Human Communication 1
Lecture 13

Ambiguity

Ambiguity is anything that can be interpreted in more than one way or the interpretation of which is uncertain

Ambiguity: some examples

- For sale. Four poster bed. 101 years old. Perfect for antique lover.
- Iraqi Head seeks Arms.
- Neighbours complain about sex between parked cars.
- Queen Mary to have bottom scraped.
- Visiting relatives can be boring.
- Police begin campaign to run down jaywalkers.
- Time flies like an arrow; fruit flies like a banana.
  (http://en.wikipedia.org/wiki/Time_flies_like_an_arrow;_fruit_flies_like_a_banana)

Ambiguity: what to look for

- When looking at ambiguous examples, it makes sense to:

think about how you would interpret the example *if you weren't told that it's ambiguous.*

locate the source of the ambiguity

rephrase the example so that it is unambiguous This isn't always easy, if you want to end up with an unambiguous rewording.

Types of ambiguity (a)

We will look at the following types of ambiguity:

- sense
- categorial
- structural
- scope
- and phonetic

Types of ambiguity (b)

- In the first four cases, we'll see that we can model such ambiguity within our grammar, and that some ambiguities are already predicted
- There are other kinds of ambiguity we've seen so far that are not covered here
- We'll see that ambiguity can be modelled as a choice between rules, or a choice in the order of the application of rules

Sense ambiguity - I

A particular word with a particular syntactic category is associated with more than one meaning:

- The minister conducted a service.
- The minister wanted to improve his service.
- Jack and Jill asked for a 12 piece silver cutlery service for a wedding present, but they didn't get the service they wanted.

Sense ambiguity - II

- We can model this in the grammar by specifying several symbols for the same word form:

N → service with symbol "act-of-worship"

N → service with symbol "first-shot-in-tennis"

N → service with symbol "set-of-eating-utensils"

Sense ambiguity - III

N → service with symbol “forward-pass”

N → minister with symbol “cleric”

N → minister with symbol “member-of-government”

. . .

Sense ambiguity - IV

- We'll end up with *logical forms* with different meanings, and so *true with respect to different models*. In the case of "the minister improved the service", models could be:

m e	m e
cleric(m)	member-of-government(m)
improve(m, e)	improve(m, e)
set-of-eating-utensils(e)	act-of-worship(e)

and how many more?

- Read through a page of a dictionary, and note how many words have more than one meaning.

Categorial ambiguity

A word can be of more than one category:

- Can you get John to service the VCR?
- A doctor's job is to minister to the sick.

Categorial ambiguity

We can model this by having rules which introduce alternative categories:

- $V_I \rightarrow$ *service* with symbol "repair"
- $V_I \rightarrow$ *minister to* with symbol "care-for"
- In assigning a tree to a sentence, we sometimes remove categorial ambiguity.
- Read through a page of a dictionary, and note how many words may be of more than one category.

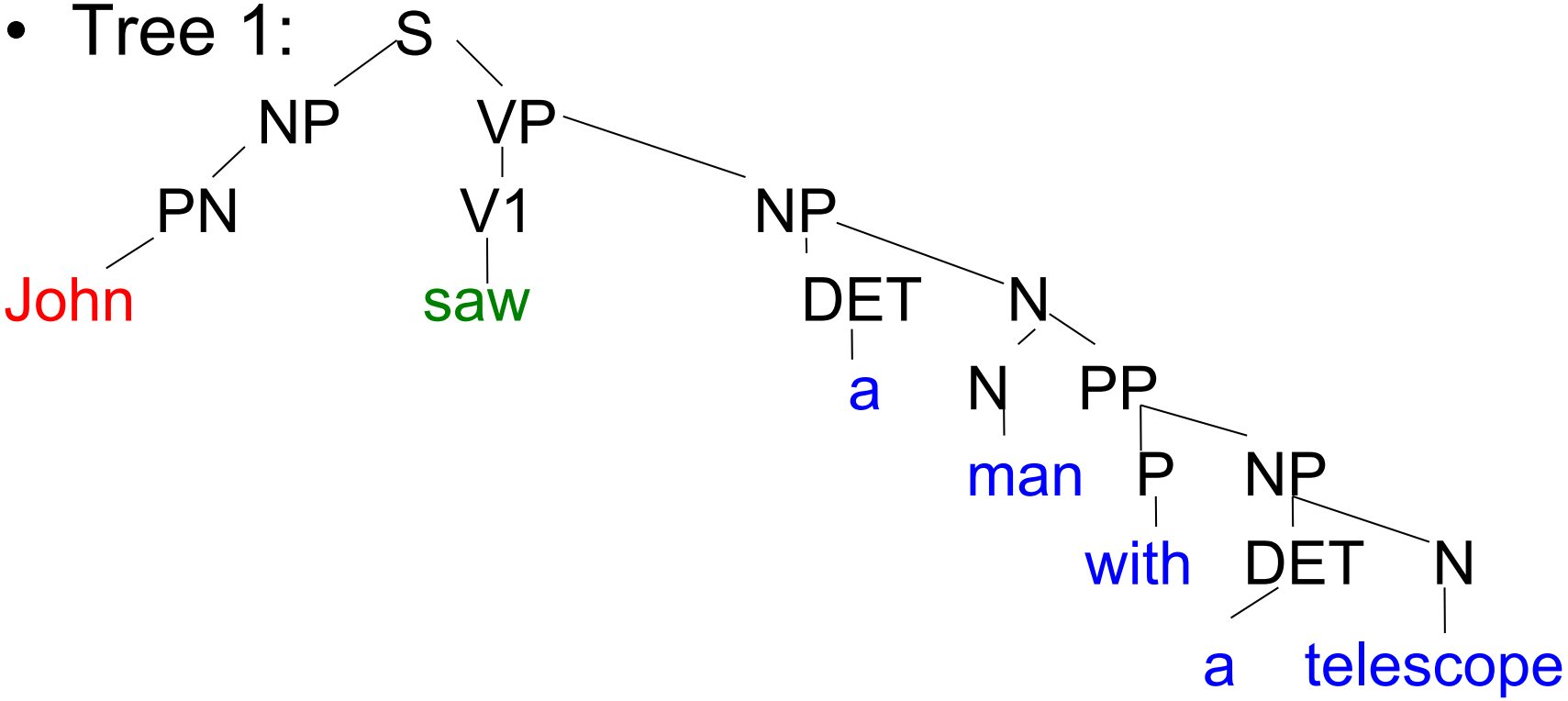
Structural Ambiguity: More than one syntactic analysis (a)

