association [LV2.2.2]

1.3 Match Phrase: **blood,pressure** Count: 242887 --- Example Seq_No: 4113

Blood pressure <4> (Arterial pressure)@lbr [Laboratory or Test Result]

Read thesaurus [.....]

Clinical findings [XaBVJ]

Cold, irreversible obstruction of air flow from the lungs.

Any disorder marked by persistent obstruction of bronchial air flow.

Senses two and three seem to be the same, and sense two is not well-defined. Also, the fourth sense rarely, if ever, occurs.

1.4 [163] Match Phrase: **cold** Count: 29919 --- Example Seq_No: 15677

Cold <5> (Cold Sensation)@qlco,sosy [Qualitative Concept | Sign or Symptom]

RCD98

Additional values [X78J]

Descriptors [XM0Dh]

Sensations [XM0EQ]
Cold [XC06u]
Cold <4> (Cold Therapy)@topp [ Therapeutic or Preventive Procedure ]
A form of therapy consisting in the local or general use of cold. The selective destruction of tissue by extreme cold or freezing is CRYOSURGERY. (McGraw-Hill Dictionary of Scientific and Technical Terms, 4th ed)
The use of cold to treat disease.

Cold <2> (Common Cold)@dsyn [ Disease or Syndrome ]
A catarrhal disorder of the upper respiratory tract, which may be viral, a mixed infection, or an allergic reaction. It is marked by acute coryza, slight rise in temperature, chilly sensations, and general indisposition. (Dorland, 27th ed)

Cold <1> (cold temperature)@npop [ Natural Phenomenon or Process ]
An absence of warmth or heat or a temperature notably below an accustomed norm.

Consider using only the second, fourth and fifth senses.
See ambiguity studies.
All senses will be shown; the rare or non-existent ones will simply not occur.

1.5 Match Phrase: condition|conditioning Count: 390143 --- Example Seq_No: 4973
Condition@qlco [ Qualitative Concept ]
RCD98
Attribute [X75Mq]
Condition [X905K]
Conditioning (Conditioning (Psychology))@menp [ Mental Process ]
process by which an organism can be made to respond to a previously neutral (conditioned) stimulus as it would to another (unconditioned) stimulus by pairing the two stimuli; e.g., pairing a bell with food eventually will make a dog salivate when bell is heard.
A general term referring to the learning of some particular response.
SNM2
Function Axis
Function and Abnormal Function of the Nervous and Musculoskeletal Systems
Functions and Functional Disorders of the Nervous System
Conditioning and Stimulus Functions and Disorders
Conditioning [F-85210]

1.6 Match Phrase: culture Count: 468473 --- Example Seq_No: 3676
Culture <1> (Anthropological Culture)@idcn [ Idea or Concept ]
A collective expression for all behavior patterns acquired and socially transmitted through symbols. Culture includes customs, traditions, and language.
MSH99
Anthropology, Education, Sociology and Social Phenomena (MeSH Category) [II]
Social Sciences [I1]
Anthropology [I1.76]
Anthropology, Cultural [I1.76.201]
Culture [I1.76.201.450]
Culture <3> (Laboratory culture)@lbpr  [ Laboratory Procedure ]
RCD98
Operations, procedures and interventions [Xa22Y]
Investigations [X77W7]
Microbiology test [X77b5]
Culture [4J17.]
culture <2>@qlco  [ Qualitative Concept ]
Third sense is not well-defined; drop it.

1.7 Match Phrase: **degree**  Count: 245795 --- Example Seq_No: 8311
Degree <1>@qlco  [ Qualitative Concept ]
RCD98
Attribute [X75Mq]
Extent [X9041]
Degree [X75Pd]
degree <2>@inpr  [ Intellectual Product ]
AOD95
communication, information, and education [N]
education and training [NF]
academic performance and evaluation [NF28]
recognition of achievement [NF28.6]
degree [NF28.6.2]
Second sense may be rare.

1.8 Match Phrase: **depression**  Count: 163295 --- Example Seq_No: 1472
Depression <2> (Depression motion)@ftc  [ Functional Concept ]
RCD98
Additional values [X78UJ]
Descriptors [XM0Dh]
Motions [XM0EV]
Depression - motion [X78x6]
Depression NOS <2> (Depressive episode, unspecified)@mobd  [ Mental or Behavioral Dysfunction ]
ICD10
Mental, behavioural disorders
Mood [affective] disorders
Depressive episode
Depressive episode, unspecified [F32.9]
Depression <1> (Mental Depression)@mobd  [ Mental or Behavioral Dysfunction ]
unpleasant, but not necessarily irrational or pathological, mood state characterized by sadness, despair, or discouragement; “the blues”; may also involve low self-esteem, social withdrawal, and somatic symptoms such as eating and sleep disturbance.
Depressive states usually of moderate intensity in contrast with major depression present in neurotic and psychotic disorders.
Mild depression in normal populations. Prior to 1988, also used for major depression in clinical populations.
MSH99
Psychiatry and Psychology (MeSH Category) [F]
Behavior and Behavior Mechanisms [F1]
Behavior [F1.145]
Behavioral Symptoms [F1.145.126]
Depression [F1.145.126.350]

Senses two and three seem to be the same; choose one.

