Semantics (Seminar *Introduction to Linguistics*, Andrew McIntyre)

1. Sense relations

A good way to begin thinking about semantic problems is to look at **sense relations** (**semantic relations**), i.e. how meanings of one expression (e.g. a word, phrase, sentence) relate to the meanings of other expressions.

1.1. Synonymy

- **Synonymy** subsists when two expressions have the same meaning (they are **synonyms**):

(1) *nevertheless/nonetheless, boy/lad, large/big, lawyer/attorney, toilet/lavatory*

- There are few, if any, **exact synonyms**. There are usually subtle meaning differences between apparent synonyms. Other complications with calling expressions synonymous:
  - Dialectal/idiolectal differences: synonyms used by different speakers:

(2) *power socket*[US/British]*/power point*[Australian/British], *lightbulb*[normal]*/lightglobe*[rare], *Autumn/Fall, bloke/dude/guy, bucket/pail*

  - Style level: elevated/neutral/colloquial/slang/crude:

(3) *inebriated / drunk / smashed / trolleyed / pissed*
(4) *pass away / die / kick the bucket / cark it / croak*
(5) *violin / fiddle, money / dough, lunatic / loony / basket case*

  - Collocation-specific meanings: words may have special meanings found in particular collocations (memorised combinations) which the other "synonym" doesn't have:

(6) *big sister* vs. *large sister; kick the bucket/kick the pail*

  - Differences in range of senses: there are many cases where synonymy may at best subsist between one expression and one *sense of* another expression:

(7) *hard/difficult, get/receive, convenience/bathroom*

- Language resists absolute synonymy since it is uneconomical.
- Children assume that new words they hear are not synonyms of other words.
- If we talk about the meanings of larger expressions like sentences, we can distinguish two notions that are partly related to synonymy:
  - **Entailment**: The truth of one expression implies the truth of another. E.g.

(8) *John was killed* entails *John is dead*.

  - **Paraphrase**: two sentences are true under the same conditions:

(9) *John is Mary's brother* and *Mary is John's sister* are paraphrases.

1.2. Ambiguity

- **Structural/syntactic ambiguity**: a sentence has more than one possible syntactic structure resulting in different meanings, even if all words have the same meaning:

(10) a. Linda [VP discussed [NP her relationship [PP with Frank]]].
b. Linda [VP discussed [NP her relationship] [PP with Frank]].

(11) a. She has read many books on political affairs in recent years.
b. Her hobbies are traditional folk music and literature.
c. She said that you were a complete loser at the party.

- **Lexical ambiguity**: a word/morpheme has more than one meaning, but the different meanings are not associated with different structures. The context may or may not favour one of the meanings.

(12) She was at the bank. [river bank/financial institution]

- Examples where both syntactic and lexical ambiguity are involved:

(13) a. The crew are revolting. [*-ing*-participles can be verbs or adjectives]
b. He sold her flowers.

A. Identify the ambiguities in the sentences below, and say whether they are structural or lexical. If they are structural, describe the syntactic differences (perhaps using trees).

1. *The blind man picked up a hammer and saw.*
2. *Do you have more interesting books?*
3. *He picked an apple.*
4. *He read many articles on political affairs in the seventies.*
5. *The boss talked about the workers in the garden.*
6. *He likes fish.*
7. *He bought her books*

1.3. Sources of lexical ambiguity: Homonymy and polysemy

- **Homonymy**: relation between semantically unrelated words which happen to have the same pronunciation (**homonyms**):

(14) *pupil*, *wring/ring*, *bank, bar, lap, let*

- **Polysemy**: a **polysemous** word has different, but related, senses:

(15) a. I drank the glass. b. I broke the glass.
(16) a. He left the school five minutes ago b. He left the school five years ago
(17) a. I put the ball in the box. b. I put a tick or cross in the box.

