

A Taxonomy of Semantic Relations

The following is an excerpt from Chapter 3 of Bejar et al. (1991), pages 58 to 64.

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The resulting taxonomy consists of 10 families or classes of relations, each with a number of specific relations as members. A brief characterization of each class follows:

1. CLASS INCLUSION: one word names a class that includes the entity named by the other word.
2. PART-WHOLE: one word names a part of the entity named by the other word, or something that is characteristically not a part.
3. SIMILAR: one word represents a different degree or form of the object, action, or quality represented by the other word.
4. CONTRAST: one word names an opposite or incompatible of the other word.
5. ATTRIBUTE: one word names a characteristic quality, property, or action of the entity named by the other word.
6. NONATTRIBUTE: one word names a quality, property, or action that is characteristically not an attribute of the entity named by the other word.
7. CASE RELATION: one word names an action that the entity named by the other word is usually involved in, or both words name entities that are normally involved in the same action in different ways, e.g., as agent, object, recipient, or instrument of the action.
8. CAUSE-PURPOSE: one word represents the cause, purpose, or goal of the entity named by the other word, or the purpose or goal of using the entity named by the other word.
9. SPACE-TIME: one word names a thing or action that is associated with a particular location or time named by the other word.
10. REPRESENTATION: one word names something that is an expression or representation of, or a plan or design for, or provides information about, the entity named by the other word.

These brief descriptions give a general sense of the 10 families. However, they do not indicate the variety of relations in each family. To appreciate that variety, example word pairs are presented below for each subclass of relation. Specific relations marked with an asterisk in the following list are not used in GRE analogies but are discussed in the literature and are included here for the sake of completeness.

1. CLASS INCLUSION

- a. *Taxonomic* – flower:tulip, emotion:rage, poem:sonnet, curse:anathema boxing:fighting, state:theocracy, rectangle:square, mountain:volcano
- b. *Functional* – ornament:brooch, weapon:knife
- c. *Singular Collective* – cutlery:spoon, clothing:shirt, vermin:rat, medicine:aspirin
- d. *Plural Collective* – groceries:eggs, dishes:saucers, refreshments:sandwiches, valuables:jewelry, drugs:amphetamines
- e. *Class Individual** – queen:Elizabeth, river:Nile, mountain:Everest, city:Berlin, country:France, ship:The Revenge

2. PART-WHOLE

- a. *Object:Component* – car:engine, face:nose, gear:tooth, bell:clapper, epilogue:novel, turtle:carapace
- b. *Collection:Member* – forest:tree, anthology:poem, medley:melodies, fleet:ship
- c. *Mass:Portion* – water:drop, mile:yard, pie:slice, time:moment, matter:molecule
- d. *Event:Feature* – rodeo:cowboy, banquet:food, wedding:bride
- e. *Activity:Stage* – shopping:buying
- f. *Item:Topological Part* – room:corner, mountain:foot
- g. *Object:Stuff* – glacier:ice, parquet:wood, salt:sodium, lens:glass, gunpowder:salt peter
- h. *Creature:Possession* – millionaire:money, author:copyright, robin:nest, wolf:den
- i. *Item:Distinctive Nonpart* – tundra:tree, horse:wings, herd:maverick, society:pariah, vacuum:matter, perfection:fault
- j. *Item:Ex-part/Ex-possession* – metal:dross, apostate:belief, wood:splinter

3. SIMILAR

- a. *Synonymity** – car:auto, buy:purchase, rapid:quick
- b. *Dimensional Similarity* – breeze:gale, enthusiasm:fervor, simmer:boil, skill:virtuosity, stream:river
- c. *Dimensional Excessive* – eating:gluttony, walk:swagger, stylishness:foppiness, concerned:obsessed, bleeding:hemorrhage
- d. *Dimensional Naughty* – copy:plagiarize, listen:eavesdrop
- e. *Conversion* – apprentice:master, colt:horse, grape:wine
- f. *Attribute Similarity* – rake:fork, valley:gutter, tower:needle, painting:movie
- g. *Coordinates* – ram:ewe, son:daughter
- h. *Change* – crescendo:sound

4. CONTRAST

- a. *Contradictory** – alive:dead, masculinity:femininity, remember:forget, fertile:sterile, guilty:innocent
- b. *Contrary** – old:young, happy:sad, thin:fat, smooth:rough, tall:short
- c. *Reverse** – attack:defend, buy:sell, love:hate, expand:contract, command:obey
- d. *Directional** – front:back, left:right, east:west, before:after, inside:outside
- e. *Incompatible** – happy:morbid, frank:hypocritical, vigilant:careless, slow:stationary
- f. *Asymmetric Contrary** – hot:cool, dry:moist, fat:skinny, rich:destitute, large:tiny
- g. *Pseudoantonym** – popular:shy, right:bad, believe:deny, push:stretch
- h. *Defective* – default:payment, stutter:speech, fallacy:logic, astigmatism:sight, limp:walk

5. ATTRIBUTE

- a. *Item:Attribute (noun:adjective)* – beggar:poor, idyll:carefree, glass:fragile, soldier:wounded
- b. *Object Attribute:Condition (adjective:adjective)* – brittle:broken, malleable:molded
- c. *Object:State (noun:noun)* – beggar:poverty, dupe:credulity, neophyte:inexperience

