Semi-automated Extraction of a Wide-Coverage Type-Logical Grammar for French

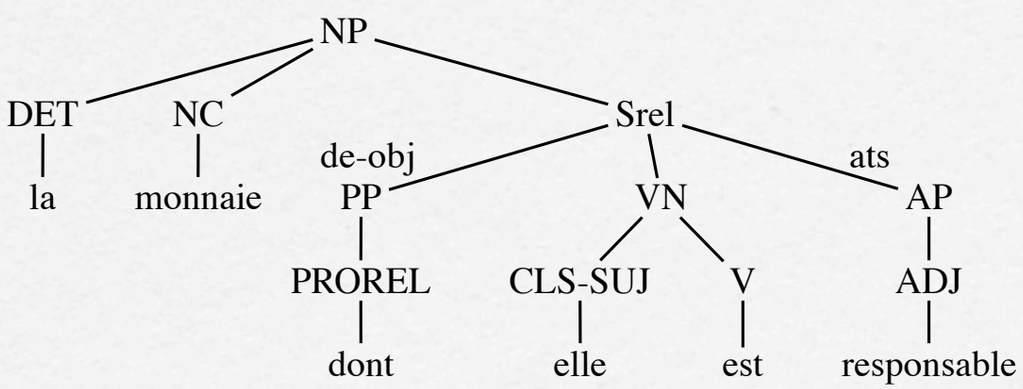
Richard Moot
LaBRI (CNRS, Bordeaux), SIGNES (INRIA Bordeaux SW)
Richard.Moot@labri.fr

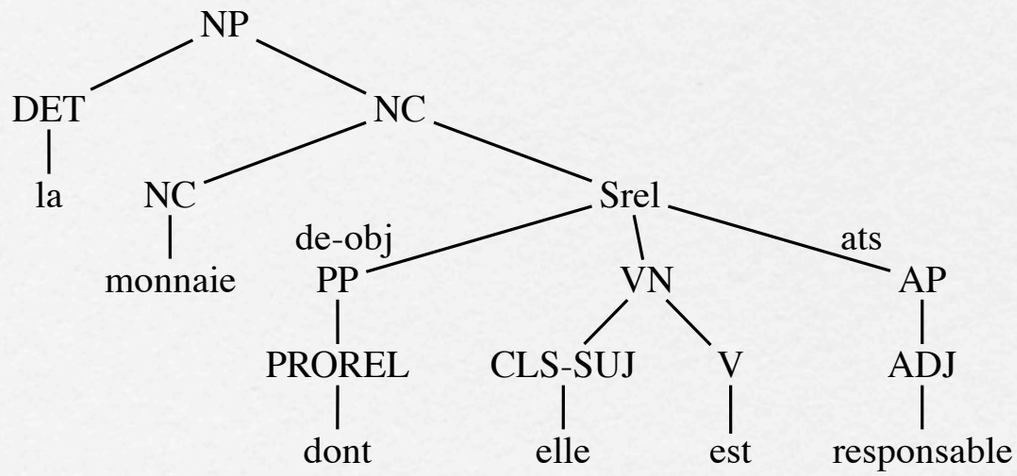
Introduction

- This "booster" describes a wide-coverage type-logical grammar for French, which is being developed with semantic applications in mind
- I will briefly describe the extraction algorithm, the extracted grammar and a first evaluation of the the grammar using a supertagger

The extraction algorithm

1. Binarize the annotation





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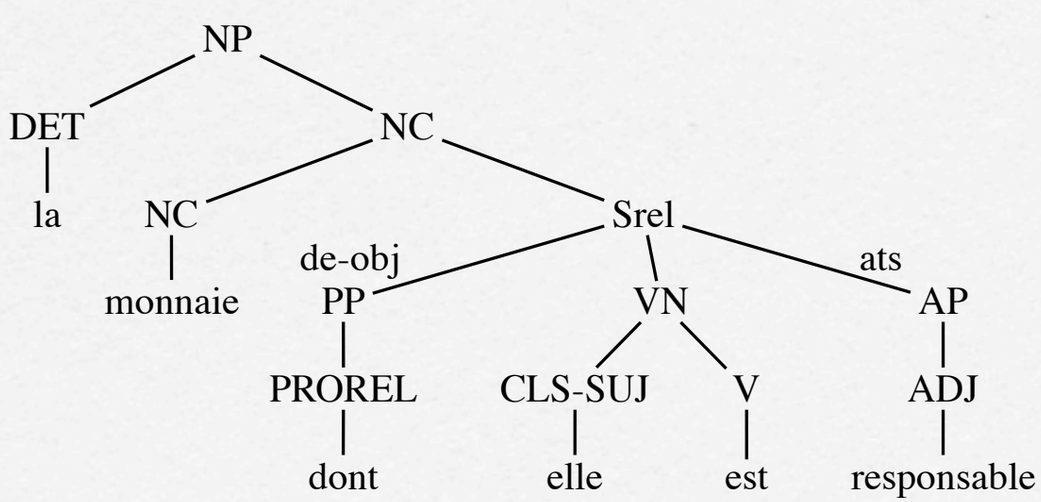

