

Knowledge Requirement for Machine

- **Phonetics and Phonology**: knowledge about linguistic sounds
- **Morphology**: knowledge of the meaningful components of words
- **Syntax**: knowledge of the structural relationships between words
- **Semantics**: knowledge of meaning
- **Pragmatics**: knowledge of the relationship of meaning to the goals and intentions of the speaker
- **Discourse**: knowledge about linguistic units larger than a single utterance

Phonetics and Phonology

- **Phonetics and Phonology**: knowledge about linguistic sounds
- The study of:
language sounds systems of discrete
how they are sounds, e.g. languages'
physically formed; syllable structure

dis-k&-'nekt disconnect

Morphology

- **Morphology:** knowledge of the meaningful components of words
- The study of the sub-word units of meaning



Even more necessary in some other languages,

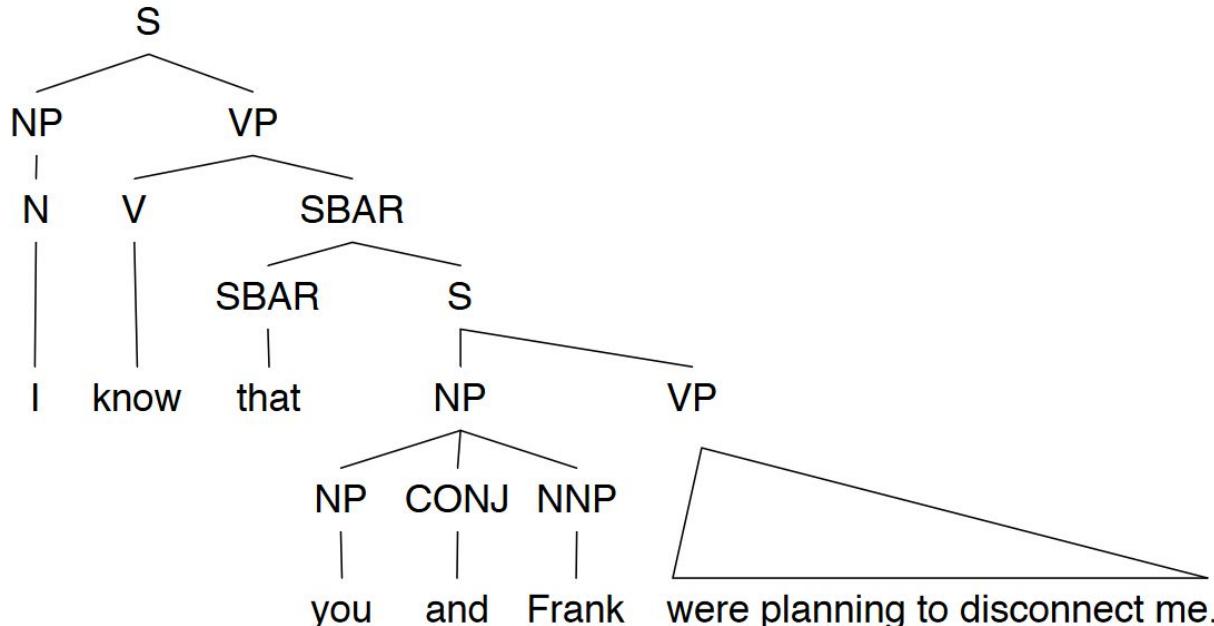
e.g. Turkish:

uygarlastirmadiklarimizdanmissinizcasina

uygar las tir ama dik lar imiz dan mis siniz casina

Syntax

- **Syntax**: knowledge of the structural relationships between words
- The study of the structural relationships between words
 - I know that you and Frank were planning to disconnect me.



Semantics

- **Semantics**: knowledge of meaning
- The study of the literal meaning
 - I know that you and Frank were planning to disconnect me.
 - ACTION = disconnect
 - ACTOR = you and Frank
 - OBJECT = me

Pragmatics

- **Pragmatics**: knowledge of the relationship of meaning to the goals and intentions of the speaker
- The study of how language is used to accomplish goals
 - What should you conclude from the fact I said something?
 - How should you react?
 - I'm sorry Dave, I'm afraid I can't do that.
 - Includes notions of polite and indirect styles

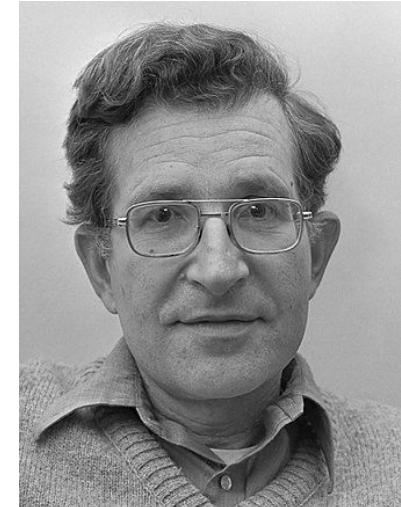
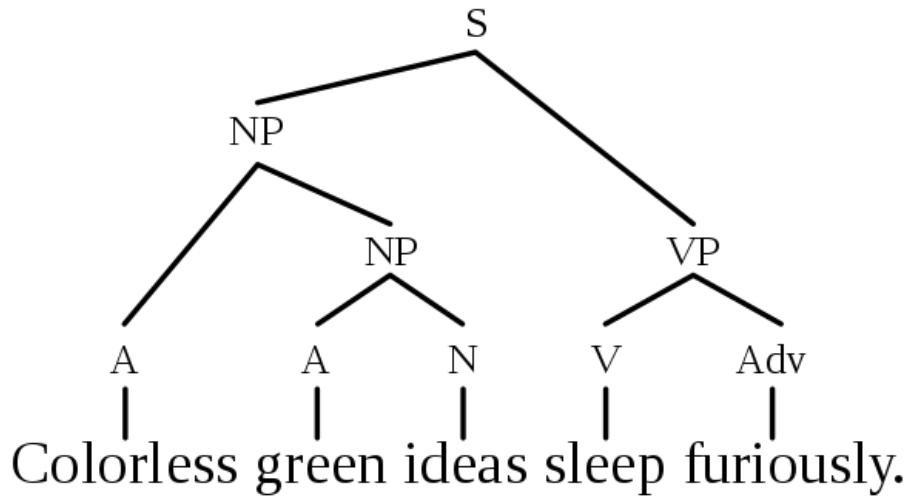
Discourse

- **Discourse**: knowledge about linguistic units larger than a single utterance
- The study of linguistic units larger than a single utterance
- The structure of conversations:
 - turn taking, thread of meaning

Syntax vs. Semantics

Colorless green ideas sleep furiously.

(example by Noam Chomsky 1957)



Noam Chomsky
The most cited person alive

Semantics vs. Pragmatics

What does "You have a green light" mean?

- You are holding a green light bulb?
- You have a green light to cross the street?
- You can go ahead with your plan?