1.9 Match Phrase: **determination**  Count: 509719 --- Example Seq_No: 42
determination <1> (adjudication)@gora  [ Governmental or Regulatory Activity ]
  AOD95
  social sciences, economics, and law [L]
  law enforcement and the justice system [MO]
  justice system process and procedures [MO4]
  adjudication [MO4.18]
determination <2>@lbrp  [ Laboratory Procedure ]
No definitions (and no hierarchy for the ‘Laboratory Prodecure’).

1.10 Match Phrase: **discharge**  Count: 113069 --- Example Seq_No: 2568
Discharge, NOS (Discharge, Body Substance)@bdsu  [ Body Substance ]
  SNM2
  Morphology Axis
  Mechanical Abnormality
  Engorgement, Congestion and Extravasation
  Discharged
  Discharge [M-36800]
Discharge <3> (Discharge, Body Substance, Sample)@bdsu  [ Body Substance ]
  RCD98
  Additional values [X78tJ]
  Substances, materials and objects [XaBfU]
  Pathology sample [XE2sX]
  General biological sample [Xa979]
  Body substance sample [XaBiT]
  Discharge - sample [X7AAO]
Discharge <1> (Patient Discharge)@hlca  [ Health Care Activity ]
The administrative process of discharging the patient, live or dead, from hospitals or other health facilities.
  PCDS97
  HEALTH BEHAVIOR, HEALTH PROMOTION, AND HEALTH RESTORATION COMPONENT [G]
  Discharge [U000031]

1.11 Match Phrase: **energy**  Count: 187985 --- Example Seq_No: 9667
energy <3> (Energy (physics))@npop  [ Natural Phenomenon or Process ]
  AOD95
  natural science [C]
  physical science [CA]
  basic physical science concepts [CB]
  energy [CB18]
Energy <2>@fndg  [ Finding ]
NOC97
  Physiologic Health [2]
  Nutrition [K]
  Nutritional Status [1004]
  Energy [100403]
Energy <1> (Vitality)@fndg  [ Finding ]
  RCD98
  Clinical findings [XaBVJ]
History and observations [X76sU]
Clinical history and observations [X76sV]
General observation of patient [Xa1bt]
General well being [X76AT]
Energy and stamina [X76Aa]
Observation of general energy [Xa7w7]
Energy [X76Ah]

Senses two and three seemed to be the same to me, but Susanne argues for all three; please review.

1.12 Match Phrase: **evaluation**  Count: 126449 --- Example Seq_No: 962

Evaluation@inpr,resa  [ Intellectual Product | Research Activity ]

Conceptually broad term referring to the appraisal of the characteristics, significance, importance, or relative value of a person, organization, or thing.
AOD95
research method and research organization [R]
research and evaluation method [RC]
purpose of study [RF]
research and evaluation [RF2]
evaluation [RF2.6]

**Evaluation <2>@hlca  [ Health Care Activity ]**
ALT98
Alternative Laboratory and In-Office Procedures [D]
Pulmonary [DC]
Evaluation [DCA]
evaluation <2> (Health evaluation)@hlca  [ Health Care Activity ]

Suppress second sense as being too specific.
See 2000 ambiguity study.

1.13 Match Phrase: **extraction**  Count: 175175 --- Example Seq_No: 7617

Extraction, NOS@topp  [ Therapeutic or Preventive Procedure ]
SNM198
PROCEDURES
OPERATIONS AND ANESTHESIA PROCEDURES
GENERIC OPERATIVE PROCEDURES
MANIPULATIONS
Extraction, NOS [P1-0E300]

**extraction <1>@lbpr  [ Laboratory Procedure ]**
AOD95
natural science [C]
physical and chemical analysis and measurement [CQ]
separation method [CQ2]
extraction [CQ2.16]

1.14 Match Phrase: **failure**  Count: 130583 --- Example Seq_No: 17

Failure, NOS@patf  [ Pathologic Function ]
SNM2
Function Axis
General Body Function and Dysfunction
General Metabolic Functions and Activities
Failure [F-04400]

**failure <1>@socb  [ Social Behavior ]**
AOD95
social sciences, economics, and law [L]
social psychology [LA]
type of relationship and interaction [LU]
collaboration, competition, conflict, and outcome [LX]
success and failure [LX12]
failure [LX12.6]

1.15 Match Phrase: **fat** Count: 103171 --- Example Seq_No: 5351

Fat <2> (Fatty acid glycerol esters)@lipd [Lipid]

The glyceryl esters of a fatty acid, or of a mixture of fatty acids. They are generally odorless, colorless, and tasteless if pure, but they may be flavored according to origin. Fats are insoluble in water, soluble in most organic solvents. They occur in animal and vegetable tissue and are generally obtained by boiling or by extraction under pressure. They are important in the diet (DIETARY FATS) as a source of energy and vitamin C.

(Grant & Hackh’s Chemical Dictionary, 5th ed)

FAT <1> (Obese build)@orga [Organism Attribute]

RCD98
Clinical findings [XaBVJ]
History and observations [X76sU]
Clinical history and observations [X76sV]
General observation of patient [Xa1bt]
General observation of appearance [Xa7vj]
General form of body [XM01B]
Physique [X76BC]
Obese build [XM00v]

1.16 Match Phrase: **fit** Count: 12076 --- Example Seq_No: 40855

Fit <3> (Fit and well)@fndg [Finding]

RCD98
Clinical findings [XaBVJ]
History and observations [X76sU]
Clinical history and observations [X76sV]
General observation of patient [Xa1bt]
General well being [X76AT]
Fit and well [Xa96k]

Fit <2> (Seizures)@dsyn,sosy [Disease or Syndrome | Sign or Symptom]

Attacks of cerebral origin consisting of sudden and transitory abnormal phenomena of a motor, sensory, autonomic or psychic nature resulting from transient dysfunction of the brain.