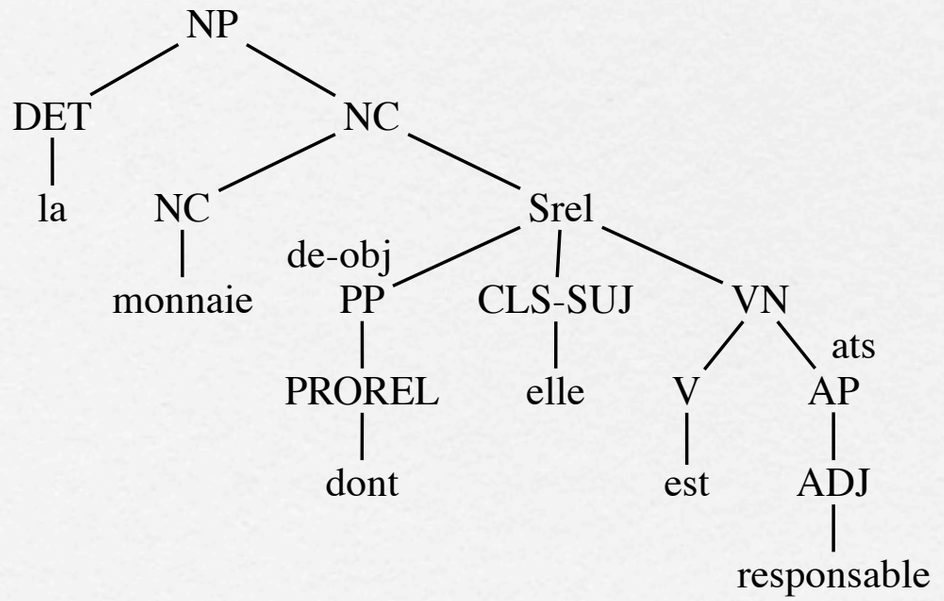

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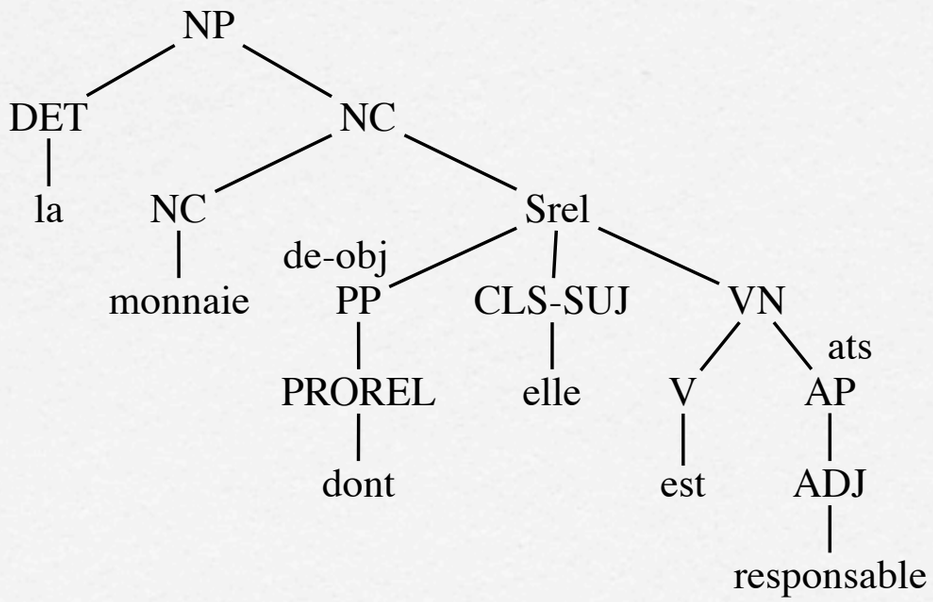
