Jackendoff: Lexical Conceptual Structures

Martha Palmer

January 20, 2010

Semantic Decomposition

- Markers

  HORSE
  RED

  the red horse

- Functions

  SEE(x,y) *the man saw the (red) horse*
  SEE(x,HORSE)
  SEE(THE MAN,THE HORSE)
  SEE(X1, Y1)

  (What is the value? predicates?)

Five Semantic Functions

- GO
- BE
- STAY
- LET
- CAUSE

GO – Change of location

The train traveled from Detroit to Cincinatti.
The hawk flew from its nest to the ground.
An apple fell from the tree to the ground.
The coffee filtered from the funnel into the cup.

GO (x,y,z)
THROUGH THE AIR/DOWNWARD

THEME **GOES** FROM SOURCE, TO GOAL

Mapping from Syntax to Semantics

/fli/
+ V
+ [NP^1____ (from NP^2) (to NP^3)]
[GO (NP^1,NP^2,NP^3)
THROUGH THE AIR]

BE – Stationary location

Max is in Africa.
The vine clung to the wall.
The dog is on the left of the cat.
The circle contains/surrounds the dot?

BE(x,y)
THEME IS AT LOCATION

BE (THE DOG, LEFT OF (THE CAT))

STAY – Durational stationary location

The bacteria stayed in his body.
Stanley remained in Africa.
Bill kept the book on the shelf.

STAY(x,y)
THEME IS AT LOCATION for a duration

STAY (STANLEY, AFRICA) (for two years)

Locational modes: POSIT, POSS, ID

The train traveled from Detroit to Cincinatti.
[GO (x,y,z)
POSIT]

Harry gave the book to the library.
[GO (x,y,z)
POSS]

The book belonged to the library..
[BE (x,z)
POSS]

Locational modes: POSIT, POSS, ID

The bacteria stayed in his body.

{ STAY (x,z)
POSIT }

The library kept the book.

{ STAY (x,z)
POSS }

Locational modes: POSIT, POSS, ID

**The coach changed from a handsome young man to a pumpkin.*

[GO_{IDENT} (x,y,z)]

Princess Mia changed from an ugly duckling into a swan.

[GO_{IDENT} (x,y,z)]

Universal grammar?

Causation and Permission
CAUSE and LET

The rock fell from the roof to the ground.

[GO_{POSIT} (x,y,z)]

Linda lowered the rock from the roof to the ground.

[CAUSE (a, GO_{POSIT} (x,y,z))]

Linda dropped the rock from the roof to the ground.

[LET (a, GO_{POSIT} (x,y,z))]

INSTRUMENTS

Linda lowered the rock from the roof to the ground with a cable.

{ CAUSE (a, GO_{POSIT} (x,y,z))
Inst: i }

Instruments only occur with causation.
CAUSE always has an *event* second argument.

Dollie caused Martin to be happy.
Let go = causation, Odd?

Lexical Conceptual Structure

concept	POSIT	POSS	IDENT
GO	go	receive	become
motional	fall	inherit	change
BE	be	have	be
punctual	contain	own	seem
STAY	stay	keep	stay
durational	remain		remain
CAUSE(a,GO)	bring, take	obtain, give	make,elect
CAUSE(a,STAY)	keep, hold	keep, retain	keep
LET(a,GO)	drop,release	accept, fritter	
LET(a,BE)	leave, allow	permit	leave

Rules of inference

CAUSE(a, event) -> event.

Feature-based Lexicalized Tree-Adjoining Grammars

Joshi,et al 75, Joshi 85,

- Elementary trees
  - Initial trees
  - Auxiliary trees
- Two operations
  - Substitution
  - Adjunction

Same event - different syntactic frames

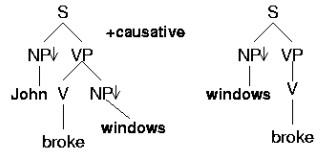
John broke windows.

SUBJ VERB OBJ

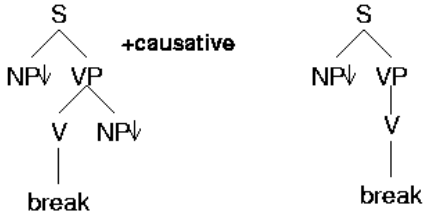
Windows broke.

SUBJ VERB

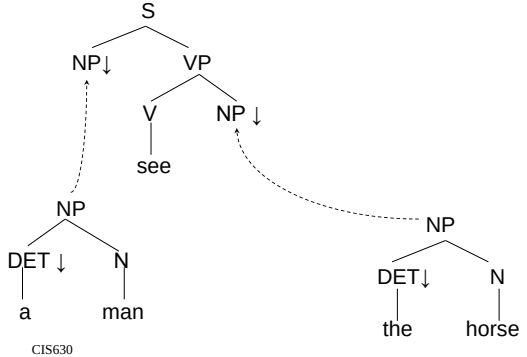
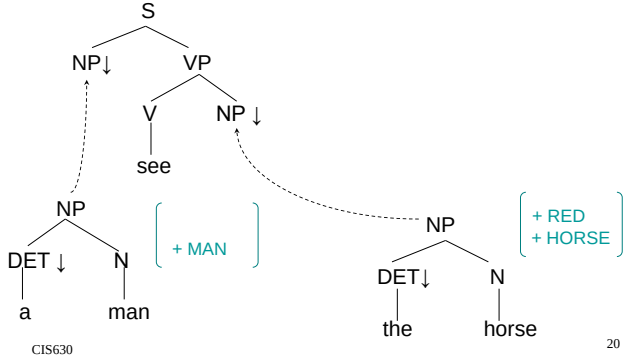
Syntactic Parses



Elementary Trees



Substituting Trees



Trees w/ Semantic Features