(Hence often also known as *syntactic ambiguity*)

John saw a man with a telescope

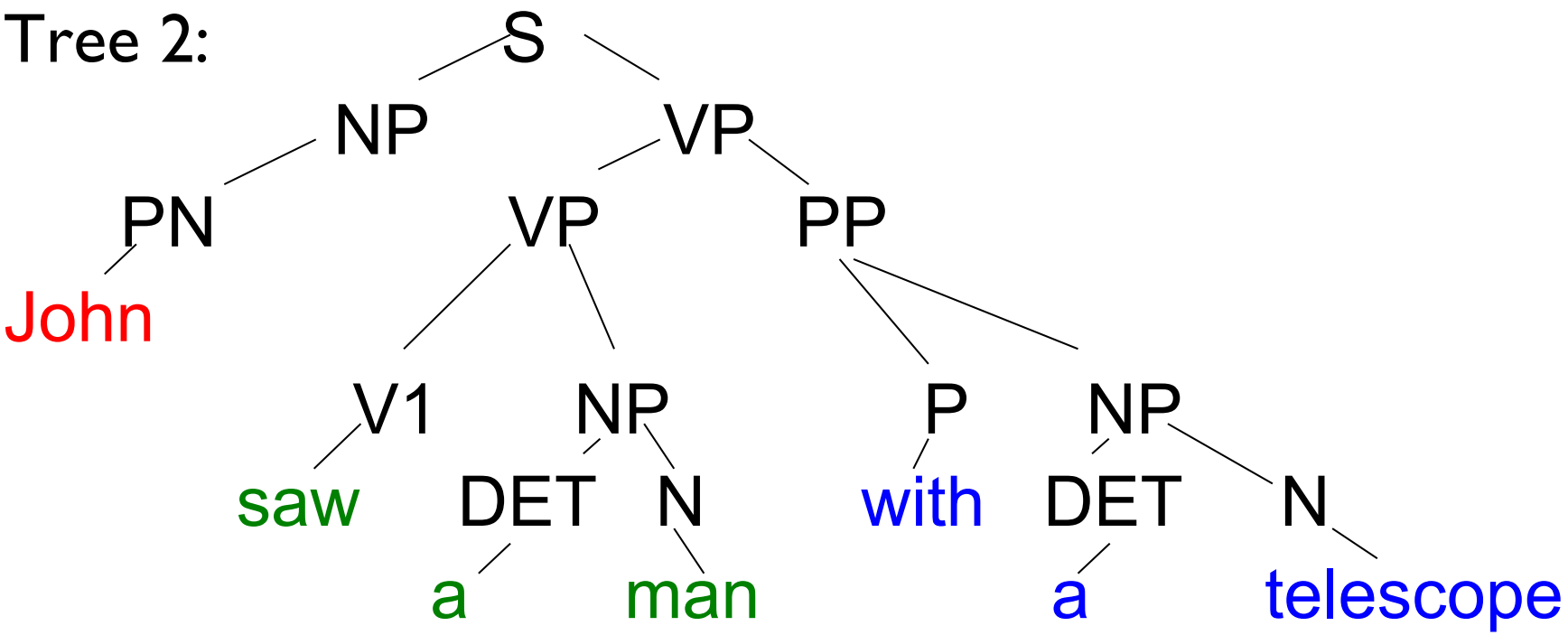
Analysis I

- Tree 1:



Analysis 2

Tree 2:



Structural Ambiguity: More than one syntactic analysis (b)

Typically, more than one syntactic analysis leads to more than one possible interpretation.