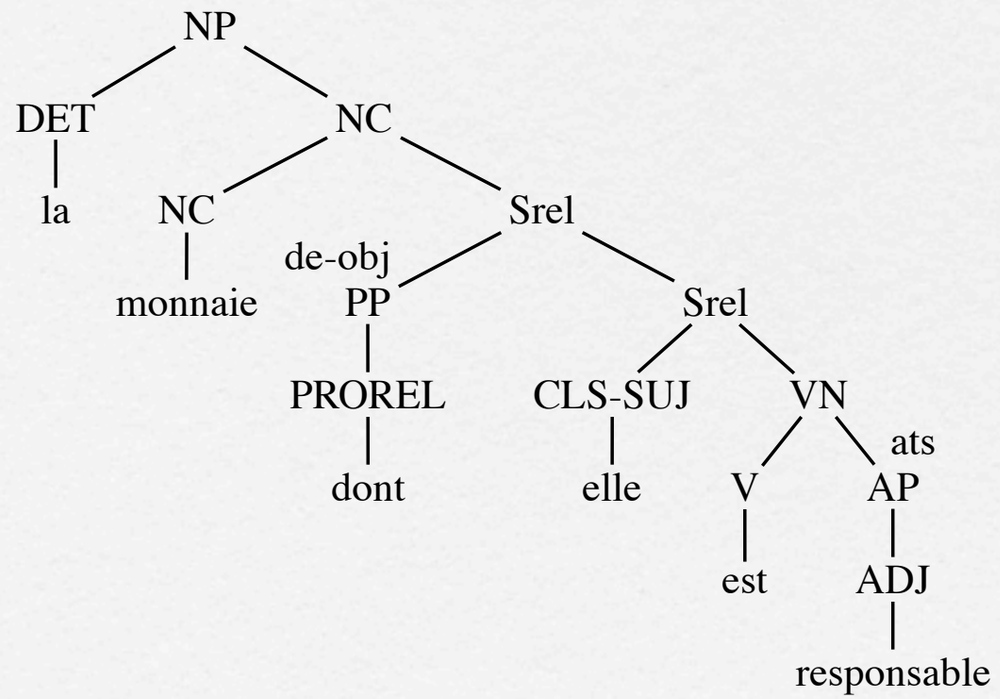
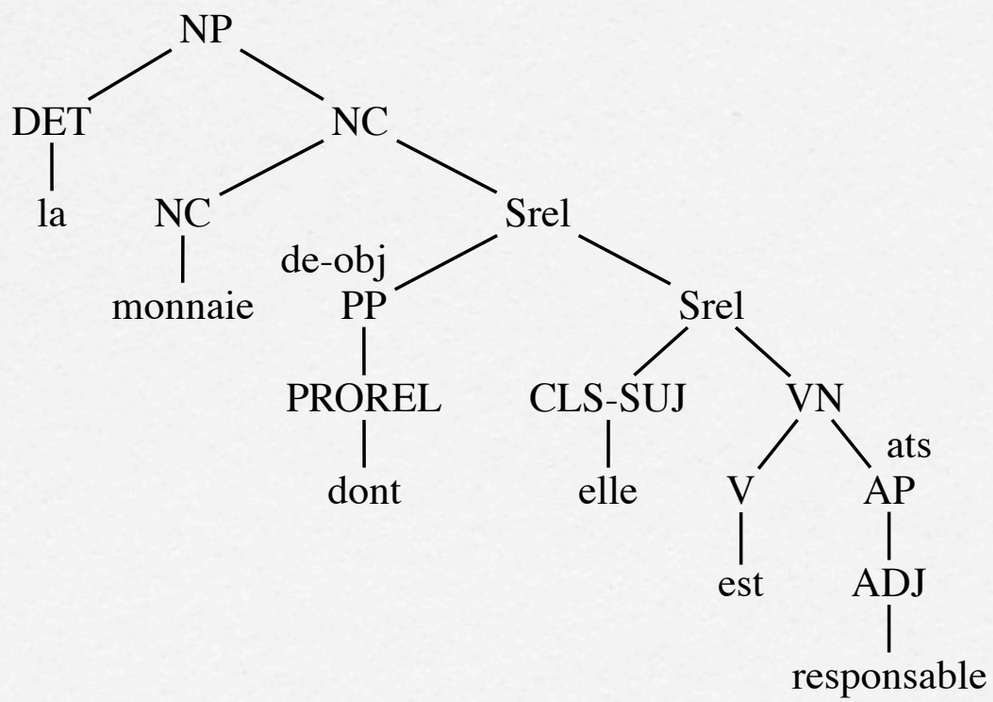
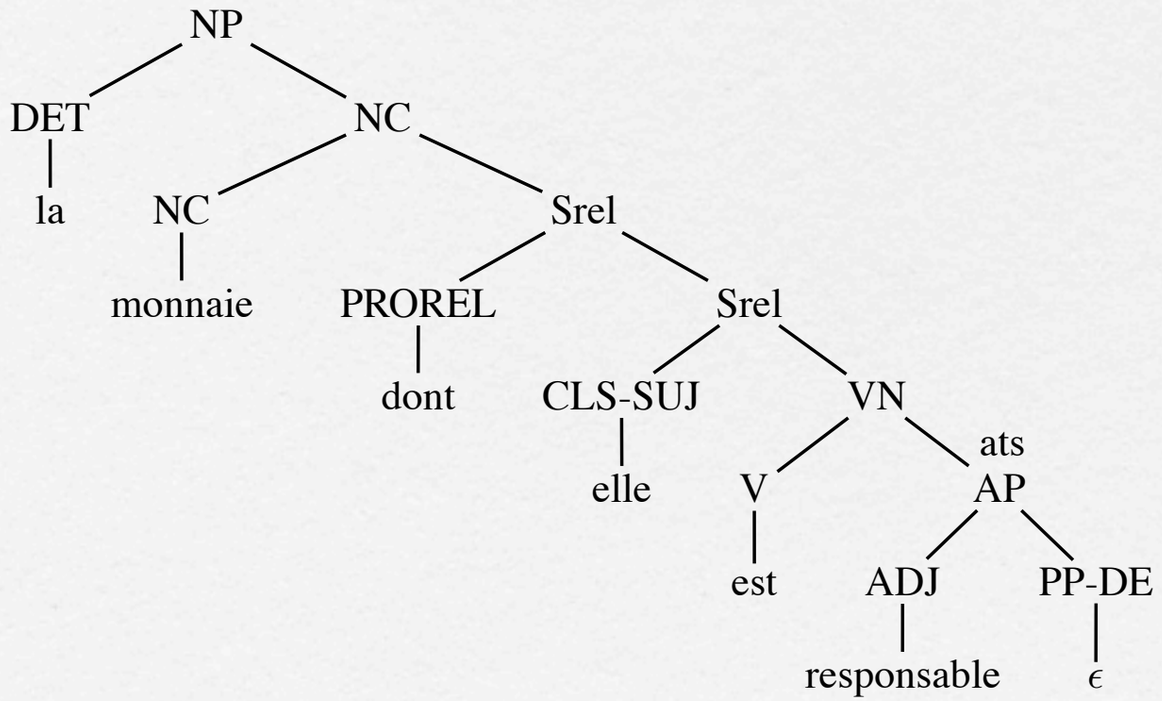