More on the differences between homonymy and polysemy

- Homonymy involves two different words. Polysemy involves one word with different senses or uses.
- Historical relatedness is a bad criterion for distinguishing homonymy from polysemy. Speakers may not know about etymology. Senses of polysemous words can drift so far apart that they are perceived as separate words. (All senses of *bank, have* and *do* are historically related, cf. www.etymonline.com)
- Polysemy, unlike homonymy, is often systematic: differences between senses of polysemous words correspond to differences between senses of other words:

(18) a. The {church/school/university} has a flat roof. [building]
b. The {church/school/university} donated money to charity. [people]
c. He enjoys {church/school/university}. [process]

(19) a. The {door/window} is green. [moving part]
b. I threw the ball through the {door/window}. [opening]

(20) a. They went to {Paris/Kabul/Washington}. [capital city]
b. {Paris/Kabul/Washington} changed its foreign policy. [national government]
c. {Paris/Kabul/Washington} supports the government. [people]

- The same instances of polysemy are often (if not always) found with words in different languages. This doesn't apply to homonymy.

(21) a. Die Kirche unterstützt die Regierung. b. The church supports the government.
(22) a. Die Kirche wurde 1664 erbaut. b. The church was built in 1664.

Brief remarks on the theory of polysemy

- Differences of opinion about polysemy: Some linguists assume that polysemy involves shifts from a basic meaning to another meaning. Others assume underspecification: a polysemous word has a very general, abstract meaning which covers all the subsenses.

1.4. Sources of polysemy: metaphor and metonymy

- **Metonymy**: the use of one word to describe a concept associated with the concept normally expressed by that word. Examples (among others in previous section):

(23) a. The pianist was playing *Beethoven* (=a work by Beethoven)
b. *The chair* is under *the table* (*chair* = seat of chair; *table* = tabletop)

c. They counted the *heads* at the meeting (*heads* = people)

- **Metaphor**: the use of the the term for one concept X to refer to another concept Y, where X and Y have properties in common.

(24) a. That guy is a *pansy/fridge/machine/tiger*.
b. The newspaper report *exploded* the myths about Egbert Jones' private life.
c. She said to her ex-boyfriend 'You've *chewed on my heart and spat it out again.*'
d. He's got nerves *of steel* and a heart *of stone*.
e. The preacher said that heavy metal music *rips your mind and soul to pieces*.

- Compare metaphors to **similes** (structures like (25) were the italicised elements express explicitly that a comparison is being made). Metaphors are essentially similes without these explicit comparison expressions.

(25) a. His mind is *like* a computer. [deleting *like* yields a metaphor]
b. That guy at the door is built *like* a fridge.
c. The way Bill criticised John *resembled* beating him over the head with a stick.
d. Talking to Bill *is like* trying to knit a sweater with only one needle.

- If metaphoric expressions are interpreted literally, they often yield impossible interpretations: *John has a screw loose* doesn't make sense literally, so we are forced to interpret it metaphorically.
- Metaphors are often thought of as a literary/rhetorical device, but they are also common in everyday language, even in cases of so-called **dead metaphors** which are not consciously perceived as metaphorical (e.g. *go into* a subject; expert *in* a *field*).
- Some linguists (e.g. Cognitive Grammarians) define *metaphor* as a pattern of thought rather than something purely linguistic. In this definition, a metaphoric expression is not itself a metaphor but a *realisation of a metaphor*. Examples (metaphors in capitals):

(26) TIME IS MONEY: *spend/save/invest time; my time ran out*
(27) THE MIND IS A COMPUTER: *My mind is on the blink/malfunctioned/needs more input*
(28) LIFE IS A JOURNEY: *my life is going nowhere; this is a dead-end job; I'm at a rossroads in my life; my life is headed in the wrong direction; I chose a difficult path for my life*
(29) STATES ARE LOCATIONS: *I flew into a rage; He is in a sad state; I went into a depression; it went from bad to worse; how can we get him out of this self-pity?*
(30) GOOD STATES ARE UP: *this brings me down; high spirits; this raised my spirits*
(31) VIRTUE IS UP: *high-minded, a low trick, uplifting thoughts, stoop to illegal activities*
(32) TIME IS SPACE: It was *at/around/towards/near* three o'clock; Christmas was *approaching/far off/near*; the day *came* when…;

- Note that some such metaphoric schemata subsume others.

1.5. Antonymy

- **Antonymy** (relations of opposition or contrast):
  - **Binary (non-gradable) antonymy:** Negation of one of a pair of antonyms entails the other antonym. These are either-or decisions with no middle ground.

(33) *dead/alive, possible/impossible, female/male, odd/even (numbers), hit/miss (targets)*

  - **Gradable antonymy:** antonyms at opposite ends of a *scale* with varying degrees possible.

