

Semantic Roles

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UIC CS 421

Thematic Roles

- **Thematic roles:** Underlying semantic commonalities among arguments to different types of events

Natalie drinks tea. $\rightarrow \exists e, x, y \text{ Drinking}(e) \wedge \text{Drinker}(e, \text{Natalie}) \wedge \text{DrankThing}(e, y) \wedge \text{Tea}(y)$

Animate or inanimate?

Direct responsibility?

THEMATIC ROLE	DEFINITION	EXAMPLE
Agent	The volitional causer of an event	<i>The waiter</i> spilled the soup.
Experiencer	The experiencer of an event	<i>John</i> has a headache.
Force	The non-volitional causer of the event	<i>The wind</i> blows debris from the mall into our yards.
Theme	The participant most directly affected by an event	Only after Benjamin Franklin broke <i>the ice</i>
Result	The end product of an event	The city built a <i>regulation-size baseball diamond</i>
Content	The proposition or content of a propositional event	Mona asked, " <i>You met Mary Ann at the supermarket?</i> "
Instrument	An instrument used in an event	He poached catfish, stunning them with a <i>shocking device</i>
Beneficiary	The beneficiary of an event	Whenever Ann Callahan makes hotel reservations for <i>her boss</i>
Source	The origin of the object of a transfer event	I flew in from <i>Boston</i> .
Goal	The destination of an object of a transfer event	I drove to <i>Portland</i> .

Common Thematic Roles

Diathesis Alternations

- **Diathesis Alternations:** Alternate acceptable structural realizations for arguments that facilitate generalization over different surface realizations
- Often tend to correspond to different verb classes
 - **VerbNet:** <http://verbs.colorado.edu/verbnet/>

Challenges Associated with Semantic Roles

- Difficult to come up with a standard set of roles
- Difficult to define roles in general

How can these challenges be addressed?

- **Generalized semantic roles**
 - Proto-Agents
 - Proto-Patients
- **Semantic roles tailored to specific semantic classes**