The extraction algorithm

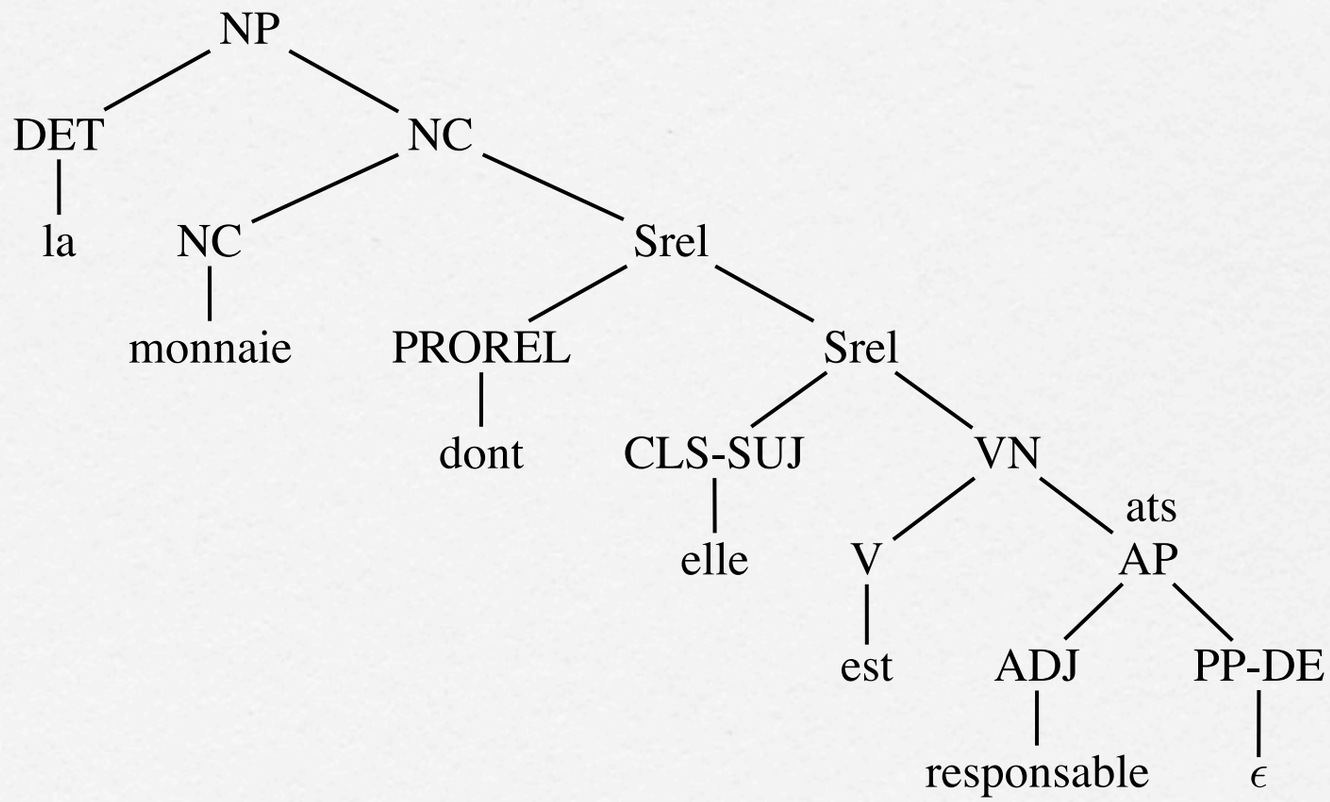
1. Binarize the annotation
   inserting "traces" for wh words





The extraction algorithm

1. Binarize the annotation
2. Assign formulas



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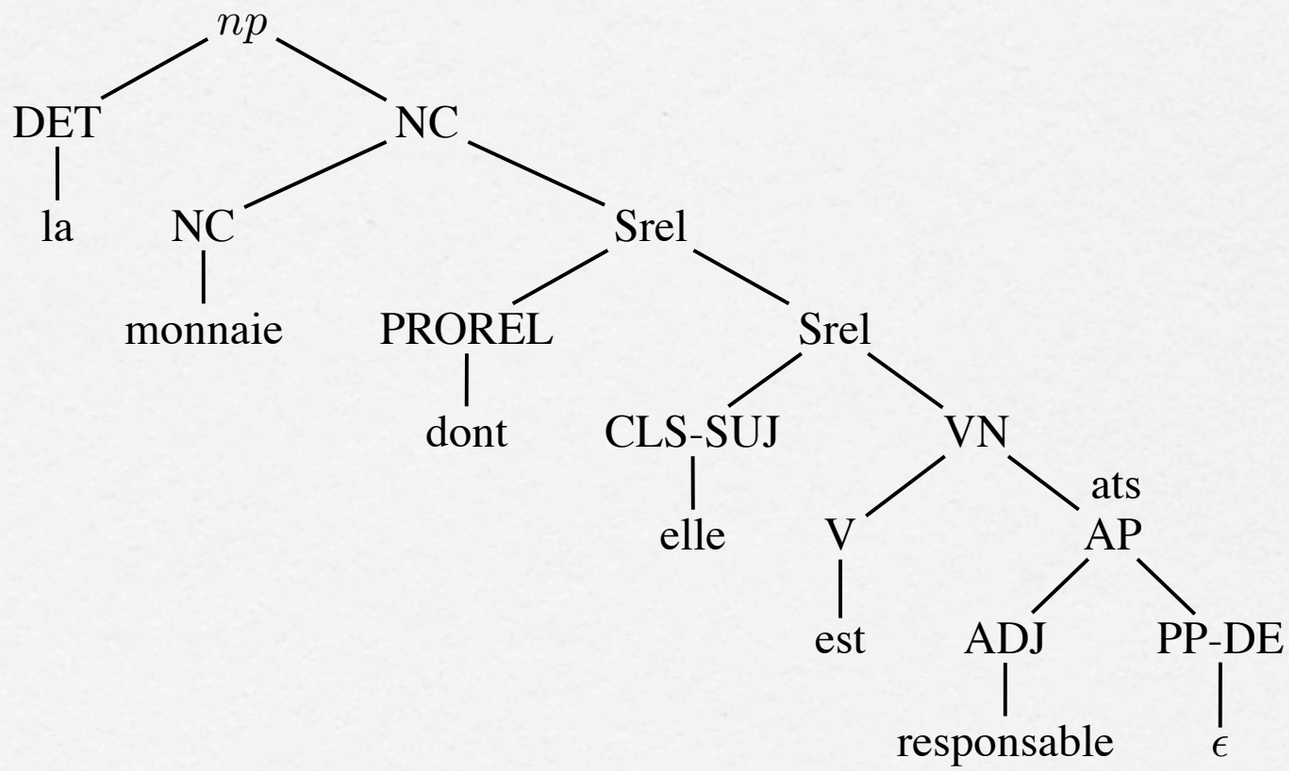

