1. Hyponymy

Turning now to truth conditional semantics, let's consider these pairs of sentences:

1a Rover is a collie./ b Rover is a dog.

2a There are tulips in the vase./ b There are flowers in the vase.

These are examples of **entailment**. If we know that sentence 1a is true, we know that 1b must also be true; but if we know that 1a is not true, we cannot say anything about the truth of 1b; if we know that 1b is true, we do not know if 1a is true or not; if we know that 1b is not true, we know that 1a is not true.

The relationship between 2a and 2b is analogous. The term *collie* is a **hyponym** of *dog* and *tulip* is a hyponym of *flower; dog* and *flower* are, respectively, the **superordinates** of *collie* and *tulip.* (Some semanticists use the term 'hyperonym' instead of 'superordinate.') We can also say 'A collie is a dog' and 'A tulip is a flower.' Any lexeme that can be substituted for a hyponym is also a hyponym.*Chihuahua, Dalmatian* and *Irish setter* are other hyponyms of *dog,* and they are **co-hyponyms** of *collie. Daffodil* and *rose* are two cohyponyms of *tulip.*

Note that the denotation of the hyponym is included in the denotation of the superordinate (the set of all collies is included in the set of all dogs), but the meaning of the superordinate is included in the meaning of the hyponym (the characteristic of being a dog is part of the characteristic of being a collie). A sentence with a hyponym (e.g. *There's a Palomino in that field*) is more informative than a sentence with the corresponding superordinate *(There's a horse in that field)*. Hyponym and superordinate may be nouns, as in the examples above. The same relation is found also in adjectives and in verbs.

- My necktie is maroon./ My necktie is red.
- The weary soldiers trudged forward./ The weary soldiers moved forward.
- We ate lunch (in the kitchen)./ We ate (in the kitchen).

2. Antonymy

- Alvin is watching television now./ Alvin isn't watching television now.

Two sentences that differ in polarity like these are mutually contradictory. If one is true, the other must be false. Two sentences that have the same subject and have predicates which are **antonyms** are also mutually contradictory.

- The television is on now./ The television is off now.

Mr Adams is an old man./ Mr Adams is a young man.

The road is wide here./ The road is narrow here.

In each of the pairs of measure adjectives above, one member is **marked** and one unmarked. The unmarked member is also the **global member** of the opposition. For example, in the pair *old* and *young, old* is the global, unmarked adjective. It is used with units of time to express age. When we say *The baby is four days old* in saying *The box is three inches deep* we are not saying that the box is deep. (Which is the global member of the pair *long/short*? *wide/narrow*?) We sometimes say things like "She is 40 years young" but this is precisely a marked expression.

Binary and non-binary antonyms

There are different kinds of antonymous relationships. *On* and *off* are **binary antonyms:** an electric light or a radio or a television set is either on or off; there is no middle ground. Other binary pairs are *open/shut, dead/alive, asleep/awake*. The

terms *old* and *young* are **non-binary antonyms** and so are *wide* and *narrow*. They are opposite ends of a scale that includes various intermediate terms:

 Mr Adams may be neither old nor young, the road may be something between wide and narrow. (Non-binary antonyms are also called polar antonyms; like the North and South Poles, they are at opposite ends with territory between them. Analogously, binary antonyms might be called hemispheric antonyms; as with the Northern and Southern hemispheres [or the Eastern and Western hemispheres], there is no space in between, only a line of demarcation. Some semanticists use the term 'complementary antonyms' in place of 'binary antonyms'and 'contrary' instead of 'non-binary.') Adjectives that are non-binary antonyms can easily be modified: *very old, rather young, quite wide, extremely narrow,* and the like.

Converse antonyms

To illustrate synonymy, hyponymy and antonymy in the previous sections we presented pairs of sentences; each sentence of a pair had the same subject and different predicates; each predicate had a valency of one—there was only a subject and no other referring expression. The next paired sentences contain **converse predicates,** which necessarily have a valency of 2 or more.