(34) a. *rich/poor, young/old, fast/slow, near/far*
b. *hot/warm/tepid/cool/cold*

- Tests for gradability:

(35) a. COMPARATIVE: *Mary is {more intelligent/more feminine/*more female} than John*
b. DEGREE MODIFIERS: *Mary is <u>very</u> {intelligent/*dead}*
*Mary {hated/admired/*hit/*electrocuted} John <u>very much</u>*

- These terms are often relative: a *long* pencil might be shorter than a *short ruler* and an *intelligent animal* could be less intelligent than a *stupid person*. Also intermediate terms:.

- Note on **markedness**: sometimes one member of a pair/scale of antonyms is *unmarked* in the sense that it can stand for a the whole scale:

(36) a. John is 1 metre {tall/*short}. b. How {long/*short} is the rope?
c. The baby is 1 week {old/*young}

- Standards with gradable adjectives are *relative*, cf. (37). The degree of the property is judged according to the norm for the type of entity modified by the adjective (its *comparison class*). (38) illustrates expressions mentioning comparison classes explicitly.

(37) *A small horse is larger than a large dog.*
(38) a. *He's young* ***for a president/compared to other presidents***
b. *He's healthy* ***as drug addicts go.***
c. *She's well-read* ***considering that she's eight years old.***

1.6. Meronymy

- **Meronymy** part-whole relations:

(39) a. body>arm>hand>finger b. bike>wheel>tyre>valve

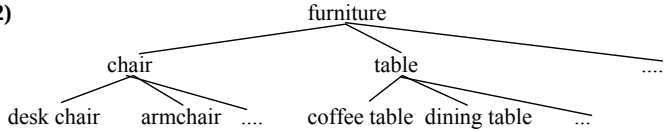
- In many languages, certain expressions treat parts in the same way as possessions. The relation between possessor and possession is called **alienable possession** (possessor can choose to get rid of possession), while the relation between part and whole is an instance of **inalienable possession** (possessor can't (easily) get rid of the possession).

(40) ALIENABLE: Mary has a car; Mary's car; people with cars
(41) INALIENABLE: Mary has red hair; Mary's red hair; people with red hair

1.7. Hyponymy and taxonomies

- **Hyponymy**: relationship of the type "x is a more specific instance of y". Examples/terms:
  - *dog* is a **hyponym** of *animal*
  - *animal* is a **hypernym** (also: *hypernym, superordinate term*) of *dog*
  - *dog, cat* are **cohyponyms** (*taxonomic sisters*)
  - **Taxonomy**: classification of concepts in hyponymic or co-hyponymic relations:

(42)



- **Autohyponym**: a term with two meanings, one of which is the hypernym of the other. E.g. *waiter* (hyperonym for *waiter/waitress*); *cow* (hyperonym for *cow/bull*); *hoover*.
- Taxonomies may differ between cultures/languages/individuals. Language reflects **folk taxonomies** (non-scientific classifications which needn't correspond with reality, e.g. many view *whale* as a hyponym of *fish*, although this is scientifically inaccurate).
- In many taxonomies there are the three levels of generality seen in (43). The **basic level** has a privileged status in several ways. It is the most general level where all members of the category have roughly similar shapes and perhaps a common visual representation. Most frequent level used in naming entities (*Look! There's an {elephant/*animal/*African elephant}*. Basic level terms are the first ones learnt by children and are identified more quickly in experiments. They are usually shorter words than subordinate level terms (the latter are often compounds with basic level term as head: *fountain/ballpoint pen*).

(43)

Superordinate level	**Basic level**	**Subordinate level**
vehicle	*car*	*racing car/Mercedes/taxi*
animal	*horse*	*racehorse/shetland/pony*
furniture	*chair*	*desk chair/armchair/kitchen chair*

B. Name the sense relations that are relevant in the following cases. (Be as specific as possible, e.g. 'binary antonomy' rather than just 'antonymy'.)

1. *bike/vehicle*	2. *Monday/Tuesday*	3. *despite/ in spite of*
4. *wise/stupid*	5. *occupied/vacant*	6. *It is made of lead. / She led us there.*
7. *like/hate*	8. *nevertheless/nonetheless*	9. *He has left. / He is not here.*

2. On the nature of meaning

2.1. Sense and reference, and similar distinctions

- The **reference** of an expression is either (a) what it refers to in the real world or (b) the ability of the expression to refer to something in the real world. (The two senses are related by metonymy.) For our purposes **denotation** is a synonym of *reference*.
- The **sense** of the expression is its meaning minus its reference, i.e. the properties that the expression has which (a) distinguish that expression from other expressions and (b) help determine what it might have reference to.