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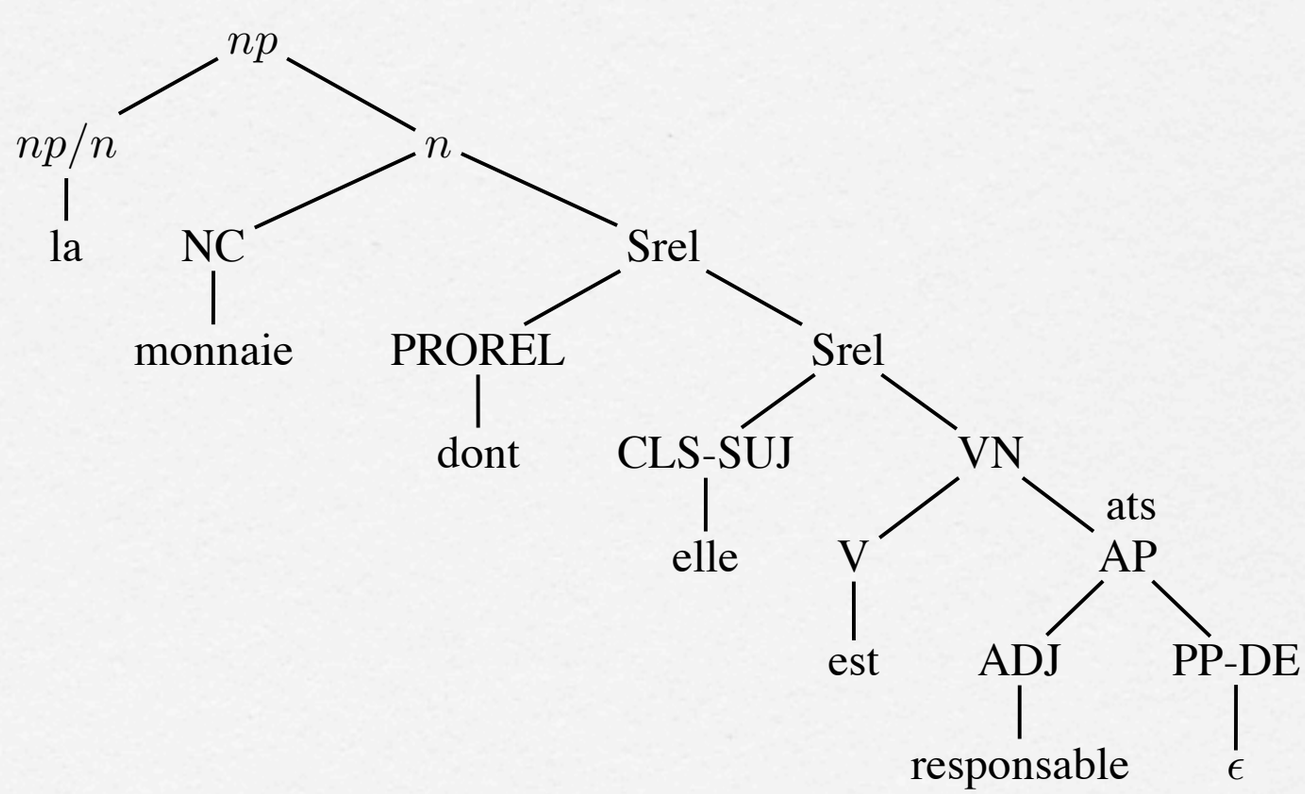

