# Doubling DOP\* A comparison of Double-DOP and DOP\*

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### Data Oriented Parsing

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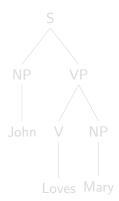
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## **Parsing**

► input: sentence

John Loves Mary

output: constituent tree



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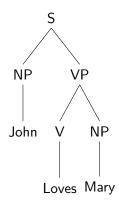
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## A grammar describes:

- how trees can be built
  - CFG's elementary rules
  - ► TSG's larger units: fragments
- ▶ how likely constructions are: *probabilistic* grammars
  - ▶ PCFG's independence
  - PTSG's derivations

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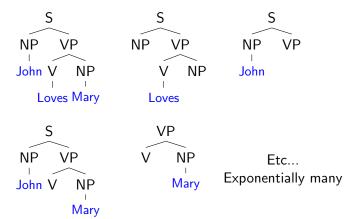
Analyzing grammars

Summary

 $S \rightarrow NP \ VP$   $VP \rightarrow V \ NP$   $NP \rightarrow John$  $NP \rightarrow Mary$ 

 $V \rightarrow loves$ 

## Grammar: Tree fragments



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## Double-DOP

Extraction: Maximal Overlap

Estimation: relative frequency

► Coverage: PCFG rules

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► Held-out estimation - HC and EC

Extraction: Shortest derivations

► Estimation: relative frequency in shortest derivations

► Coverage: smoothing PCFG rules with probability p<sub>unkn</sub>

Double-DOP and

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Double-DOP and DOP\*: a comparison

## Comparison

- Shortest derivations or Maximal overlap
- Held-out estimation or one vs. the rest.

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## Double-DOP and DOP\*: a comparison

**Experiments** 

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## Maximal overlap ↔ shortest derivation

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## Split $\leftrightarrow$ one vs. the rest

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## F1 scores

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Summary

Outlook

lines.

- ► Something you haven't solved.
- ▶ Something else you haven't solved.

The first main message of your talk in one or two lines.

► The second main message of your talk in one or two

Perhaps a third message, but not more than that.

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