(44) *The morning star is the evening star.* [both have same reference (=Venus), but have different sense (morning vs. evening visibility)]

(45) Kevin Rudd became Australian Prime Minister on 3.12.2007. Therefore:
a. *Kevin Rudd* [Sense: none, because proper names don't have sense; Reference: a particular politician in the Australian Labor party, born in 1957...]
b. *the current Prime Minister of Australia* [Reference: currently the same as that of Kevin Rudd; Sense: a property of a person who is the Australian head of state]

(46) *the present King of France* [Reference: none]

(47) *an elephant* [Reference: any elephant; Sense: properties include (a) having a trunk, (b) being grey, (c) being an animal originally from Africa or Asia, (d) being large...]

- A related dichotomy: **intension**: the set of all properties that constitute the sense of an expression; **extension**: all things that ever (will) have existed to which an expression can refer. Roughly, *intension=sense* and *extension=reference*.
- **Constant vs. variable reference**: Proper names have constant reference: *Julius Caesar, Greece, the Pacific Ocean, the Eiffel tower*. Variable reference subsists with other NPs, which may change their reference (cf. *she, a car, the President of the USA*).
- Contrast denotation with **connotation**, subjective, emotional aspects of meaning considered less central to definition than denotation/reference is.

2.2. Types, tokens and related notions

- **Types vs. tokens**: a *token* is a specific instance of a type of thing.

(48) a. *This car shop has only sold three cars.* [possibly "3 types of cars"; e.g. 17 Mercedes, 18 VWs and 9 Porsches]
b. *He wears the same t-shirt every day*
c. *Ralph is standing there with an empty glass again. (though it was full a minute ago/even though I have seen him order at least four beers from the bar)*
d. *I want to read an introduction to physics (but I can't find it/one).*
e. *He went to the pub on Friday nights.*

(49) a. *Tigers are dangerous animals.* [type]
b. *The tiger is a dangerous animal.* [type (=*tigers*) or token (=*that tiger*)]

- If an expression refers to a type, it has a **generic** or **non-specific** reading. Some linguists see non-specific/generic readings of an expression as *non-referential* (as lacking reference), whereas others would describe them as referring to types or kinds.
- Reference to types often involves lack of an article:

(50) a. They go to church on Sundays. b. He was elected president/leader
c. Er ist Arzt.

- Shift from mass noun to count noun, hence different article in referring to a type:

(51) a. Gruyère is a cheese. b. This is a good beer.

- The type/token distinction also applies to situations expressed by VPs/sentences, depending on whether a specific situation or a generic or habitual one is expressed. This distinction is influenced by the context, and can influence the specificity of NPs.

(52) a. Someone listened to a cd in the kitchen yesterday. [specific listening event]
b. Someone listened to a cd in the kitchen every night. [specific listening events]
c. If people listen to a cd in the kitchen... [non-specific event]

- Non-specific (generic/habitual) readings of events allow the simple present in English, otherwise we normally use the progressive (except with states).

(53) a. I listen to a cd every day. [but I am not listening to one *now*]
b. People read their e-mail with a computer.

2.3. Two views about the nature of reference

- **Representational approach** (also called *mentalist approach*): This view claims that reference is not to objects in the real word, but to concepts or objects in a mentally projected word. Evidence: we can talk about things which do not exist in the real world: *The present king of France spoke to a unicorn*.
- **Referential approach** (also called *denotational approach, real world approach*) claims that reference *is* to things in the real world. One argument for this approach is that a representational approach, in saying e.g. that *house* refers to the mental representation or concept HOUSE, merely delegates the problem of meaning to psychologists and makes use of psychological constructs about which we know little.

3. Do word meanings have clear boundaries? Prototype theory

- **Categorisation**: classifying things, events, properties in **categories**, e.g. BIRD, EAT, BLUE. This raises hard questions. E.g. when does something qualify as FURNITURE?
- *Classical model of categorisation* (Aristotle): category membership is a *binary* (yes-no) matter. Category membership describable using **necessary and sufficient conditions**:

(54) TRIANGLE: [having three sides] is both a necessary condition (all triangles have three sides) and sufficient condition (if it has three sides it is a triangle).