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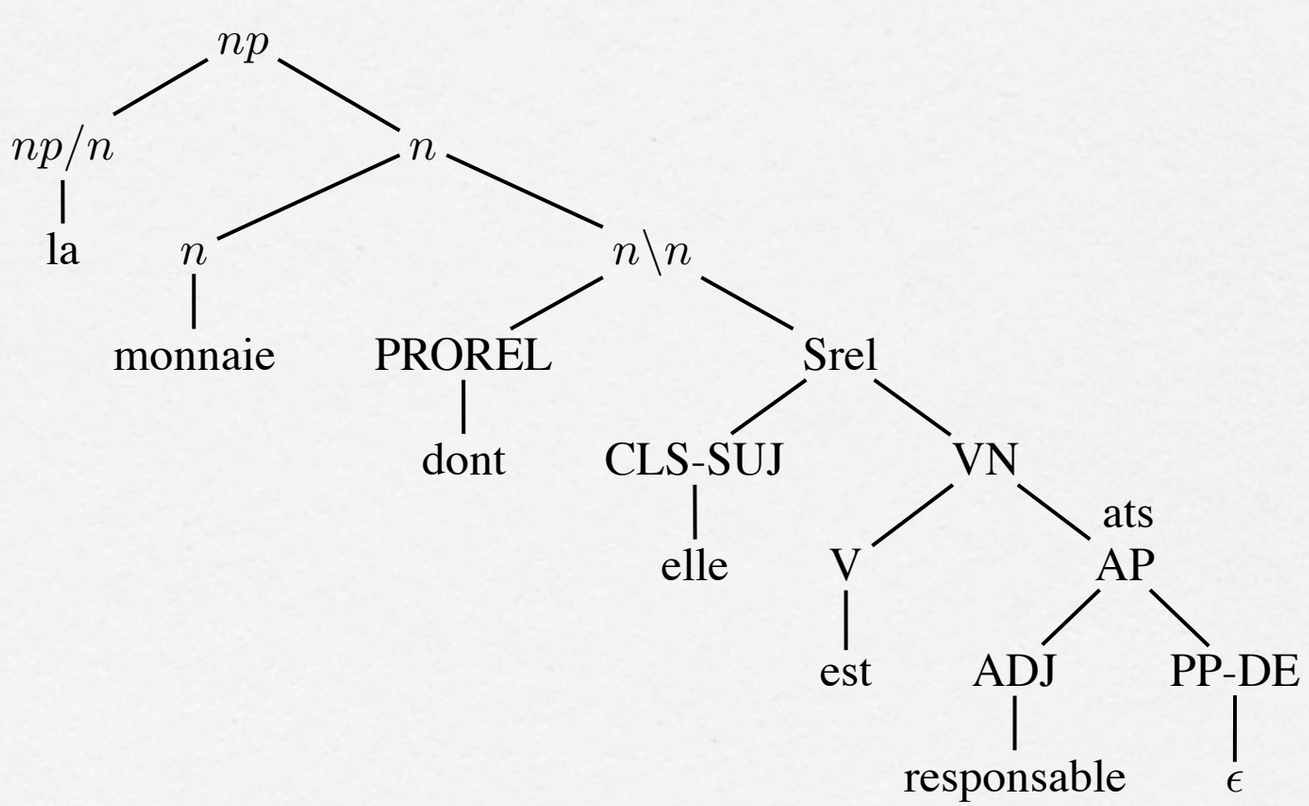

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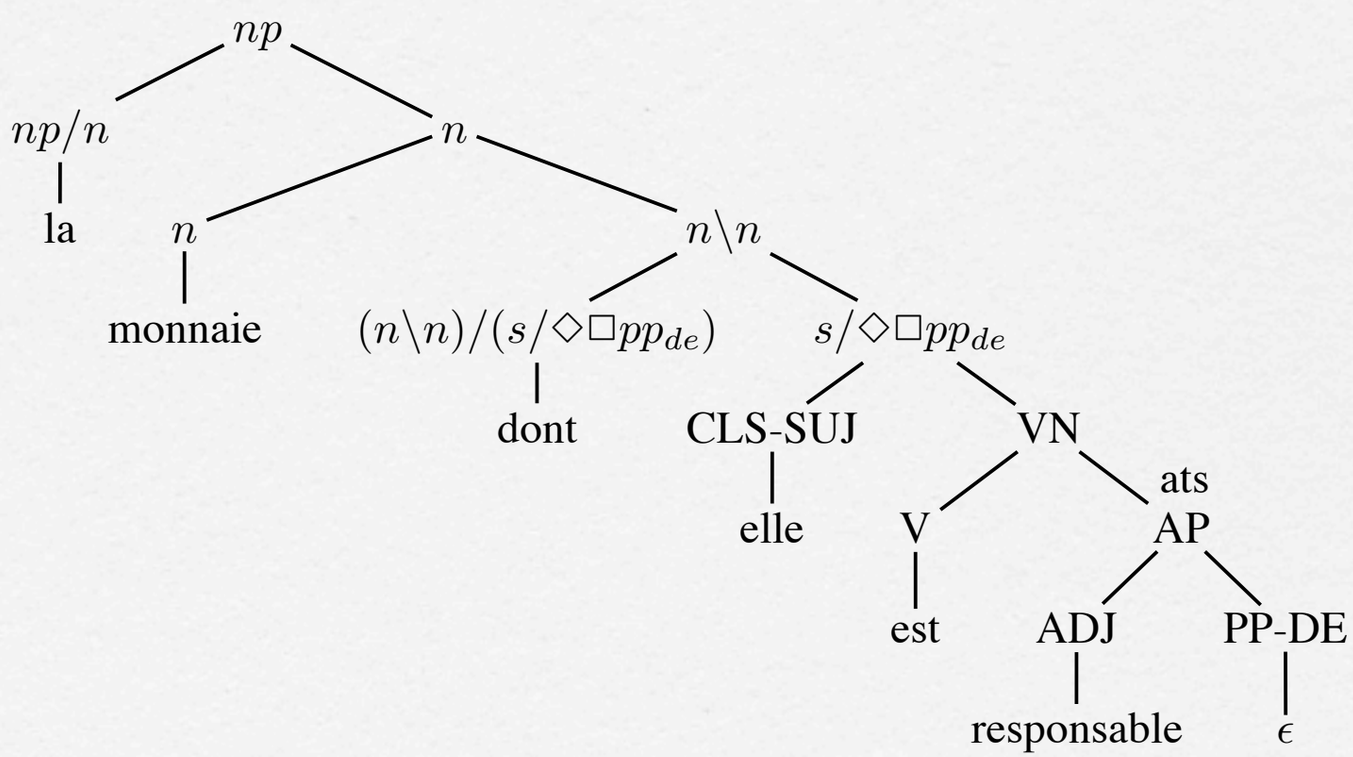