MSH99
Diseases (MeSH Category) [C]
Nervous System Diseases [C10]
Neurologic Manifestations [C10.597]
Seizures [C10.597.742]

1.17 Match Phrase: **fluid** Count: 115319 --- Example Seq_No: 576

Fluid <2>@qlco [Qualitative Concept]

RCD98
Additional values [X78tJ]
Descriptors [XM0Dh]
Behaviour descriptors [X78vs]
Fluid [X79BF]
fluid <1> (Liquid substance, NOS)@sbst [Substance]

RCD98
Additional values [X78tJ]
Descriptors [XM0Dh]
1.18 Match Phrase: frequency  
Count: 366935 --- Example Seq_No: 5022

Frequency <2> (Frequencies)@tmco [ Temporal Concept ]
RCD98

Additional values [X78tJ]
Descriptors [XM0Dh]
Time patterns [XM0DI]
Frequencies [XM0E5]

Frequency <3> (Increased frequency of micturition)@fndg,sosy [ Finding | Sign or Symptom ]
ICD99

DISEASES AND INJURIES
SYMPTOMS, SIGNS, AND ILL-DEFINED CONDITIONS
SYMPTOMS
Symptoms involving urinary system
Frequency of urination and polyuria
Urinary frequency [788.41]

Frequency (Withfrequency)@tmco [ Temporal Concept ]
RCD98

Attribute [X75Mq]
Temporal relationship [X9046]
Frequency [X9047]

Second sense is contextual; remove it.
The first and third senses may not be well-defined; please review.

1.19 [818] Match Phrase: ganglion  
Count: 2627 --- Example Seq_No: 144462

Ganglion, NOS (Benign cystic mucinous tumour)@acb [ Acquired Abnormality ]
A benign cystic tumor occurring on an aponeurosis or tendon, as in the wrist or dorsum of the foot; it consists of a thin fibrous capsule enclosing a clear mucinous fluid.- Dorland’s Illustrated Medical Dictionary (twenty-sixth Edition)

SNM2
Morphology Axis
Mechanical Abnormality
Retention of Content
Cysts
Cyst, ganglion [M-33600]
ganglion <2> (Ganglia)@boc [ Body Part, Organ, or Organ Component ]
A general term for a group of nerve cell bodies located outside the central nervous system. It is occasionally applied to certain nuclear groups within the brain or spinal cord, e.g., BASAL GANGLIA. (Dorland, 27th ed) is an organ component of one or more nerves, which primarily consists of cell bodies of neurons located outside the central nervous system; together with nerve fibers, it constitutes a nerve or a nerve plexus

UWDA97
Anatomical entity [12820]
Physical anatomical entity [12821]
Anatomical structure [3708]
Organ part [9898]
Organ component [14065]
Macroscopic organ component [10467]
Macroscopic organ component of nerve [12227]
Ganglion [5884]

See 2000 ambiguity study.
1.20 Match Phrase: **glucose** Count: 188019 --- Example Seq_No: 19066

Glucose@bacs.carb [ Biologically Active Substance | Carbohydrate ]

D-Glucose. A primary source of energy for living organisms. It is naturally occurring and is found in fruits and other parts of plants in its free state. It is used therapeutically in fluid and nutrient replacement.

MSH99
- Chemicals and Drugs (MeSH Category) [D]
- Carbohydrates and Hypoglycemic Agents [D9]
- Carbohydrates [D9.203]
- Monosaccharides [D9.203.546]
- Hexoses [D9.203.546.359]
- Glucose [D9.203.546.359.448]

Glucose <2> (Glucose measurement)@lbpr [ Laboratory Procedure ]

SNM198

PROCEDURES
LABORATORY PROCEDURES AND SERVICES
CHEMISTRY PROCEDURES
SPECIFIC SUBSTANCE CHEMISTRY TESTS
Glucose measurement, NOS [P3-72940]

1.21 Match Phrase: **growth** Count: 327039 --- Example Seq_No: 10365

Growth <1>@orgf [ Organism Function ]

A normal increase in body size and weight

MSH99
- Biological Sciences (MeSH Category) [G]
- Physiological Processes [G7]
- Growth and Embryonic Development [G7.553]
- Growth [G7.553.481]

growth <2>@ftcn [ Functional Concept ]

1.22 Match Phrase: **immunosuppression** Count: 5336 --- Example Seq_No: 14522

Immunosuppression <2> (Natural immunosuppression)@orgf [ Organism Function ]

natural, usually physiologic downregulation of the immune system; compare with ARTIFICIAL IMMUNOSUPPRESSION.

SNM2
- Function Axis
  - Function and Functional Units of the Immune System
  - Immunologic Responses and Immune States
  - Immunosuppression [F-41380]

Immunosuppression <1> (Therapeutic immunosuppression)@topp [ Therapeutic or Preventive Procedure ]

deliberate suppression of immune system function for experimental or therapeutic purposes.
Prevention or inhibition of the immune system to respond to foreign substances in the body.
Therapy used to decrease the body’s immune response, such as drugs given to prevent transplant rejection.

