

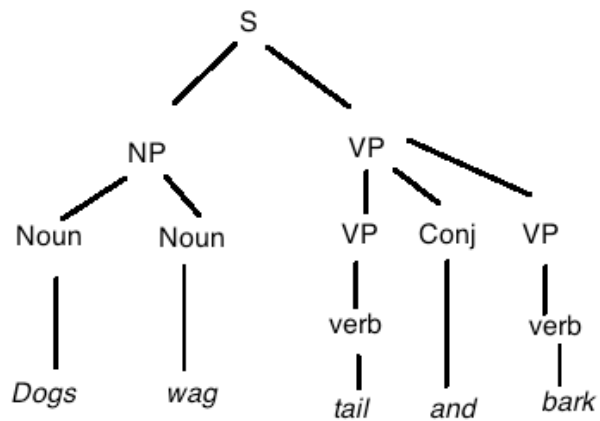
Danny Tan

AI Fall 2018

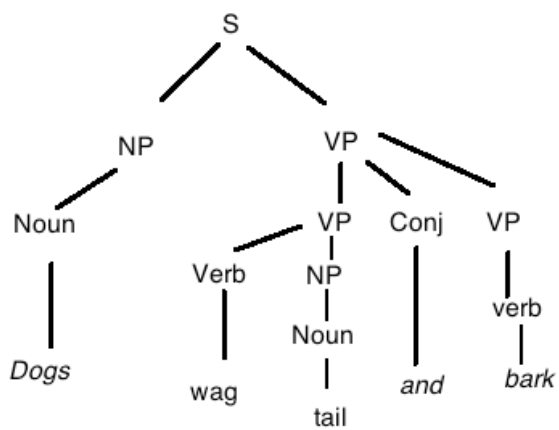
HW # 1

Problem 1:

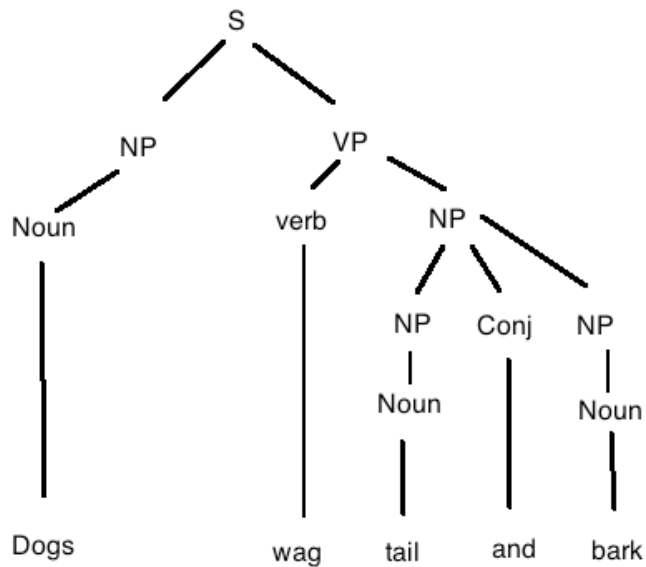
[S[NP[Noun Dogs] [Noun wag]][VP[VP[Verb tail][Conj and][VP[Verb bark]]]]]



[S[NP[Noun Dogs]][VP[VP[Verb wag][NP[Noun tail]]][Conj and][VP[Verb bark]]]]



[S[NP[Noun Dogs]][VP[Verb wag][NP[NP[Noun tail]][Conj and][NP[Noun bark]]]]]



Problem 2:

A. I bought this bouquet of roses at the deli. Isn't *it* beautiful?

“It” can be referred to “bouquet of roses” or “deli”. This can be resolved with associated frequency. “Beautiful” is more associated with “roses” than “deli” so “it” is more likely to refer to “roses”.

B. The children took out their lunches because *they* were hungry.

“They” can be referred to “children” or “lunches”. This can be resolved with selectional restrictions. The adjective “hungry” generally modifies animate objects hence “they” = “children”

C. The children took out their lunches, but *they* were growing mold.

“They” can be referred to “children” or “lunches”. This can be resolved with selectional restrictions. “Mold” is generally associated with inanimate objects so “they” is to refer to “lunches”

D. The scientists are studying three species of fish. *They* are in danger of extinction.

“They” can be referred to “scientist” or “species”. This can be resolved with associational frequency. “Extinction” is more associated with “species” than “scientist” so therefore “they” is more likely to refer to “species”.

- E. The scientists are studying three species of fish. *They* have been working for three years.

“They” can be referred to “scientists” or “species”. This can be resolved with selectional restrictions. “Working” is often associated with animated object so “they” is refer to “scientist”.

- F. The scientists are studying three species of fish. *They* were previously unknown.

“They” can be referred to “scientist” or “species”. This can be resolved with associational frequency. The adjective “unknown” is more associated with “species” than “scientist” so therefore “they” is more likely to refer to “species”.

- G. The scientists are studying three species of fish, and how *they* swim.

“They” can be referred to “scientist” or “fish”. This can be resolved with associational frequency. “Swim” is more associated with “fish” than “scientist” so “they” are more likely to refer to “fish”

- H. Before the other guests arrived, Fred murdered George and hid the body under the dining-room table, and then *he* had to be the life and soul of the party, with it there all the time.

“He” can be referred to “Fred” and “George”. This can be resolved with textual coherence as no one expects “George” to perform an action after he was murdered so “he is referred to “Fred”.

- I. Before the other guests arrived, Fred murdered George and hid the body under the dining-room table, and then he had to be the life and soul of the party, with *it* there all the time.

“It” can be referred to “the body”, “table”, “life”, “soul”, and “party”. This can be resolved with world knowledge as the preferred interpretation of “it” should be the “the body” which was hid “there (under the dining room table) all the time”

- J. What about the time you cut up tulip bulbs in the hamburgers because you thought *they* were onions?

“They” can be referred to “tulip bulbs” and “hamburgers”. This would be resolved with world knowledge. “Tulip bulbs” is more likely to be mistaken as “onions” than “hamburgers” therefore “they” will be referred to “Tulip bulbs”

Problem 3:

Lexicon:

Saw -> content: See

Man -> content: Male

Telescope -> content: Telescope

I -> Create symbol Speaker. Assert Person(Speaker). Denotation = Speaker.

Rule 1:

Given: Noun ---> obj.

Create a new symbol S.

Denotation(S) = Denotation(obj).

Rule 2:

Given: NP ---> Pron ---> i.

Denotation(NP) = Denotation(i).

Rule 3:

Given:

NP ---> Det
|
|---> NP1

Denotation(NP) = Denotation(NP1);

Rule 4:

Given:

```

NP ---> man
  |
  |---> PP ---> Prep -
                    |
                    |---> telescope

```

Create a new symbol M. Assert Owns(Denotation(man), Denotation(telescope)).
 Denotation(NP) = M.

Rule 5:

Given:

```

S ---> I
  |
  |---> VP ---> Verb
                |
                |---> man
                |
                |---> PP ---> Prep
                        |
                        |---> telescope

```

Create a new symbol E. Asset Event(E, Verb.Content)
 Assert Instrument(Event, Denotation(telescope))
 Assert Actor(E, Denotation(I))
 Assert Object(E, Denotation(man))

Rule 6:

Given:

```

S----> I
  |
  |---> VP ---> Verb
                |
                |---> man

```

Create a new Symbol E. Asset Event(E, Verb.Content)
 Assert Actor(I, Denotation(I))
 Assert Object(E, Denotation(man))