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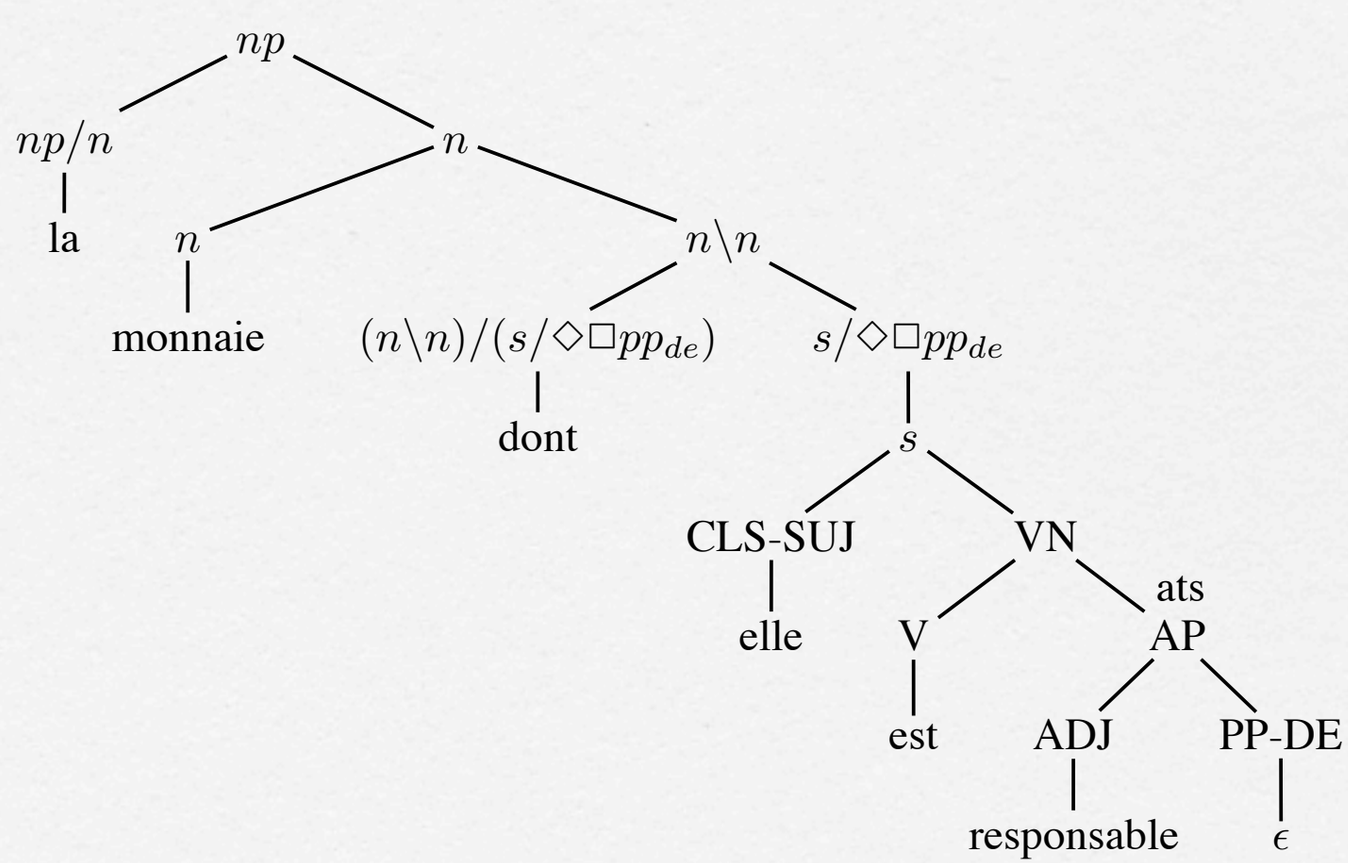

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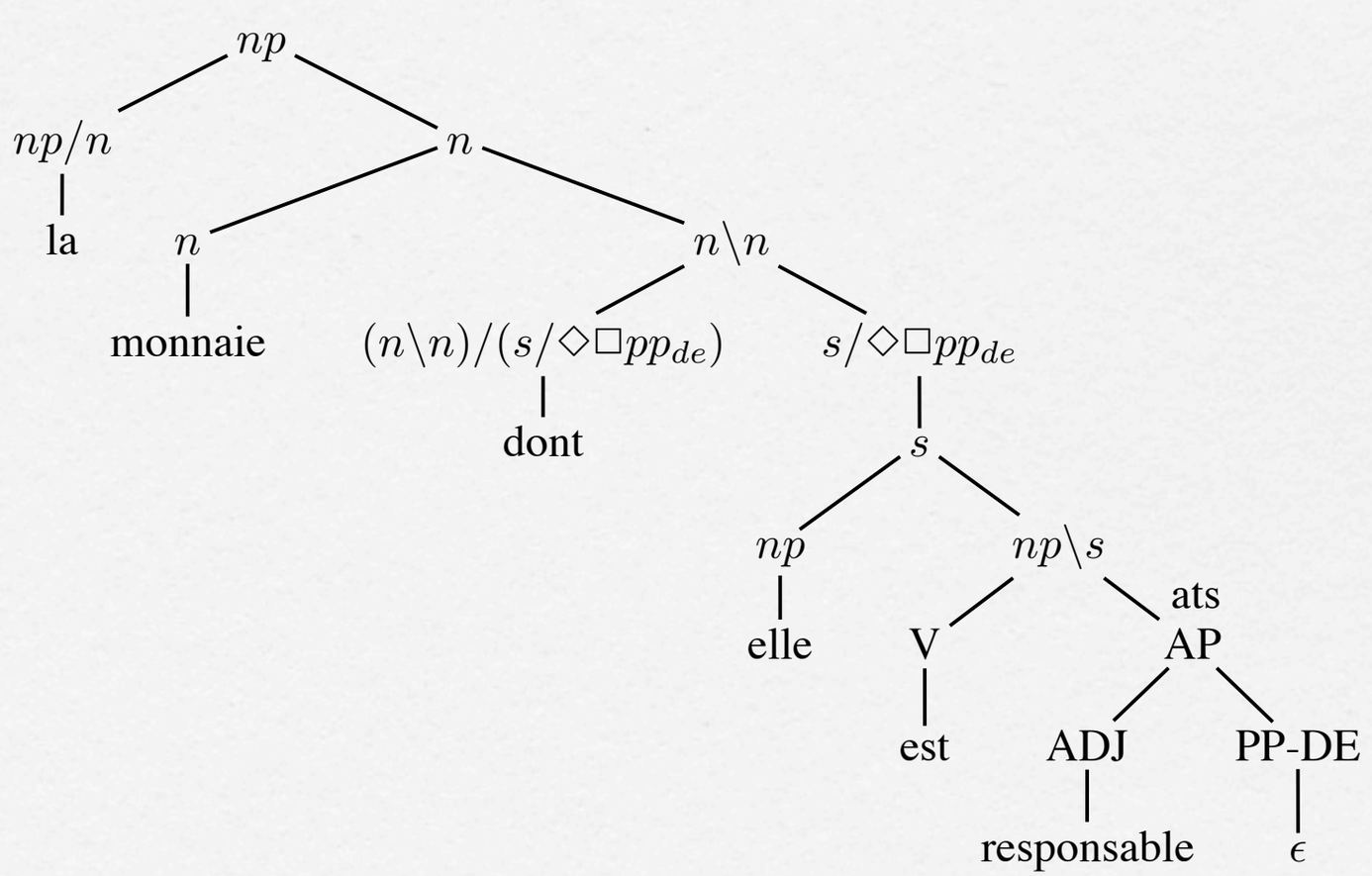