MSH99
- Analytical, Diagnostic and Therapeutic Techniques and Equipment (MeSH Category) [E]
- Therapeutics [E2]
- Biological Therapy [E2.95]
- Immunotherapy [E2.95.520]
- Immunosuppression [E2.95.520.450]

1.23 Match Phrase: **implantation** Count: 13864 --- Example Seq_No: 7102

Implantation <1> (Blastocyst Implantation, natural)@orgf [ Organism Function ]

Endometrial implantation of the blastocyst.
Selected Cases

MSH99
Biological Sciences (MeSH Category) [G]
Reproductive and Urinary Physiology [G8]
Reproduction [G8.520]
Ovum Implantation [G8.520.500]

Implantation <2> (Implantation procedure)@topp [Therapeutic or Preventive Procedure]
Therapeutic insertion of inert or radioactive material

SNM2
Procedure Axis
Operations and Anesthesia Procedures
Injection - Implantation
Implantation [P-1270]

1.24 Match Phrase: inhibition Count: 373527 --- Example Seq_No: 195
Inhibition <1> (Psychological inhibition)@menp [Mental Process]
The interference with or prevention of a behavioral or verbal response even though the stimulus for that response is present; in psychoanalysis the unconscious restraining of an instinctual process.

MSH99
Psychiatry and Psychology (MeSH Category) [F]
Behavior and Behavior Mechanisms [F1]
Behavior [F1.145]
Inhibition (Psychology) [F1.145.544]

Inhibition, NOS (inhibition, physical)@moft [Molecular Function]
The depression or arrest of a metabolic function.

SNM2
Function Axis
General Body Function and Dysfunction
General Metabolic Functions and Activities
Inhibition [F-04170]

1.25 Match Phrase: japanese Count: 10056 --- Example Seq_No: 1972

CSP98
named group [4005-0038]
ethnic group [2725-3724]
Asian /Pacific Islander [2725-9372]
Japanese [2726-0024]

Japanese <1> (Japanese language)@lang [Language]

RCD98
Additional values [X78J]
Intellectual concepts and systems [XaC2o]
World languages [Xa6bm]
Independent language [Xa6eQ]
Japanese language [Xa6eU]

1.26 Match Phrase: lead Count: 152811 --- Example Seq_No: 1118
Lead@elii [Element, Ion, or Isotope]
A soft, grayish metal with poisonous salts; atomic number 82, atomic weight 207.19, symbol Pb. (Dorland, 28th)

MSH99
Chemicals and Drugs (MeSH Category) [D]
Inorganic Chemicals [D1]
Elements [D1.268]
1. Selected Cases

Cases for Ambiquity Study

Metals, Heavy [D1.268.556]
Lead [D1.268.556.435]
Lead <2> (Lead measurement, quantitative)@lbpr [ Laboratory Procedure ]
CPT99
Pathology and Laboratory Tests
Chemistry Pathology and Laboratory Tests
Lead [83655]

1.27 Match Phrase: man Count: 275231 --- Example Seq_No: 1946
Man <3> (Homo sapiens)@humn,popg [ Human | Population Group ]
SNM2
Etiology Axis
Fungi, Parasites, Insects and Animals
Chordates
Homo sapiens [E-4957]
MAN <1> (Male)@orga [ Organism Attribute ]
use in conjunction with a disease, disorder, dysfunction, body system, or function which is gender specific.
Used for all-male populations when sex is pertinent to the focus of the study. For comparison of sexes use
HUMAN SEX DIFFERENCES.
SNM2
Topography Axis
General Body Topography; Integumentary, Hematopoietic and Lymphatic Systems
General Body Topography
Male [T-00XY0]
man <2> (Men)@popg [ Population Group ]
Human adult males as cultural, psychological, sociological, political, and economic entities.
MSH99
Persons (MeSH Category) [M]
Persons [M1]
Men [M1.390]
Third sense may be rare since it is generally associated with the plural men, not the singular man.

Mole <2> (Benign melanocytic nevus of skin)@neop [ Neoplastic Process ]
RCD98
Clinical findings [XaBVJ]
Disorders [X0003]
Dermatological disorder [M....]
Naevi, hamartomas and developmental anomalies [X50JN]
Benign melanocytic naevus of skin [X78Uv]
Mole <1> (Mole the mammal)@mamm [ Mammal ]
Any of numerous burrowing mammals found in temperate regions and having minute eyes often covered with skin.
MSH99
Organisms (MeSH Category) [B]
Vertebrates [B2]
Mammals [B2.649]
Insectivora [B2.649.473]
Moles [B2.649.473.450]
Mole <4> (Nevus, Pigmented)@neop [ Neoplastic Process ]
A nevus containing melanin. The term is usually restricted to nevocytic nevi (round or oval collections of melanin-containing nevus cells occurring at the dermoeidermal junction of the skin or in the dermis proper) or moles, but may be applied to other pigmented nevi. (From Dorland, 27th ed)
MSH99
Diseases (MeSH Category) [C]
Neoplasms [C4]
Neoplasms by Histologic Type [C4.557]
Nevi and Melanomas [C4.557.665]
Nevus [C4.557.665.560]
Nevus, Pigmented [C4.557.665.560.615]
mol@qnco [ Quantitative Concept ]
RCD98
Unit [X8001]
Unit of amount of substance [X800o]
SI unit of amount of substance [X800p]
mol [X800q]

Consider suppressing third sense (which is a kind of sense one). Note that mol is an abbreviation of mole with third definition in Dorland’s 27th edition: that amount of a substance (in a system) that contains as many elementary entities (atoms, ions, molecules, or radicals) as there are carbon atoms in 12 grams of carbon-12 (12C), or that amount of a chemical compound whose mass in grams is equivalent to its formula mass (see gram-molecule, and see gram molecular weight, under weight. A mole is considered to be equal to 6.023 × 1023 (Avogadro’s number) elementary entities. Abbreviated mol.
See 2000 ambiguity study.

