Meaning relations

LING-053 Semantics 1
UCSC
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• **Hyponymy**: an expression A is a **hyponym** of an expression B iff the meaning of B is part of the meaning of A and A is a subordinate of B.

  – The meaning of A must contain the meaning of B and further specifications.

  – If A is a **hyponym** of B, then B is a **hyperonym** of A.
1. Relations between **expressions**: A is a hyponym of B

2. Relation between **meanings**: the meaning of A contains the meaning of B

3. Relation between **denotations**: the denotation of B contains the denotation of A.

**Examples:**

1. late arrival – arrival

2. history book – book

3. tall man – man

4. Compounds: alarm clock, apple juice, TV stand, etc.
   Exception: toy gun.

**Generalization?**
• **Generalization:** If A is a hyponym of B, then A entails B.

(1) If x is A, then x is B.
Types of Oppositions

- **Opposition**: Opposition is the relation between an expression $A$ and its opposite.

- If $A$ is polysemous, then there will be one opposite for each meaning that $A$ has.

<table>
<thead>
<tr>
<th>Expression A</th>
<th>Opp. 1</th>
<th>Opp. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>old</td>
<td>new</td>
<td>young</td>
</tr>
<tr>
<td>light</td>
<td>heavy</td>
<td>dark</td>
</tr>
<tr>
<td>buy</td>
<td>steal, borrow, rent</td>
<td>sell</td>
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</tbody>
</table>
• **Antonyms**: two expressions are antonyms if they denote two opposite extremes on a given ordering or scale.

Examples:

1. old/new,

2. inexpensive/expensive,

3. safe/dangerous

**expensive**: \(d_1 \prec d_2 \prec d_3 \prec d_4 \prec d_5\)

**inexpensive**: \(d_1 \succ d_2 \succ d_3 \succ d_4 \succ d_5\)

• Are antonyms contraries or contradictories?

• They are contraries but not contradictories in that they can both be false of an object \(X\).
• **Complementaries**: two expressions are complementary iff they are logically complementary.

Reminder: Two expressions are logically complementary iff their denotations have no elements in common and together they exhaust the set of all possible cases.

(2) member, non-member.

• Complementary adjectives are not gradable. Therefore, they cannot be put in the comparative, the superlative or equative form and cannot be modified by *quite, very*. 
• **Converses**: two expressions are converses of each other iff they express the same relation from “different perspectives”.

(3) buy/sell
   \[ x \text{ buys } y \text{ from } z \iff z \text{ sells } y \text{ to } x \]

(4) borrow/lend
   \[ x \text{ borrows } y \text{ from } z \iff z \text{ lends } y \text{ to } x \]

(5) Comparatives:
   \[ x \text{ is heavier than } y \iff y \text{ is lighter than } x \]
Summary:

<table>
<thead>
<tr>
<th>Type</th>
<th>Logical relation</th>
</tr>
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<tbody>
<tr>
<td>Antonyms</td>
<td>contraries</td>
</tr>
<tr>
<td>complementaries</td>
<td>complementaries</td>
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<tr>
<td>converses</td>
<td>various</td>
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</table>