Participants

Ashwini Vaidya

17th Oct 2024

- We looked at aspects of sentence level semantics in the last few classes
- How do speakers characterize situations and express degrees of commitment
- How do we portray the roles of the entities involved?

- Chomsky (1965) proposed to divide up all verbs into subcategories based on their grammatical frames.
  - put [NP PP] (put the shoes under the desk)
  - eat [NP] (ate lunch, ate at noon)
  - contribute [NP PP] (contribute some money; contribute to the Red Cross)

Here NP stands for Noun Phrase and PP for Verb Phrase

- This idea of frames based only on grammar is not useful:

Same frame- V NP PP, but different content

The frame can be invariable, but the content can be different

1. She drained **the cash** *from the account*
2. She drained **the account** *of cash*

Different frame – same content

1. She asked me what time it was [V SCOMP]
2. She asked me the time [V NP]

Evidence for a covert category

- Compare the two sentences:
  1. John ruined the table
  2. John built the table
- What did John do to the table?

Evidence for a covert category

- Compare the two sentences:
  1. John ruined the table
  2. John built the table
- What did John do to the table?
- However, the response is felicitous in (1) not (2)

Evidence for a covert category

- Compare the two sentences:
    1. John ruined the table
    2. John built the table
- What did John do to the table?
- However, the response is felicitous in (1) not (2)
- One type of syntactic object existed before the event took place (ruin) and the other after the event (build)

Evidence for a covert category

- Compare the two sentences:
    1. John ruined the table
    2. John built the table
- What did John do to the table?
- However, the response is felicitous in (1) not (2)
- One type of syntactic object existed before the event took place (ruin) and the other after the event (build)
- In both sentences, table is a grammatical object but appears to have slightly different meanings

- All the below are subjects, but are also agents, recipients, patients and possessors
    1. He hit the ball
    2. He received a blow
    3. He received a gift
    4. He has black hair

- All the below are subjects, but are also agents, recipients, patients and possessors

    1. He hit the ball
    2. He received a blow
    3. He received a gift
    4. He has black hair

- There is a link between these semantically-typed verb arguments and their respective predicates

- All the below are subjects, but are also agents, recipients, patients and possessors
  1. He hit the ball
  2. He received a blow
  3. He received a gift
  4. He has black hair

- There is a link between these semantically-typed verb arguments and their respective predicates

- Fillmore's paper 'The Case for Case' termed these as **case relations**

- All the below are subjects, but are also agents, recipients, patients and possessors

  1. He hit the ball
  2. He received a blow
  3. He received a gift
  4. He has black hair

- There is a link between these semantically-typed verb arguments and their respective predicates
- Fillmore's paper 'The Case for Case' termed these as **case relations**
- Case relations (in Fillmore's sense) do not need to be realized morphologically

- All the below are subjects, but are also agents, recipients, patients and possessors
  1. He hit the ball
  2. He received a blow
  3. He received a gift
  4. He has black hair
- There is a link between these semantically-typed verb arguments and their respective predicates
- Fillmore's paper 'The Case for Case' termed these as **case relations**
- Case relations (in Fillmore's sense) do not need to be realized morphologically
- Every argument of the verb is associated with a particular case assignment

- All the below are subjects, but are also agents, recipients, patients and possessors
    1. He hit the ball
    2. He received a blow
    3. He received a gift
    4. He has black hair
- There is a link between these semantically-typed verb arguments and their respective predicates
- Fillmore's paper 'The Case for Case' termed these as **case relations**
- Case relations (in Fillmore's sense) do not need to be realized morphologically
- Every argument of the verb is associated with a particular case assignment
- The case relations in the sentence are not inferable easily from syntactical relations alone

- Ram **ne** Mohan **ko** maara
- Notion of *karta* and *karma*
- The kind of **case relations** we are particularly interested in don't need to be realized with a case-marker or case clitic
- Moreover, a one-to-one correspondence may be misleading e.g. Ram **ko** chaand dikhaa (*ko* will not always correspond to *Patient*
- Fillmore defined Agentive, Instrumental, Dative, Factitive (result), Locative and Objective case relations in the original paper

Generalize over predicate types

1. John likes death metal (Dative-Objective)
2. Death metal pleases John (Objective-Dative)

1. John hits the ball
2. John breaks the glass
3. John cuts the cake

- All the above are Agentive and Objective
- If we are able to infer these relations between nouns, we can also infer the type of verb being used

Generalize over different surface realizations

1. John broke the window [Agentive, Objective]

Generalize over different surface realizations

1. John broke the window [Agentive, Objective]
2. The window broke [Objective]

Generalize over different surface realizations

1. John broke the window [Agentive, Objective]
2. The window broke [Objective]
3. The window was broken by John [Objective, Agentive]