1.29 [571] Match Phrase: mosaic Count: 5367 --- Example Seq_No: 157418
Mosaic <3> (Embryonic Mosaic)@comd [ Cell or Molecular Dysfunction ]
SNM198
MORPHOLOGY
CELLULAR AND SUBCELLULAR ABNORMALITIES
MOSAICISM
Mosaicism, NOS [M-60100]
Mosaic <4>@inpr [ Intellectual Product ]
AOD95
communication, information, and education [N]
information technology [NJ]
computer technology [NJ6]
computer software [NJ6.4]
information management software [NJ6.4.4]
information access software [NJ6.4.4.2]
Mosaic [NJ6.4.4.2.2U]
Mosaic <2> (Mosaicism <1>)@orga [ Organism Attribute ]
The occurrence in an individual of two or more cell populations of different chromosomal constitutions, derived from a single zygote.
MSH99
Biological Sciences (MeSH Category) [G]
Genetics [G5]
Cytogenetics [G5.148]
Mosaicism [G5.148.630]
Mosaic <1> (Spatial Mosaic)@spco [ Spatial Concept ]
RCD98
Additional values [X78tJ]
Descriptors [XM0Dh]
Distributions [X7908]
Mosaic [X78zL]
See 2000 ambiguity study.
Nutrition <4> (Feeding and dietary regimes)@topp  [ Therapeutic or Preventive Procedure ]
RCD98
  Operations, procedures and interventions [Xa22Y]
  Regimes and therapies [X71ZT]
  Feeding and dietary regimes [Xa97T]
Nutrition@orga  [ Organism Attribute ]
  State of the body in relation to the consumption and utilization of nutrients.
  Extent to which nutrients are available to meet metabolic needs
  Nourishment of the body with balanced food in a manner that energy, maintenance, and growth processes occur.
SNM2
  Function Axis
  General Body Function and Dysfunction
  General Body States, Conditions and Activities
  Nutritional state [F-01690]
Nutrition <3> (Nutrition outcomes)@inpr  [ Intellectual Product ]
  Outcomes that describe an individual’s nutritional patterns and status
NOC97
  Physiologic Health [2]
  Nutrition [K]
Nutrition <1> (Science of nutrition)@bmod,orgf  [ Biomedical Occupation or Discipline | Organism Function ]
  The science of food, the nutrients and other substances contained therein, their action, interaction, and balance in relation to health and disease.
MSH99
  Biological Sciences (MeSH Category) [G]
  Health Occupations [G2]
  Nutrition [G2.513]
Consider collapsing second and third senses.
See 2000 ambiguity study.

1.31  Match Phrase: pathology  Count: 101183 --- Example Seq_No: 1807
Pathology@bmod  [ Biomedical Occupation or Discipline ]
  A specialty concerned with the nature and cause of disease as expressed by changes in cellular or tissue structure and function caused by the disease process.
MSH99
  Biological Sciences (MeSH Category) [G]
  Health Occupations [G2]
  Medicine [G2.403]
  Specialties, Medical [G2.403.776]
  Pathology [G2.403.776.600]
  pathology <2> (pathological)@ftcn  [ Functional Concept ]
    Used for organ, tissue, or cell structure in disease states.
MSH99
  anatomy & histology [Y2]
  cytology [Y2.20]
  pathology [Y2.20.10]
  pathology <3>@patf  [ Pathologic Function ]
CSP98
  disorder /disease [0944-4756]
  pathology [0944-7360]
Second sense is a MeSH subheading; ignore it.
1.32  [48] Match Phrase: **pressure**  Count: 89543 --- Example Seq_No: 11042
PRESSURE <4> (Baresthesia)@orf  [ Organ or Tissue Function ]
SNM2
  Function Axis
  Function and Abnormal Function of the Nervous and Musculoskeletal Systems
  Functions and Functional Disorders of the Nervous System
  Sensory Functions and Disorders
  Baresthesia [F-82590]
Pressure@ftcn  [ Functional Concept ]
SNM2
  Function Axis
  General Body Function and Dysfunction
  General Metabolic Functions and Activities
  Pressure [F-04700]
Pressure <3> (Pressure - action)@topp  [ Therapeutic or Preventive Procedure ]
RCD98
  Additional values [X78tJ]
  Activities, functions and processes [XaBiV]
  Clinical action [XM0Zw]
  Clinical actions P-Z [XM0It]
  Pressure - action [X79wg]
Pressure <1> (Pressure- physical agent)@qnco  [ Quantitative Concept ]
MSH99
  Physical Sciences (MeSH Category) [H]
  Physical Sciences [H1]
  Physics [H1.671]
  Pressure [H1.671.691]
See 2000 ambiguity study.