1a The map is above the chalkboard.

1b The chalkboard is below the map.

2a Sally is Jerry's wife. (Sally is the wife of Jerry)

2b Jerry is Sally's husband. (Jerry is the husband of Sally)

Converseness is a kind of antonymy between two terms. For any two converse relational terms X and Y, if [a] is the X of [b], then [b] is the Y of [a]. In 1a *map* has the role of Theme and *chalkboard* the role of Associate; in 1b the roles are reversed. The same applies to *Sally* and *Jerry* in 2a and 2b.

If A gives X to B, B receives X from A. All three of these pairs of predicates are built around the relationship of **source** and **goal:**

3a Danny broke a window.

3b A window was broken (by Danny).

4a Olga wrote a marvelous essay.

4b A marvelous essay was written (by Olga).

5a Simon climbed the wall.

5b The wall was climbed (by Simon).

Symmetry and reciprocity

A special kind of converseness is the use of a single term in a **symmetrical** relationship, seen in these examples:

1a Line AB is parallel to Line CD.

1b Line CD is parallel to Line AB.

This relationship can also be expressed as:

1c Line AB and Line CD are parallel to each other.

or simply as:

1d Line AB and Line CD are parallel.

2b The truck and the bus collided.

3b Tom and Ann agreed.

4b Prescott and Dudley correspond.

5b The market research department and the sales department communicate. we are informed that the truck collides with the bus and the bus with the truck, and the action is likewise symmetrical in 2b–4b. (2b-4b are ambiguous as they stand, of course, since these sentences may be the result of ellipsis: The truck and the bus collided with a taxi, Tom and Ann agreed with me, and so on.) The verbs in these sentences are **reciprocal predicates,** not symmetrical predicators.

If *X* is a reciprocal predicate, the relationship *a X b* does not entail *b X a* but *a and b X* does entail *a X b* and *b X a* (leaving aside the possible ambiguity).

Reciprocal predicates are mostly verbs like those in sentences 2b–5b and the following: argue-with concur-with conflict-with co-operate-with correlate-with intersect-with merge-with overlap-with embrace fight (with) hug

3. Homonymy and Polysemy

Both polysemy and homonymy require identical pronunciation, but whereas in homonymous pairs the different meanings are not related to one another, polysemous pairs require a close semantic relationship between the meanings of the words, ideally of the sort exemplified in (6):

a. He still goes to school (school = the institution)
b. School is on strike today (school = all pupils, teachers, etc.)
c. Our school is classified as a historical monument (school = the building)
d. Schools should be identifiable as such from the outside (school = the building, but because of the additional as such at the same time also the institution)

Such systematic differences, arising as variants of one core meaning (= the institution), have a special name: the phenomenon is called regular polysemy. Homonymies and irregular polysemies like bank and glasses, respectively, are isolated phenomena, the difference being that the two readings of the latter word are felt to be obviously related; regular polysemy is something systematic that can be observed with a whole range of expressions, like *Schule*/school, *Krankenhaus*/hospital, *Kirche*/church, etc.). Here are some more examples where the semantic relation between the two meanings is of the more opaque sort:

a. bright: shining or intelligent
b. to glare: to shine intensely or to stare angrily
c. a deposit: minerals in the earth, or money in the bank, or a pledge, or . . .

For the linguistic layman this kind of relationship between words seems to be the most interesting aspect of semantics, giving rise to endless debates and historical speculations about the nature of the similarity.6 In any case, the borderline between polysemy and homonymy seems rather blurry if the criterion is whether typical speakers see a connection between the readings.

7. b. Professor and bachelor differ in meaning.
c. Precipitation is a more general term than drizzle .
d. Dog and cat are incompatible with each other.