(55) BACHELOR has four necessary conditions [unmarried], [male], [male], [human]. Taken together these constitute a sufficient condition.

(56) PARENT: [having a child] is a necessary and sufficient condition. [having a daughter] is a sufficient but not a necessary condition (since some parents only have sons)

3.1. Arguments against the classical model

3.1.1. Graded category membership

- Rosch (1975) asked people to rate objects in terms of how good they are as instances of particular categories. The ratings spoke for **graded category membership** (category membership is a matter of degree, not an either-or question) and that categories are **fuzzy** (i.e. don't have clear boundaries).

CATEGORY	GOOD INSTANCES	AVERAGE INSTANCES	BAD INSTANCES
FURNITURE	*bed, table, chair, sofa*	*lamp, piano, mirror*	*waste bin, fridge, vase, fan*
FRUIT	*orange, apple, banana*	*fig, mango*	*nut, olive, pickle*
BIRD	*robin, sparrow, dove*	*hawk, parrot*	*ostrich, emu, penguin, bat*

- Rankings may vary due to cultural, geographical or dialectal differences.
- Further evidence for **graded category membership**:
  - People asked to name members of a category mostly name good instances first.

- **Hedges** can explicitly indicate membership to a fuzzy category (*It's a sort of horse*).
- Response times are shorter for good category members: *Is a chair a piece of furniture?* is answered more quickly than *Is a telephone a piece of furniture*?
- **Priming**: In *lexical decision tasks*, subjects are asked to decide whether a particular word belongs to their language or not. Prior exposure to the name of the category speeds up the decision with good examples of the category, but less so with less good examples. E.g. *bird* has a stronger priming effect on *sparrow* than on *penguin*.

3.1.2. Family resemblance: Wittgenstein's analysis of *game*

- Wittgenstein: no *single* feature covers all types of *games* (board/card/ball/thought games).

C. Why could the following attributes not be necessary or sufficient conditions for GAME?
1. having a winner/loser 2. being pleasant 3. having rules

D. Wittgenstein claimed that the meaning of *game* has fuzzy boundaries. Can you think of examples of events for which the applicability of *game* is unclear?

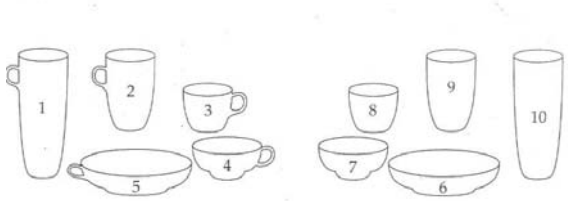
- **Family resemblance**: Certain features (e.g. being pleasant, having a winner) do not apply to all games, but all games will have at least one of these features. He used the term 'family resemblance' because members of a family often resemble each other in some points, but not in all points. E.g. three sisters: Mary is thin, blond curly hair; Jane is not thin but has blond curly hair; Ann is thin with brown straight hair.

E. The verb *climb* is often seen as a good example of a family resemblance category. Two features seem to be relevant to its meaning (i) upward movement; (ii) use of arms/legs. Decide which of these features is relevant to the following uses of *climb*. What overall generalisation emerges?

1. Mary climbed (up) the mountain.
2. Mary climbed down the mountain.
3. Fred climbed into a pair of trousers.
4. The airbus climbed {up/*down} to 20 000 feet.
5. The prices/temperatures climbed.
6. The snail climbed {up/*down} the wall.

3.1.3. Labov's experiment with the categorisation of cups and other receptacles

- Speakers consistently use *cup* for containers with handles and a height-width ratio of about 1:1 (3 in diagram below), but the naming of the other vessels was far less consistent.
- Results were affected by extra contextual info (e.g. people will call these vessels *cups, bowls, vases* if told that they contain coffee, food, flowers).



F. Try to reinterpret the above results in such a way that *cup* and *vase* have fixed rather than fuzzy definitions. The following questions/comments should help you.

1. What are the functions for which *cups, vases* and *bowls* are respectively designed?
2. How would the shape of a typical cup/vase/bowl help/hinder it from fulfilling its function?
3. Uncertainty about whether something is a member of a category like CUP may compatible with two situations: (i) that the category has fuzzy boundaries or (ii) that the category has fixed boundaries but in some cases we do not have enough information about whether the necessary conditions for the category are fulfilled.