1.33  Match Phrase: **radiation**  Count: 19020 --- Example Seq_No: 12772
Radiation <1> (Electromagnetic Energy)@npop  [ Natural Phenomenon or Process ]
  Emission or propagation of electromagnetic energy (waves/rays), or the waves/rays themselves; a stream of
  electromagnetic particles (electrons, neutrons, protons, alpha particles) or a mixture of these. The most
  common source is the sun.
MSH99
  Physical Sciences (MeSH Category) [H]
  Physical Sciences [H1]
  Physics [H1.671]
  Radiation [H1.671.768]
Radiation <2> (Radiation therapy)@topp  [ Therapeutic or Preventive Procedure ]
  The use of ionizing radiation to treat malignant neoplasms and other benign conditions. The most common
  forms of ionizing radiation used as therapy are x-rays, gamma rays, and electrons. A special form of radiother-
  apy, targeted radiotherapy, links a cytotoxic radionuclide to a molecule that targets the tumor. When this mole-
  cule is an antibody or other immunologic molecule, the technique is called RADIOTHERAPY.
  Radiation therapy (also called radiotherapy) uses high-energy radiation from x-rays and other sources to kill
  cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radio-
  therapy) or from materials that produce radiation (radioisotopes) that are placed inside the body in the area
  where the cancer cells are found (internal radiation therapy, implant radiation, or brachytherapy). Systemic
  radiation therapy involves giving a radioactive substance, e.g., a radiolabeled monoclonal antibody, that circu-
  lates throughout the entire body.
  use PHOTOTHERAPY, LASER THERAPY, or ULTRAVIOLET THERAPY for therapeutic radiation with
  visible, laser, or ultraviolet light, respectively.
MSH99
Analytical, Diagnostic and Therapeutic Techniques and Equipment (MeSH Category) [E]
Therapeutics [E2]
Radiotherapy [E2.810]

1.34 Match Phrase: reduction Count: 343047 --- Example Seq_No: 224
Reduction <2> (Reduction (chemical))@npop [ Natural Phenomenon or Process ]
SNM2
Function Axis
  General Body Function and Dysfunction
  General Metabolic Functions and Activities
  Reduction [F-04320]
Reduction <1> (Reduction - action)@hlca [ Health Care Activity ]
CD98
  Additional values [X78tJ]
  Special atomic mapping values [Xa1o6]
  Surgical procedure atoms [XaBfw]
  Surgical action [Xa1om]
  Actions by primitive [Xa8HG]
  Modification - action [Xa8HK]
  Reduction - action [X79ws]

or
RCD98
  Additional values [X78tJ]
  Activities, functions and processes [XaBfV]
  Clinical action [XM0Zw]
  Clinical actions P-Z [XM0It]
  Reduction - action [X79ws]

Second sense may require clarification and my not include the notion of reduction of fracture.

1.35 Match Phrase: repair Count: 153341 --- Example Seq_No: 3175
Repair <1> (Repair - action)@tpp [ Therapeutic or Preventive Procedure ]
RCD98
  Additional values [X78tJ]
  Special atomic mapping values [Xa1o6]
  Surgical procedure atoms [XaBfw]
  Surgical action [Xa1om]
  Actions by primitive [Xa8HG]
  Modification - action [Xa8HK]
  Structural modification [Xa9ks]
  Repair - action [X79ww]

Repair, NOS (Surgical repair, NOS)@tpp [ Therapeutic or Preventive Procedure ]
RCD98
  Additional values [X78tJ]
  Special atomic mapping values [Xa1o6]
  Surgical procedure atoms [XaBfw]
  Surgical action [Xa1om]
  Actions by primitive [Xa8HG]
  Modification - action [Xa8HK]
  Structural modification [Xa9ks]
  Repair - action [X79ww]
  Surgical repair [X90RT]
Repair <2> (Wound Healing)@orgf [ Organism Function ]
  Restoration of integrity to traumatized tissue.
1.36 Match Phrase: \textbf{resistance} Count: 193155 --- Example Seq No: 15192

\begin{itemize}
  \item Resistance \texttt{<2>}@menp [ Mental Process ]
  \item Synonym: Resistance (Psychotherapeutic)
  \item resistance \texttt{<1>}@socb [ Social Behavior ]
\end{itemize}

AOD95

social sciences, economics, and law [L]
social psychology [LA]
type of relationship and interaction [LU]
collaboration, competition, conflict, and outcome [LX]
attack and defend [LX10]
resistance [LX10.6]

1.37 Match Phrase: \textbf{scale} Count: 163169 --- Example Seq No: 6878

\begin{itemize}
  \item Scale \texttt{<1>} (Integumentary scale)@bpoc [ Body Part, Organ, or Organ Component ]
\end{itemize}

SNM198

TOPOGRAPHY
INTEGUMENTARY SYSTEM
SKIN AND SKIN APPENDAGES
ANIMAL SKIN STRUCTURES AND APPENDAGES
Scale [T-01764]

\begin{itemize}
  \item Scale \texttt{<2>} (Intellectual scale)@inpr [ Intellectual Product ]
\end{itemize}

RCD98

Attribute [X75Mq]
Rank [XC007]
Scale [Xa0cf]

\begin{itemize}
  \item Scale, NOS (Weight measurement scales)@mnoB [ Manufactured Object ]
\end{itemize}

SNM198

PHYSICAL AGENTS, FORCES, AND ACTIVITIES
PHYSICAL AGENTS
HOSPITAL, MEDICAL AND SURGICAL EQUIPMENT
HOSPITAL FURNITURE AND AMBULATION DEVICES
Scale, NOS [A-17300]

1.38 Match Phrase: \textbf{secretion} Count: 322391 --- Example Seq No: 19258

\begin{itemize}
  \item Secretion \texttt{<2>} (Bodily secretions)@bdsu [ Body Substance ]
\end{itemize}

Endogenous substances produced through the activity of intact cells of glands, tissues, or organs. They do not include hormones or enzymes.