Example (7-b) states a non-identity of meaning; this can also be called a sense relation, albeit normally a very uninformative one. Example (7-c) is more

interesting. It says that one notion includes the other, or, in other words, it logically implies the other. The more general including term is called a hypernym or sometimes hyperonym (*Oberbegriff*), the more special included term is called a hyponym (*Unterbegriff*). If a term A is a **hyperonym** of B, then B is a hyponym of A. The relation of inclusion is called hyponymy. The reverse relation of being included is called **hyperonymy**. The part–whole relation is an important one holding between all sorts of things; this further sense relation is called **meronymy**. For example, toe is a meronym of foot, since a toe is part of a foot.

Homonyms are traditionally defined as different words with the same form. We can immediately improve this definition, in the light of what was said in the preceding section, by substituting 'lexeme' for 'word5. But the definition is still defective in that it fails to take account of the fact that, in many languages, most lexemes have not one, but several, forms. Also, it says nothing about grammatical equivalence.

Absolute homonymy: absolute homonyms will satisfy the following three conditions (in addition to the necessary minimal condition for all kinds of homonymy - identity of at least one form):

(i) they will be unrelated in meaning;

(ii) all their forms will be identical;

(iii) the identical forms will be grammatically equivalent.

Absolute homonymy is common enough: cf. 'bank1, 'bank 2'; 'sole!1 ("bottom of foot or shoe"), 'sole 2' ("kind offish"); etc. But there are also many different kinds of what I will call **partial homonymy:** i.e., cases where (a) there is identity of (minimally) one form and (b) one or two, but not all three, of the above conditions are satisfied. For example, the verbs 'find' and 'found' share the form *found,* but not *finds, finding, or founds, founding,* etc.; and *found* as a form of 'find' is not grammatically equivalent to *found* as a form of 'found'. In this case, as generally in English, the failure to satisfy (ii) correlates with the failure to satisfy (iii).

SYNONYMY

Expressions with the same meaning are **synonymous.** Two points should be noted about this definition. First it does not restrict the relation of synonymy to lexemes: it allows for the possibility that lexically simple expressions may have the same meaning as lexically complex expressions. Second, it makes identity, not merely similarity, of meaning the criterion of synonymy. In this latter respect, it differs from the definition of synonymy that will be found in many standard dictionaries and the one with which lexicographers themselves customarily operate.

Many of the expressions listed as synonymous in ordinary or specialized dictionaries (including *Rogefs Thesaurus* and other dictionaries of synonyms and antonyms) are what may be called **near-synonyms:** expressions that are more or less similar, but not identical, in meaning. Near-synonymy, as we shall see, is not to be confused with various kinds of what I will call **partial synonymy,** which meet the criterion of identity of meaning, but which, for various reasons, fail to meet the conditions of what is generally referred to as absolute synonymy. Typical examples of near-synonyms in English are 'mist' and Tog', 'stream' and 'brook', and 'dive' and 'plunge'.

Let me now introduce the notion of **absolute synonymy,** in contrast not only with near-synonymy, but also with the broader notion of synonymy, just defined, which covers both absolute and partial (i.e., non-absolute) synonymy.

Two (or more) expressions are absolutely synonymous if, and only if, they satisfy the following three conditions:

(i) all their meanings are identical;

(ii) they are synonymous in all contexts;

(iii) they are semantically equivalent (i.e., their meaning or meanings are identical) on all dimensions of meaning, descriptive and non-descriptive.

Descriptive synonymy: (identity of descriptive meaning)

Two expressions have the same descriptive meaning (i.e., are descriptively synonymous) if, and only if, propositions containing the one necessarily imply otherwise identical propositions containing the other, and vice versa. By this criterion, 'big' and 'large' are descriptively synonymous (in one of their meanings and over a certain range of contexts). For instance, one cannot without contradiction simultaneously assert that someone lives in a big house and deny that they live in a large house.

One of the classic examples of descriptive synonymy is the relation that holds (or perhaps used to hold) in English between 'bachelor' (in one of the meanings of 'bachelor') and 'unmarried man'. (There are those who would deny that these two expressions are descriptively synonymous, nowadays, on the grounds that a divorced man, though unmarried, is not a bachelor.

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