3.1.4. Colour terms (e.g. Taylor 2003: ch. 1)

- Some results of experiments on colour perception (esp. Berlin/Kay 1969):
  A. There is little agreement between speakers of a language on boundaries between colours. There is a continuum, rather than a clear boundary, between colours.
  B. People shown a range of shades expressible by a particular colour term[1] strongly agree on the shade chosen as the central colour. This is because certain colours, **focal colours**, are perceptually salient because of how our visual system works.
- This seems to suggest that we describe a particular shade with a particular colour term by comparing that shade to the focal colour named by the term.

3.2. One proposed solution: Prototype theory

- **Prototype**: mental representation of a *typical, ideal* member of a category.
- The prototype is not to be identified with any particular *member* of the category. Thus, the prototype of BIRD is not a mental representation of a robin or sparrow.
- To categorise a thing/event/property is to compare it with the prototype for that category. E.g. a sparrow is classed as a *bird* because it shares many properties with the *bird*-prototype (having wings, flying, having feathers). Less prototypical birds like emus have fewer such properties, but are similar enough to the *bird*-prototype to count as a bird.
- This captures the findings in sect. 3.1 (fuzziness, graded category membership).
- There is disagreement on how much prototypes are based on visual information. Certain categories are probably not visually represented, e.g. abstract notions like LIE, IDEA, or very general terms (FURNITURE, THING).

3.3. Problems for prototype theory (see Löbner, ch. 9)

- There are some *absolute* judgments about category membership, which are hard to describe in prototype theory. A penguin may not be a prototypical bird, but there is no doubt that it is a bird. It is unclear how definitions using prototypes could predict this.
- The *odd number paradox*: one-digit odd numbers 1, 3, 5 are seen as better instances of odd numbers than larger odd numbers like 3491 are, although the category ODD NUMBER *is* definable by necessary/sufficient conditions and is not gradable. Thus, intuitions about graded category membership are not always proof for fuzziness and prototypes.
- Care is needed for the arguments for prototype theory based on experiments where subjects are asked to say how good X is as an example of Y. The judgments may be *metalinguistic*, i.e. reflect the subjects' beliefs about language rather than reflecting the mental processes that occur when they use language normally. They might be biased by conscious reasoning, scientific knowledge and language purism.
- Wierzbicka (1996:ch.4) argues that some (if not all) prototype analyses are basically excuses for intellectual laziness. Positing a fuzzy definition is easier than trying to find an absolute definition. She goes through various prototype analyses, arguing that absolute definitions are possible in some cases if we think harder.

  E.g. the fact that BACHELOR does not aptly describe Tarzan or the pope does not show that it has a fuzzy meaning. This could be captured by defining *bechelor* as "unmarried man who can marry *if he wants to*".

[1] Strictly a **basic colour term**, i.e. one that is morphologically simple (*red, blue,* but not *greeny-blue, bluish, blood red*), not named after objects or confined to specific types of objects (not *gold, blond*), not borrowed recently from other languages (*turquoise, chartreuse*), familiar to all speakers of language (unlike *vermilion, magenta*).

4. Thematic roles vs. grammatical relations

➢ **Thematic roles** (also called *semantic roles, theta roles, θ roles*): descriptions of the *semantic* relation between a predicate and its argument(s).

The most important thematic roles

AGENT: intentional initiator of an event

PATIENT: entity affected/changed by the event:
Fred^{AGENT} *painted the wall*^{PATIENT}.

THEME: entity whose position/direction is indicated (also used by some linguists for patients and as a cover term for cases whose thematic role is not clearly definable):
The ball^{THEME} *rolled down the hill; Fred*^{THEME} *is in the kitchen*

RECIPIENT Person receiving something:
Wayne gave his grandmother^{RECIPIENT} *an industrial grunge cd.*

BENEFICIARY Person who benefits from the event:
I made a cup of coffee for the guests^{BENEFICIARY}.

EXPERIENCER: entity which perceives something or experiences thoughts or emotions. Often experiencers perceive/react to another entity, usually called a *theme* or *stimulus*:
Basil^{EXPERIENCER} *noticed/heard/hated/understood the music*^{STIMULUS}.
The music^{STIMULUS} *appealed to Basil*^{EXPERIENCER}

INSTRUMENT: thing used to perform an action:
I wiped the table with a rag^{INSTRUMENT}.