Generalize over different surface realizations

1. John broke the window [Agentive, Objective]
2. The window broke [Objective]
3. The window was broken by John [Objective, Agentive]
4. The rock broke the window [Instrumental, Objective]
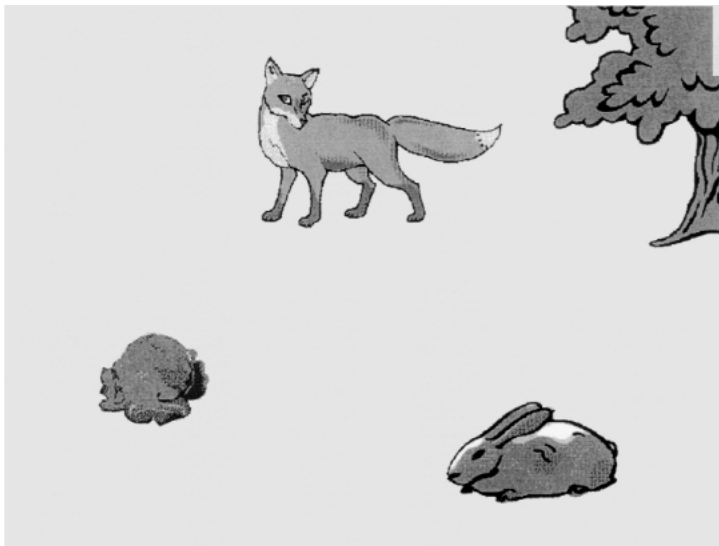
Generalize over different surface realizations

1. John broke the window [Agentive, Objective]
2. The window broke [Objective]
3. The window was broken by John [Objective, Agentive]
4. The rock broke the window [Instrumental, Objective]

- The arguments of *break* can be realized in a myriad ways, but always as some combination of Agentive, Objective and Instrumental
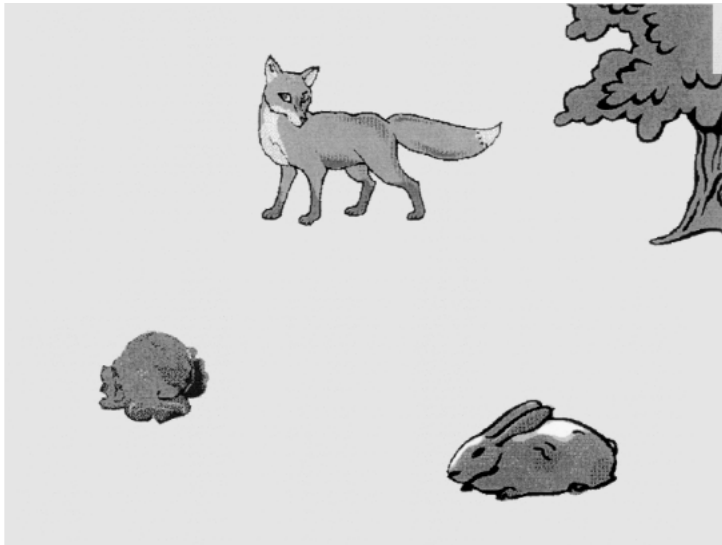
Generalize over different surface realizations

1. John broke the window [Agentive, Objective]
2. The window broke [Objective]
3. The window was broken by John [Objective, Agentive]
4. The rock broke the window [Instrumental, Objective]

- The arguments of *break* can be realized in a myriad ways, but always as some combination of Agentive, Objective and Instrumental
- We can make simple inferences from a shallow meaning representation e.g. in a document like *Company A acquired Company B* we can decide if it answers the question *Was Company B acquired ?*

Role	Description	Examples
Agent	Initiator of action, capable of volition	**The batter** smashed the pitch into left field. .
Patient	Affected by action, undergoes change of state	John broke **the window**.
Theme	Entity moving, or being "located"	Paola threw **the Frisbee**.
Experiencer	Perceives action but not in control	**He** tasted the delicate flavor of the baby lettuce
Beneficiary	For whose benefit action is performed	He sliced **me** a large chunk of prime rib.
Instrument	Intermediary	He shot the wounded buffalo with **a rifle**
Location	Place of action	The band played on the stage.
Source	Starting point	The jet took off f**rom Nairobi**.
Goal	Ending point	The ball rolled to **the corner**

- a. Der Hase frißt gleich den Kohl. (The hare-nom eats shortly the cabbage-acc)

- b. Den Hasen frißt gleich der Fuchs. (The hare-acc is eaten shortly the fox-nom)

Kamide, Scheepers and Altmann (2003)

- German-speaking participants heard these two types of sentences while looking at the pictures shown earlier (visual world paradigm)

Kamide, Scheepers and Altmann (2003)

- German-speaking participants heard these two types of sentences while looking at the pictures shown earlier (visual world paradigm)
- The authors wished to understand whether the German speakers would anticipate the target of the eating (cabbage in the first case) and (hare in the second case) as soon as they saw the first noun with case marker *Der/Den*