- d. *Agent Attribute:State (adjective:noun)* – contentious:quarrels, taciturn:silence, celibate:abstinence
- e. *Object:Typical Action (noun:verb)* – glass:break, sycophant:flatter, soldier:fight, juggernaut:crush, quisling:betray
- f. *Agent/Object Attribute:Typical Action (adjective:verb)* –
 (agent attribute) viable:live, mendacious:prevaricate, irresolute:vacillate
 (object attribute) salient:notice, mandatory:comply, palpable:touch
 (agent/object attribute) mutable:change, brittle:break
- g. *Action:Action Attribute** – creep:slow
- h. *Action:Object Attribute* – sterilize:infectious, capture:elusive, drink:potable
- i. *Action:Resultant Attribute (verb:noun/adjective)* – stipple:dots,riddle:holes, homogenize:uniform

6. NONATTRIBUTE

- a. *Item:Nonattribute (noun:adjective)* – harmony:discordant, bulwark:flimsy
- b. *Object Attribute:Noncondition (adjective:adjective)* – brittle:molded, inconsolable:comforted, exemplary:criticized
- c. *Object:Nonstate (noun:noun)* – laureate:honor, famine:plentitude
- d. *Attribute:Nonstate (adjective:noun)* – dull:cunning, immortal:death, celibate:promiscuity
- e. *Object:Atypical Action (noun:verb)* – recluse:socialize, ascetic:indulge, patron:disparage
- f. *Agent/Object Attribute: Atypical Action (adjective:verb)* –
 (agent attribute) reticent:talk, abstemious:gorge
 (object attribute) obtrusive:ignore, garble:comprehend, lethargic:stimulate
- g. *Action:Action Nonattribute** – creep:fast
- h. *Action:Object Nonattribute* – embellish:austere, obliterate:extant

7. CASE RELATIONS

- a. *Agent:Object* –
 (product) tailor:suit, oracle:prophecy, jury:decision
 (raw material) baker:flour, sculptor:stone
 (associated object) plumber:pipe
- b. *Agent:Recipient* – doctor:patient, mentor:protege, judge:litigant, teacher:student

- c. *Agent:Instrument* – farmer:tractor, conductor:baton, reaper:scythe, forger:pen, arsonist:match
- d. *Action:Object* – plow:earth, baste:chicken, sing:dirge, winnow:wheat, tie:knot, pardon:sin
- e. *Action:Recipient* – bequeath:heir, teach:student
- f. *Object:Recipient* – inheritance:heir, speech:audience, honor:laureate
- g. *Object:Instrument* – patient:stethoscope, water:sluice, violin:bow, pipe:wrench
- h. *Recipient:Instrument* – heir:testament

8. CAUSE-PURPOSE

- a. *Cause:Effect* – enigma:puzzlement, joke:laughter
- b. *Cause:Compensatory Action* – hunger:eat, fatigue:sleep
- c. *Enabling Agent:Object* – match:candle, gasoline:car, mnemonic:memory
- d. *Action/Activity:Goal* – eat:satiation, run:escape, competition:prize, pursuit:capture, fertilize:grow
- e. *Agent:Goal* – pilgrim:shrine, hunter:quarry, assassin:death, climber:peak
- f. *Instrument:Goal* – anesthetic:numbness, ballast:stability, camouflage:deception, gun:revenge, sophistry:deception
- g. *Instrument:Intended Action* – gun:shoot, pestle:mash, abacus:calculate, tractor:plow
- h. *Prevention* – pesticide:vermin, splint:mobility, antidote:poison, baste:dryness, lubricate:friction

9. SPACE-TIME

- a. *Item:Location* – arsenal:weapon, seminary:theologian
- b. *Location:Process/Product* – bakery:bread, school:learning
- c. *Location:Action/Activity* – school:learn, gym:exercise
- d. *Location:Instrument/Associated Item* – school:textbook, farm:tractor, beach:swimsuit, courtroom:gavel
- e. *Contiguity* – coast:ocean, sidewalk:road

- f. *Time:Action/Activity* – summer:harvest, childhood:play
- g. *Time:Associated Item* – retirement:pension, infancy:cradle
- h. *Sequence* – prologue:narrative, inception:development, coda:symphony
- i. *Attachment* – hackles:neck, belt:waist, rivet:girder, bowler:head

10. REFERENCE

- a. *Sign:Significant* – siren:danger, scepter:authority, red light:stop
- b. *Expression* – smile:friendliness, lamentation:grief, encomium:praise, hug:affection, upbraiding:disapproval, lionize:admiration
- c. *Representation* – person:portrait, backdrop:vista, diary:person, event:news story
- d. *Plan* – agenda:meeting, procedure:flowchart, recipe:cake, itinerary:journey, menu:meal, code:conduct, syllabus:course, map:city, choreography:dance, blueprint:building
- e. *Knowledge* – ornithology:birds, psychology:mind, astronomy:stars, herpetologist:salamander, ballistics:projectile
- f. *Concealment* – alias:name, code:meaning, camouflage:location, mask:face, disguise:identity, placebo:painkiller