MSH99

Anatomy (MeSH Category) [A]
Fluids and Secretions [A12]
Bodily Secretions [A12.200]

\begin{itemize}
  \item secretion \texttt{<1>} (Process of secretion)@biof [ Biologic Function ]
\end{itemize}

Used for the discharge across the cell membrane, into the intracellular space or ducts, of endogenous substances resulting from the activity of intact cells of glands, tissues, or organs.
Senses two and three seem to be the same, and sense two is a MeSH subheading.

1.39 Match Phrase: sensitivity  Count: 356771 --- Example Seq_No: 3223
Sensitivity <3> (Antimicrobial susceptibility)@lbtr  [ Laboratory or Test Result ]
RCD98
Clinical findings [XaBVJ]
History and observations [X76sU]
Laboratory test observations [X76sW]
Microbiology observation [X76xj]
Antimicrobial susceptibility [X76yq]
Sensitivity <2> (Personality Sensitivity)@fndg,menp  [ Finding | Mental Process ]
NOC97
Psychosocial Health [3]
Social Interaction [P]
Social Interaction Skills [1502]
Sensitivity [150204]
Sensitivity <1> (Statistical sensitivity)@qnco  [ Quantitative Concept ]

1.40 Match Phrase: sex  Count: 179105 --- Example Seq_No: 7346
Sex <1> (Coitus)@inbe,orgf  [ Individual Behavior | Organism Function ]
Sexual intercourse.
MSH99
Psychiatry and Psychology (MeSH Category) [F]
Behavior and Behavior Mechanisms [F1]
Behavior [F1.145]
Sex Behavior [F1.145.792]
Coitus [F1.145.792.188]
Sex, NOS (Gender)@orga  [ Organism Attribute ]
do not confuse with SEX BEHAVIOR.
RCD98
Clinical findings [XaBVJ]
History and observations [X76sU]
Gender [XC00J]
Sex <2>@orga  [ Organism Attribute ]
The totality of characteristics of structures and functions differentiating the male from the female organism.
SEX includes sexology, the study of the differences and interactions between the sexes. It does not include various sexual factors in epidemiology and statistics or the role of the sexes or differences in behavior, psychology, and sociology.
Conceptually broad array term referring to the structural, functional, or behavioral characteristics of males and females of a given species. Use a more specific term if possible. For comparisons of the sexes use HUMAN SEX DIFFERENCES or ANIMAL SEX DIFFERENCES.
MSH99
Biological Sciences (MeSH Category) [G]
Reproductive and Urinary Physiology [G8]
Reproduction [G8.520]
Sex [G8.520.900]

Senses two and three seem to be the same, but please review.

1.41 Match Phrase: **single** Count: 491479 --- Example Seq_No: 7046
Single <2> (Singular)@qnco  [ Quantitative Concept ]
RCD98
Additional values [X78tJ]
Descriptors [XM0Dh]
Numerical descriptors [Xa0Pd]
Single [X90gt]
single <1> (Unmarried <2>)@popg  [ Population Group ]
AOD95
demographic characteristics [T]
marital status [TG]
single [TG2]
No definitions.

1.42 Match Phrase: **strains** Count: 231615 --- Example Seq_No: 13467
Strains <2> (Microbiology subtype strains)@inpr  [ Intellectual Product ]
CD98
Additional values [X78tJ]
 Ranked categories [XM0J7]
Types [X90UB]
Microbiology subtypes [Xa0Bn]
Strains [Xa0CX]
Strains <1> (Muscle strain)@inpo  [ Injury or Poisoning ]
ICD10
Diseases of the musculoskeletal system and connective tissue
Soft tissue disorders
Disorders of muscles
Other disorders of muscle
Muscle strain [M62.6]

1.43 Match Phrase: **support** Count: 295751 --- Example Seq_No: 965
Support@socb  [ Social Behavior ]
CD98
Operations, procedures and interventions [Xa22Y]
Regimes and therapies [X71ZT]
Support [X71Fv]
Support, NOS@medd  [ Medical Device ]
UMD99
Technical Aids for the Disabled [TEC]
Orthoses and Supports [TEC.530]
Supports [TEC.530.200]

1.44 Match Phrase: **surgery** Count: 506651 --- Example Seq_No: 4961
Surgery <3>@ttop  [ Therapeutic or Preventive Procedure ]
CSP98
technology /technique [4000-0348]
surgery [2846-3981]
Surgery <1> (Surgery specialty)@bmod [ Biomedical Occupation or Discipline ]
A specialty in which manual or operative procedures are used in the treatment of disease, injuries, or deformities.

MSH99
Biological Sciences (MeSH Category) [G]
Health Occupations [G2]
Medicine [G2.403]
Specialties, Surgical [G2.403.810]
Surgery [G2.403.810.762]
surgery <2>@topp [ Therapeutic or Preventive Procedure ]
Used for operative procedures on organs, regions, or tissues in the treatment of diseases, including tissue section by lasers. It excludes transplantation, for which “transplantation” is used.

MSH99
therapy [Y11]
surgery [Y11.70]

Third sense is a MeSH subheading; ignore it.

