Situations II

LING-053 Semantics 1
UCSC
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Describing situations: verbs and arguments

• Take a sentence like (1):

(1) John sent a beautiful bunch of flowers to his French girlfriend.

• The subject NP John denotes the individual called John; the object NP a beautiful bunch of flowers denotes an object (a beautiful bunch of flowers); the indirect object NP his French girlfriend denotes an individual, i.e. the French girlfriend of whatever individual John denotes.
What about the verb **send**? It contributes the information that the three entities participated in an event of sending:

1. The denotation of **John** was the **sender**.

2. The denotation of **a beautiful bunch of flowers** was the **object sent**.

3. The denotation of **his French girlfriend** was the **recipient**.
• Thematic roles:

1. **Agent**: who performs the action that is described by the verb.

   (2) **John** read the newspaper.

2. **Patient/Theme**: who/what undergoes the action/change/event described by the verb.

   (3) John read **the newspaper**.

3. **Experiencer**: who experiences a perception or feeling described by the verb.

   (4) **John** fears the outcome of the decision.

4. **Instrument**: instrument, cause by which the event described by the verb comes about.

   (5) **The knife** cut the bread.
5. **Goal**: goal of a movement.

(6) I sent a letter to **John**.

- Thematic roles are not realized always by the same syntactic phrase:

(7) John grows tomatoes in this area.

(8) Tomatoes grow in this area.

(9) A good knife cuts this bread easily.

(10) This bread cuts easily.

- More explicitly, sometimes one thematic role can even be suppressed in the syntax:

(11) John spread the rumor.

(12) The rumor was spread.
• Suppose the following:

1. John = j

2. a bunch of flowers = b

3. his girlfriend = g
Here is the predication that (1) involves:

- \( b \) is a bunch of flowers
- \( b \) is beautiful
- \( g \) is J’s girlfriend
- \( g \) is French
- \( j \) sent \( b \) to \( g \)

bunch of flowers, beautiful, French, girlfriend of John are all predicates, i.e. they are concepts that are true of some entity.

1. One-place predicates: cat, big, blue, car, flower but also intransitive verbs like walk, sneeze, etc.

(13) \( x \) is a cat/big/blue/a car/a flower.

(14) \( x \) walks/sneezes.
2. Two-place predicates: love, see, read, but also brother of, girlfriend of, fond of, bigger than, as big as.

(15) x loves/sees/reads y.

(16) z is a brother of/fond of/the girlfriend of/bigger than/as big as y.

3. Three-place predicates: give, put, introduce

(17) x gives y to z, x puts y on z, x introduces y to z.

What about believe or quit:

(18) John believes that the Earth is round.

(19) John quit smoking.
• How many arguments does a predicate have?

(20) John watches the moon with a telescope at night.

(21) John watches the moon with a telescope.

(22) John watches the moon.

(23) *John watches.

**watch** is a two-place predicate.
As the name suggests, predicates are predicates of some entity (or more than one). Predicates can be used predicatively:

(24) John is a man/a doctor/tall.

– The NP after the copula does not refer.

– Therefore, the copula does not mean identity \((x = y)\); e.g. **John is that guy over there**.

– The copula is there for syntactic reasons: it is semantically empty.
Predicate logic notation

1. PREDICATE TERMS: need arguments

2. INDIVIDUAL TERMS: serve as arguments and come in two types:
   (a) individual constants: \( j, m \)
   (b) individual variables: \( x, y, z \)

\[
\begin{align*}
\text{doctor}(x) & \quad \text{x is a doctor} \\
\text{mother-of}(x, y) & \quad \text{x is the mother of } y \\
\text{give}(x, y, z) & \quad \text{x gives } y \text{ to } z \\
\text{fond-of}(j, m) & \quad \text{j is fond of } m
\end{align*}
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