GOAL/SOURCE: start/endpoint of a motion event:
She went from Paris^{SOURCE} *to London*^{GOAL}.

LOCATION: place where an entity/event is/occurs:
She worked in the office^{LOCATION}

➢ **Grammatical relations**: (also called *grammatical functions*) descriptions of the *syntactic* position of an argument.

Some grammatical relations

SUBJECT: NP that appears outside the VP and determines verbal inflection:
[$_{NP}$ *Fred*]^{SUBJECT} *has* [$_{VP}$ *drunk the beer*]

OBJECT: NP argument of verb appearing inside VP.
Stuart [$_{VP}$ *noticed* [$_{NP}$ *the cows*]^{OBJECT}]
Nancy [$_{VP}$ *gave* [$_{NP}$ *the visitor*]^{OBJECT} [$_{NP}$ *a drink*]^{OBJECT}]

➢ **Crucial point**: Thematic roles and grammatical relations do not correlate one-to-one:

		Subject		Object	Object
(57)	a.	[$_{AGENT}$ *Grandma*]	*broke*		[$_{PATIENT}$ *the cup*]
	b.	[$_{PATIENT}$ *The cup*]	*broke*		
(58)	a.	[$_{AGENT}$ *Mavis*]	*sent*	[$_{RECIPIENT}$ *Basil*]	[$_{THEME}$ *a letter*]
	b.	[$_{RECIPIENT}$ *Basil*]	*was sent*		[$_{THEME}$ *a letter*]

➢ An important area of grammatical research (which we lack the time to discuss) is to determine how an NP with a particular thematic role is realised using a particular grammatical relation. One point which can be made here is that (in languages like English) every sentence has a subject. This means that sentences with only one NP will always have a subject, regardless of the NP's thematic role.

G. What are the thematic roles of the underlined expressions in the following sentences. There may be more than one correct answer in some cases.

1. Jimmy worked in the office.
2. Frank made Eileen a cup of tea
3. Stanley got a book
4. Stanley got sick
5. The money went to Mavis
6. The car was destroyed by rioters
7. The knife won't cut the plastic
8. The metal polishes easily
9. Mary danced in the disco
10. Mary danced out of the room and into the garden

5. The Principle of Compositionality

- **Principle of Compositionality**: the meaning of a complex expression (i.e. any expression consisting of at least two meaningful elements, including e.g. morphologically complex words (say compounds) or syntactic constituents (say NPs, sentences) is derived from the meanings of the individual meaningful elements.

H. The underlined expressions have **idiomatic** interpretations which do not (completely) obey the Principle of Compositionality. What is meant by this?

1. Gertrude let the cat out of the bag.
2. Francine kicked the bucket.
3. Egbert is raised everyone's hackles.
4. By and large everyone was satisfied.

6. Scope

- **Scope**: the portion of the sentence to which the meaning of an expression applies, with which it interacts and whose interpretation it can influence.

Example 1: a scope ambiguity with English adjectives:

(59) *Grandma likes **French** literature and industrial grunge music.* [*French* has scope over *literature* or over *literature and industrial grunge music*]

Example 2: The scope of modal verbs and negation:

(60) a. Du **sollst** das machen. ≈ It is **necessary** that you do that.
b. Du **musst** das machen. "
c. You **need** to do that. "
d. You **must** do that. "

(61) The modal expression has scope over negation:
a. Du **sollst** das nicht machen. ≈ It is **necessary** that you do not do that.
b. You **must** not do that. "

(62) Negation has scope over the modal expression:
a. Du **musst** das nicht machen. ≈ It's not **necessary** that you do that.
b. You do not **need** to do that. "

Other examples:

(63) Bruce's father told him to mow the lawn and to water the plants *often*.

(64) Elvis *only* copied the literature for the seminar.

7. Decomposition

➢ Decomposition: division of meanings of morphemes/words into smaller units of meaning.

7.1. Example 1: Componential analysis

➢ **Componential analysis** divides meanings of words into **components** with binary values. The components are meant to be primitive (= not further decomposable).

