

# Language and Grammar

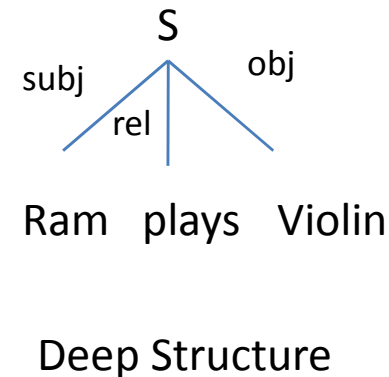
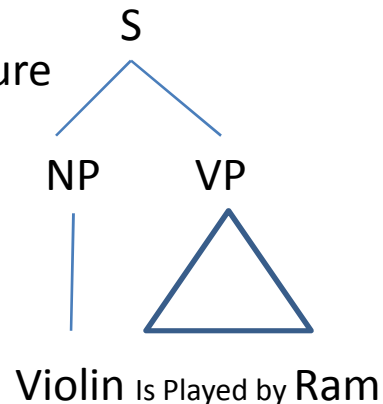
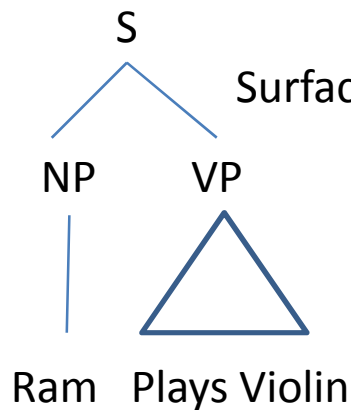
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# Language and Grammar

- Grammar defines language
- Consists of a set of rules that allows us to parse and generate sentences in a language
- Different types of grammars
  - Transformational
  - Lexical functional
  - Government and binding
  - Generalized phrase structure
  - Dependency
  - Paninian
  - Tree-adjoining
  - Link
- Grammars focus on derivation (generative grammar)
  - phrase structure
- Grammars focus on relationships
  - Lexical functional, Dependency, Paninian, Link

# Syntactic Structure

- Each sentence in a language has two levels of representations
  - Surface structure
  - Deep structure
- Mapping from deep structure to surface structure is carried out by transformations
- Sentences with different surface-level representations have the same meaning share a common deep-level representations
- Ex: Ram plays violin



# Transformational Grammar

- Three components
  - Phrase structure grammar : sentences can be generated using these rules
  - Transformational rules : transform one phrase marker (underlying) into another phrase-marker (derived)
  - Morphophonemic rules : march each sentence representation to a string of phonemes
- Each of these components consists of a set of rules

# Phrase structure grammar

S     -> NP + VP  
VP    -> V + NP  
NP     -> Det + Noun  
V      -> Aux + Verb  
Det    -> the, a, an, ...  
Verb   -> catch, write, eat, ...  
Noun   -> police, snatcher, ...  
Aux     -> wii, is, can, ...

Example : The police will catch the snatcher

Parse Tree : ???

# Transformational rules

1. NP1 – Aux – V – NP2 ->

NP2 – Aux + be + en – V – by + NP1

Example : The snatcher will be encatch by the police

2. en – V -> V – en

Example : The snatcher will be catchen by the police

- Two types
  - Obligatory : ensures agreement on number of subject and verb, etc
  - Optional : modifies the structure while preserving its meaning

# Morphophonemic rules

- catch – en -> caught

Example : The snatcher will be caught by the police