1.45 Match Phrase: transient Count: 117271 --- Example Seq_No: 16701
Transient <2> (Transient Population Group)@popg [ Population Group ]
Transient <1> (Transitory)@tmco [ Temporal Concept ]
RCD98
Additional values [X78tJ]
Descriptors [XM0Dh]
Time patterns [XM0DI]
Courses [Xa48J]
Acute [X906m]
Transient [X78v6]

1.46 Match Phrase: transport Count: 169839 --- Example Seq_No: 2399
Transport <1> (Biological Transport)@celf [ Cell Function ]
The movement of materials (including biochemical substances and drugs) across cell membranes and epithelial layers, usually by passive DIFFUSION.

MSH99
Biological Sciences (MeSH Category) [G]
Biochemical Phenomena, Metabolism, and Nutrition [G6]
Metabolism [G6.535]
Biological Transport [G6.535.166]
Transport <2> (Patient Transport)@hlca [ Health Care Activity ]
Moving a patient from one location to another
NIC96
PHYSIOLOGICAL: BASIC (NIC Domain) [1]
Immobility Management [C]
Transport [0960]

1.47 Match Phrase: ultrasound Count: 147917 --- Example Seq_No: 1947
ultrasound <1> (Ultrasonic)@flcn [ Functional Concept ]
Ultrasound <3> (Ultrasonic Shockwave)@npop [ Natural Phenomenon or Process ]
That part of the science of acoustics dealing with the frequency range beyond the upper limit of perception by the human ear (beyond 20,000 hertz per second), but usually restricted to frequencies above 500,000 hertz per second. Ultrasonic radiation is injurious to tissues because of its thermal effects when absorbed by living matter, but in controlled doses it is used therapeutically to selectively break down tissues, as in treatment of arthri-
tis and lesions of the nervous system, and also as a diagnostic aid by visually displaying echoes received from irradiated tissues, as in echocardiography and echoencephalography. (Dorland, 28th ed)

Sound waves with frequencies above the range of human hearing.

MSH99
- Physical Sciences (MeSH Category) [H]
- Physical Sciences [H1]
- Physics [H1.671]
- Acoustics [H1.671.31]
- Ultrasonics [H1.671.31.849]

Ultrasonography <2> (Diagnostic Procedure)@diap

high frequency sound waves used to identify and examine internal organs and structures without the invasive hazards of X rays, dyes, or fluoroscopy.

The visualization of deep structures of the body by recording the reflections of echoes of pulses of ultrasonic waves directed into the tissues. Use of ultrasound for imaging or diagnostic purposes employs frequencies ranging from 1.6 to 10 megahertz.

The use of sound waves to visualize the inside of the body.

SNM2
- Procedure Axis
  - Radiography, Radiation Therapy, Nuclear Medicine and Ultrasonic Procedures
    - Diagnostic Ultrasound Procedures
      - Echography [P-X910]

First sense is not well-defined; ignore it

1.48 Match Phrase: variation  Count: 157539 --- Example Seq_No: 21

Variation <2> (Variant)@qlco

MSH99
- Biological Sciences (MeSH Category) [G]
  - Genetics [G5]
    - Genetics, Population [G5.414]
      - Variation (Genetics) [G5.414.918]

1.49 [67] Match Phrase: weight  Count: 66483 --- Example Seq_No: 3332

Weight <2> (Body Weight)@orga.qnco

MSH99
- Analytical, Diagnostic and Therapeutic Techniques and Equipment (MeSH Category) [E]
  - Diagnosis [E1]
    - Diagnostic Techniques and Procedures [E1.370]
      - Physical Examination [E1.370.600]
        - Body Constitution [E1.370.600.110]
        - Body Weight [E1.370.600.110.120]
  - Weight [E1.370.600.110.120]

RCD98
- Additional values [X78tJ]
- Descriptors [XM0Dh]
- Dimensions [X7917]
- Weights [XM0Dk]
See ambiguity study.

1.50 Match Phrase: **white** Count: 135923 --- Example Seq_No: 9803

**WHITE <1> (Caucasians)@popg** [Population Group]

An ethnic group of the Caucasoid Race.
Populations of European, North African, or Southwest Asian descent. May also be used to refer to population groups in these areas when cultural or ethnic comparisons are studied. Use CAUCASIANS to access references from 73-81.

MSH99

Anthropology, Education, Sociology and Social Phenomena (MeSH Category) [I]
Social Sciences [I]
Anthropology [I1.76]
Anthropology, Cultural [I1.76.201]
Culture [I1.76.201.450]
Ethnic Groups [I1.76.201.450.416]
Whites [I1.76.201.450.416.650]

**White <3> (Caucasoid Race)@popg** [Population Group]

A major racial group distinguished by classification according to physical features. This group, also called Europoid, centers around the Mediterranean Sea but includes central and northern Europe. They are indigenous also to northern Africa, southwestern Asia, and India. (Winick: Dictionary of Anthropology, 1972; American Heritage Dictionary, 2d College ed)

MSH99

Anthropology, Education, Sociology and Social Phenomena (MeSH Category) [I]
Social Sciences [I]
Anthropology [I1.76]
Anthropology, Physical [I1.76.368]
Racial Stocks [I1.76.368.763]
Caucasoid Race [I1.76.368.763.284]

**White <2> (White color)@qlco** [Qualitative Concept]

SNM198

MORPHOLOGY
GENERAL MORPHOLOGIC TERMS
COLORS

White color [M-04170]

First and second senses are the same; ignore one of them.