(65)	*woman*	[+human]	[+feminine]	[+adult]
(66)	*man*	[+human]	[-feminine]	[+adult]
(67)	*girl*	[+human]	[+feminine]	[-adult]
(68)	*child*	[+human]		[-adult]

- Componential analysis of this type is useful for handling cases where many pairs of words differ with respect to a single feature:

(69) a. [+feminine] vs. [-feminine]: girl/boy, woman/man, cow/bull...
b. [-adult] vs. [+/-adult]: puppy/dog, kitten/cat, piglet/pig, foal/horse...

- Why a binary feature analysis doesn't apply to all words:

(70) a. This {boy/teenager/$^{\#}$child} is 17 years old. → [-adult] isn't precise enough
b. January → [+january] [-february] [-march]...???
c. duck → [+quack]...
d. swan, canary, emu, elephant → [-quack]...???

I. Use componential analysis to describe the differences between the words below.
horse foal stallion mare

7.2. Example 2: Causative verbs of change of state

- Causative verbs of change of state: the subject does something which causes the object to enter a state indicated by the meaning of the verb. Inchoative verbs: the subject enters the state indicated by the verb. Put otherwise, the state indicated by the verb begins to exist (*inchoative* <Latin *inchoare* 'begin'). The result state of these verbs can be expressed by a participle or adjective.

(71) a. I opened the door. [causative]
b. The door opened. [inchoative]
c. The door is open. [adjective expressing result state]

(72) a. I broke the plate. [causative]
b. The plate broke. [inchoative]
c. The plate is broken. [participle expressing result state]

(73) a. He killed someone. / Someone died. / Someone is dead.
b. They raised the price. / The price rose. / The price is high.

(74) OTHERS: dry the washing; melt the ice; pop the balloon; smash the vase

- Many linguists assume that causative variant contains inchoative variant in its meaning, and that inchoative variant contains the result state in its meaning.

(75) a. *John opened the door*
b. "John did something, and this caused the door to become open."
c. [[JOHN DO STH.] CAUSE [BECOME [THE DOOR IS OPEN]]]
causing event
result state
change of state event.

(76) *The door opened* → corresponds to the change of state event

(77) *The door is open* → corresponds to the resultative state

(78) Definitions (simplified; see e.g. Dowty 1979)
a. **[X] CAUSE [Y]** : X, a situation (e.g. an event), causes another situation, Y. In other words, X and Y occured and Y wouldn't have happened if X had not happened.
b. **BECOME [X]** expresses an event with which a state X enters into existence.

7.3. Evidence for the decomposition of verbs

- A scope ambiguity with *again*:

(79) *John opened the door* ***again.***
a. Repetitive reading: *again* indicates the repetition of the whole event.
→ **For a second time**, John opened the door.
b. Restitutive reading: *again* indicates that the result state holds again, with no necessary repetition of the event. → John **re**opened the door.

- Context for restitutive reading: The door was badly made and wouldn't shut, so had never been opened before. John repaired it, then shut it for the first time, then *opened it again*.

(80) *John opened the door again* :
a. Repetitive interpretation: *again* has scope over the whole event:
AGAIN [[JOHN DO STH.] CAUSE [BECOME [THE DOOR IS OPEN]]]
b. Restitutive interpretation: *again* only has scope over the result state:
[[JOHN DO STH.] CAUSE [BECOME [**AGAIN**[THE DOOR IS OPEN]]]]

- If the caustaive verb *open* isn't decomposed, it's hard to see what restitutitve *again* could have scope over.

Other examples of restitutive interpretations

(81) a. John was born as a slave. When he ran away, a soldier **re**captured him after a day.
b. [[A SOLDIER DOES STH.] CAUSE [BECOME [**AGAIN**[JOHN IS IN CAPTIVITY]]]]

(82) a. The doctors reattached his arm.
b. [[THE DOCTORS DO STH.] CAUSE [BECOME [**AGAIN**[HIS ARM IS ON]]]]

(83) a. John **re**opened the door.
b. On its first journey, the satellite stayed in space for three years, and ***re-entered*** the earth's atmostphere on New Year's Day, 1991.

(84) Humpty Dumpty sat on a wall
Humpty Dumpty had a great fall
All the king's horses and all the king's men
Couldn't put humpty together AGAIN.

8. References: Introductions to semantics

Most references below are textbooks on semantics. See also chapters on semantics in general introductions to linguistics like those mentioned in the course plan. The items marked # are more specific or technical works cited earlier in the handout.

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