

SWE1017

Natural Language Processing

Venue:AB2-205

Topic: Thematic Roles

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History

Thematic relations were introduced in generative grammar during the mid-1960s and early 1970s (Gruber, 1976; Fillmore, 1968; Jackendoff, 1972) as a way of classifying the arguments of natural language predicates into a closed set of participant types which were thought to have a special status in grammar.

Thematic roles or relations

- ❑ Thematic relations is a term used to express the role that a noun phrase plays with respect to the action or state described by a sentence's verb.
- ❑ Thematic relations concern the nature of the relationship between the **meaning** of the verb and the **meaning** of the noun.
- ❑ They serve to capture the relationship between syntax and semantics with respect to predicates and their arguments

Thematic roles or relations

- Thematic roles, also called thematic relations are characterizations of certain semantic relationships which hold between a verb and its complements (and adjuncts).
- Allow to represent the semantic correspondence between (uses of) relational concepts in a systematic way – thereby supporting basic lexical-semantic inference.
- Support a systematic representation of the mapping between syntactic complements and semantic argument positions (role-linking).

List of Basic Thematic Roles

- ❑ Agent/Actor
- ❑ Theme/ Patient/ Object
- ❑ Recipient
- ❑ Instrument
- ❑ Source / From-Location
- ❑ Goal/ To-Location
- ❑ Beneficiary
- ❑ Experiencer
- ❑ Force / Natural Cause
- ❑ Cause
- ❑ Co-agent
- ❑ Co-theme

Agent

- ❑ The initiator of some action, capable of acting with wish
- ❑ Deliberately performs the action / as subject of active sentences
 - ❑ **The boys** caught some fish.
 - ❑ **My mother** wrote me a letter
 - ❑ **Jack** ate the beans.

Experiencer

- ❑ The entity which is aware of the action or state described by the predicate but which is not in control of the action or state.
- ❑ The entity that receives sensory or emotional input
 - ❑ **Seeta** Saw the deer.
 - ❑ **Susan** heard the song.
 - ❑ **She** likes flowers.

Theme

- ❑ The entity which is moved by an action, or whose location is described.
- ❑ Undergoes the action but does not change its state
- ❑ The thing that is said to move or remain at rest
 - ❑ I put **the book** on the table.
 - ❑ He gave **the gun** to the police officer
 - ❑ Fred threw **the rock**

Note: Sometimes used interchangeably with patient

Patient

- ❑ The entity undergoing the effect of some action, often undergoing some change of state.
 - ❑ The falling rocks crushed **the car**.
 - ❑ **The ice** melted.
 - ❑ Sam chewed **the apple**.
 - ❑ Sue mowed **the lawn**

Note: Sometimes used interchangeably with theme

Instrument

- ❑ Means by which an action is performed or something comes about.
- ❑ Used to carry out the action(preposition *with*).
 - ❑ Jamie cut the ribbon **with a pair of scissors**.
 - ❑ Jane ran **with a crutch** for Susan.
 - ❑ They opened the door **with the key**.
 - ❑ The squirrel bit the acorn **with its teeth**.

Force or Natural Cause

- ❑ Mindlessly performs the action
 - ❑ An avalanche destroyed the ancient temple.
 - ❑ Hurricane Katrina destroyed New Orleans

Location

- ❑ The place in which something is situated or takes place
- ❑ Where the action occurs / prepositions *in, on, beyond*
 - ❑ Johnny and Linda played carelessly **in the park**.
 - ❑ I'll be **at Julie's house** studying for my test.
 - ❑ I am **in the closest community hall**
 - ❑ The picture hangs **above the fireplace**.

Source / Origin

- ❑ The entity from which something moves, either literally / metaphorically
 - ❑ Where the action originated (preposition from)
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- ❑ The rocket was launched **from Central Command**.
 - ❑ She walked **away from him**.
 - ❑ The butterfly began its migration **from Mexico**.
 - ❑ Sue ran **from the policeman**

Direction or Goal

- ❑ The entity towards which something moves, either literally or metaphorically.
- ❑ where the action is directed towards (preposition to)
 - ❑ The caravan continued on **toward the distant oasis**.
 - ❑ He walked **to school**.

Recipient

- ❑ A subtype of goal involved in actions describing changes of possession
- ❑ A special kind of goal associated with verbs expressing a change in ownership, possession.
 - ❑ I sent **John** the letter.
 - ❑ He gave the book **to her**.
 - ❑ Bill sold the car **to Mary**

Beneficiary

- ❑ The entity for whose benefit the action was performed(preposition *for*)
 - ❑ He bought a car **for me**.
 - ❑ I fought **for the king**.
 - ❑ I gave the book to Jack **for Susan**.
 - ❑ Mary studied hard for **her mother**

Time , Manner

Time

- The time at which the action occurs
 - The rocket was launched **yesterday**.

Manner

- The way in which an action is carried out
 - **With great urgency**, Tabitha phoned 108.
 - **With great speed**, the cat ran across the yard to escape the dog.

Purpose, Cause

Purpose

The reason for which an action is performed

- ❑ Tabitha phoned 911 right away **in order to get some help.**

Cause

What caused the action to occur in the first place; not *for what*, rather *because of what*

- ❑ **Because Clyde was hungry,** he ate the cake.

Co-agent

In some sentences he acts with agent to perform actions

☐ Henry lifted the piano **with Jack**.

Note:

There are no clear boundaries between these relations.

For example, in "the hammer broke the window", some linguists treat *hammer* as an **agent**, some others as **instrument**

Example

They filled the pool with water. (Agent + Theme + Location)

Jack ran. (Agent only)

Jack ran with crutch. (Agent + INSTR)

Jack ran with crutch for Susan. (Agent + INSTR + Beneficiary)

Jack destroyed the car. (Agent + Theme)

Jack put the car through the wall. (Agent + Theme + Path)

END