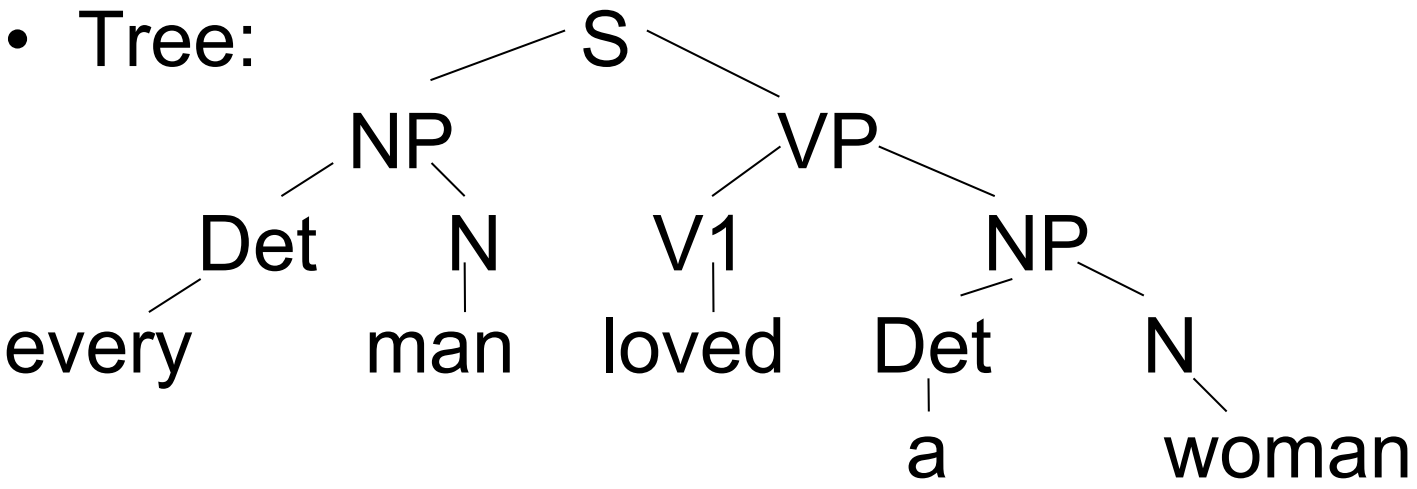
Here Tree 1 represents the structure for: *John sees a man who possesses a telescope.*

And Tree 2 represents the structure for *The telescope is the instrument of seeing*.

Both are possible syntactic analyses of: John saw a man with a telescope.

Scope ambiguity - I

- Here, we illustrate scope ambiguity with *quantifiers*. Consider a sentence like: *Every man loved a woman.*
- Tree:



Scope ambiguity - II

In this case, the syntax for ***a*** and ***every*** looks much the same

- But the semantics are different. ***Every*** relates to all the members of some notional set (of men); ***a*** in some sense introduces an arbitrary individual (woman)
- However, did every man love a *different* woman, or the *same one*?

Scope ambiguity - III

Here, ***every*** and ***a*** are *quantifiers*, which have either *wide scope* or *narrow scope*.

In *first order logic*, we can realise these different readings of the sentence as:

$\forall x \;\; man(x) \rightarrow (\exists y \; woman(y) \;\&\; loved(x,y))$

(universal quantifier has wide scope, existential has narrow)

$\exists y \;\; woman(y) \;\&\; (\forall x \; man(x) \rightarrow loved(x,y))$

(existential quantifier has wide scope, universal narrow)

Scope ambiguity - IV

Other quantifiers that can be tricky:

all, ***few***, ***most***, etc.; and especially ***any*** …

Consider:

If you can eat anything, you can eat anything

(on the face of the syntax, obviously true; but also obviously false!)

Donkey sentences

Among semanticists, an especially tricky example is sentences of the form:

Every farmer who owns a donkey beats it.

These sentences present a problem when trying to figure out how the quantifiers work logically …

Think about:

Every man who loved a woman kissed her.

Phonetic ambiguity

How should sounds be grouped into words?

- A: How are you?
  B: Fine. I've got a week off.
  A: Oh, I'm sorry to hear that, dear.
- New day = nude, eh?
- Two = too = to
- Ream ember *us spoke can cent tense off in* contains *men knee* words *knot in ten did tu bee herd*.

Phonetic ambiguity

Remember a spoken sentence often contains many words not intended to be heard.

Main points

- Ambiguity is everywhere!
- Most sentences contain some degree of ambiguity, of potentially many kinds …
- … but we usually don’t even notice
- Ambiguity is resolved mostly by context and background assumptions
- Jokes and similar phenomena often depend on building up the wrong expectations, thus causing a surprise