Kamide, Scheepers and Altmann (2003)

- German-speaking participants heard these two types of sentences while looking at the pictures shown earlier (visual world paradigm)
- The authors wished to understand whether the German speakers would anticipate the target of the eating (cabbage in the first case) and (hare in the second case) as soon as they saw the first noun with case marker *Der/Den*
- Given the array of items in the picture, it would seem most likely that the participants would anticipate these as objects

Kamide, Scheepers and Altmann (2003)

- German-speaking participants heard these two types of sentences while looking at the pictures shown earlier (visual world paradigm)
- The authors wished to understand whether the German speakers would anticipate the target of the eating (cabbage in the first case) and (hare in the second case) as soon as they saw the first noun with case marker *Der/Den*
- Given the array of items in the picture, it would seem most likely that the participants would anticipate these as objects
- Using eye-tracking, the authors showed that once the participants encountered the verb, looks towards the likely object increased

Kamide, Scheepers and Altmann (2003)

- German-speaking participants heard these two types of sentences while looking at the pictures shown earlier (visual world paradigm)
- The authors wished to understand whether the German speakers would anticipate the target of the eating (cabbage in the first case) and (hare in the second case) as soon as they saw the first noun with case marker *Der/Den*
- Given the array of items in the picture, it would seem most likely that the participants would anticipate these as objects
- Using eye-tracking, the authors showed that once the participants encountered the verb, looks towards the likely object increased
- This shows that verbal semantic constraints along with case are integrated early during sentence processing

Issues with thematic roles

- However, one challenge is that there's no universally agreed upon set of roles
- Items with the "same" role (e.g., Instrument) may have more fine-grained meanings
- E.g. intermediary instruments can appear as subjects (1-2), but enabling instruments cannot (3-4)
    1. The cook opened the jar with the new gadget.
    2. The new gadget opened the jar.
    3. Shelly ate the sliced banana with a fork.
    4. *The fork ate the sliced banana.
- Are most Agents volitional ? E.g. *A storm blew down a section of our fence* or *The tractor dragged the tree stump*
- Hindi: *maine ram-ko khaana khilaaya* - What is the role for Ram ?

Semantic frames

- As roles are too multifarious: one solution is to group them together
- Verbs denote aspects of scene:— scenes have participants.
- Verbs highlight some participants in a scene and background others

1. The price of bananas **increased** 5%
2. The price of bananas **rose** 5%
3. There has been a 5% **rise** in the price of bananas

Semantic frames

- A frame defines frame-specific semantic roles, called **frame elements** + set of predicates/phrases that use these roles
- Commercial transaction frame

BUYER	buy	GOODS	(SELLER)	(PRICE)
subject		object	from	for
Angela	bought	the owl	from Pete	for 100 dollars
Dan	sold	it	to John	
He	spent	on a new computer		100 dollars
Susan	cost	The telephone		100 dollars

∗ The last two sentences in their right order read: He spent 100 dollars on a new computer, The telephone cost Susan 100 dollars

- Frames will highlight or 'profile' certain participants depending upon the verb
- E.g in the 'Robbery' frame, it's possible to have two different verbs, rob and steal
  - Jesse robbed the rich (of all their money)

- Frames will highlight or 'profile' certain participants depending upon the verb
- E.g in the 'Robbery' frame, it's possible to have two different verbs, rob and steal
  - Jesse robbed the rich (of all their money)
  - *Jesse robbed a million dollars (from the rich)

- Frames will highlight or 'profile' certain participants depending upon the verb
- E.g in the 'Robbery' frame, it's possible to have two different verbs, rob and steal
  - Jesse robbed the rich (of all their money)
  - *Jesse robbed a million dollars (from the rich)
  - Jesse stole money

- Frames will highlight or 'profile' certain participants depending upon the verb
- E.g in the 'Robbery' frame, it's possible to have two different verbs, rob and steal
  - Jesse robbed the rich (of all their money)
  - *Jesse robbed a million dollars (from the rich)
  - Jesse stole money
  - *Jesse stole the rich (of money)

- Frames will highlight or 'profile' certain participants depending upon the verb
- E.g in the 'Robbery' frame, it's possible to have two different verbs, rob and steal
  - Jesse robbed the rich (of all their money)
  - ∗Jesse robbed a million dollars (from the rich)
  - Jesse stole money
  - ∗Jesse stole the rich (of money)
- In the cae of *rob*, victim and perpetrator are profiled/highlighted

- Frames will highlight or 'profile' certain participants depending upon the verb
- E.g in the 'Robbery' frame, it's possible to have two different verbs, rob and steal
  - Jesse robbed the rich (of all their money)
  - *Jesse robbed a million dollars (from the rich)
  - Jesse stole money
  - *Jesse stole the rich (of money)
- In the cae of *rob*, victim and perpetrator are profiled/highlighted
- In the case of *steal* the perpetrator and the valuables(source) are profiled