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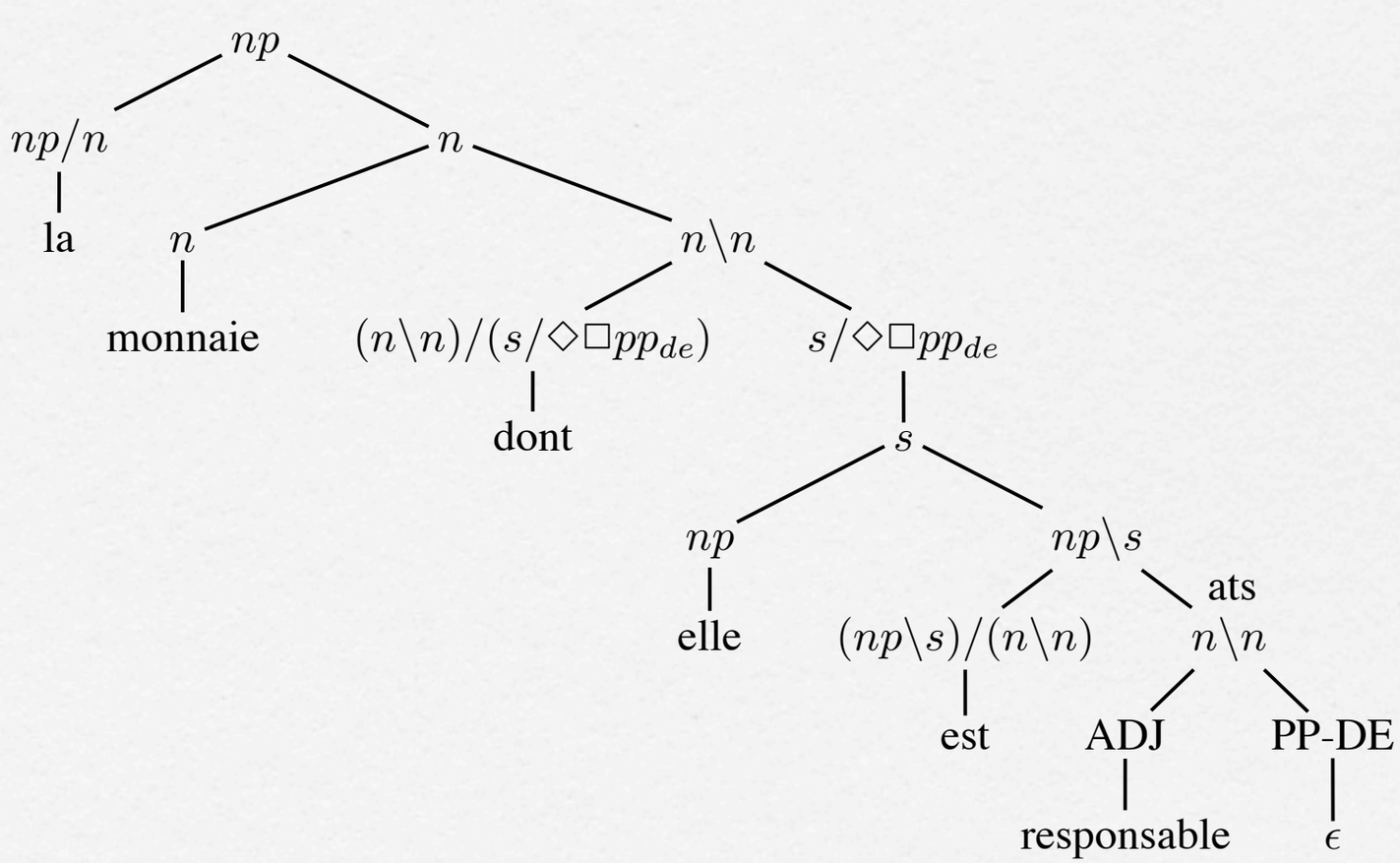

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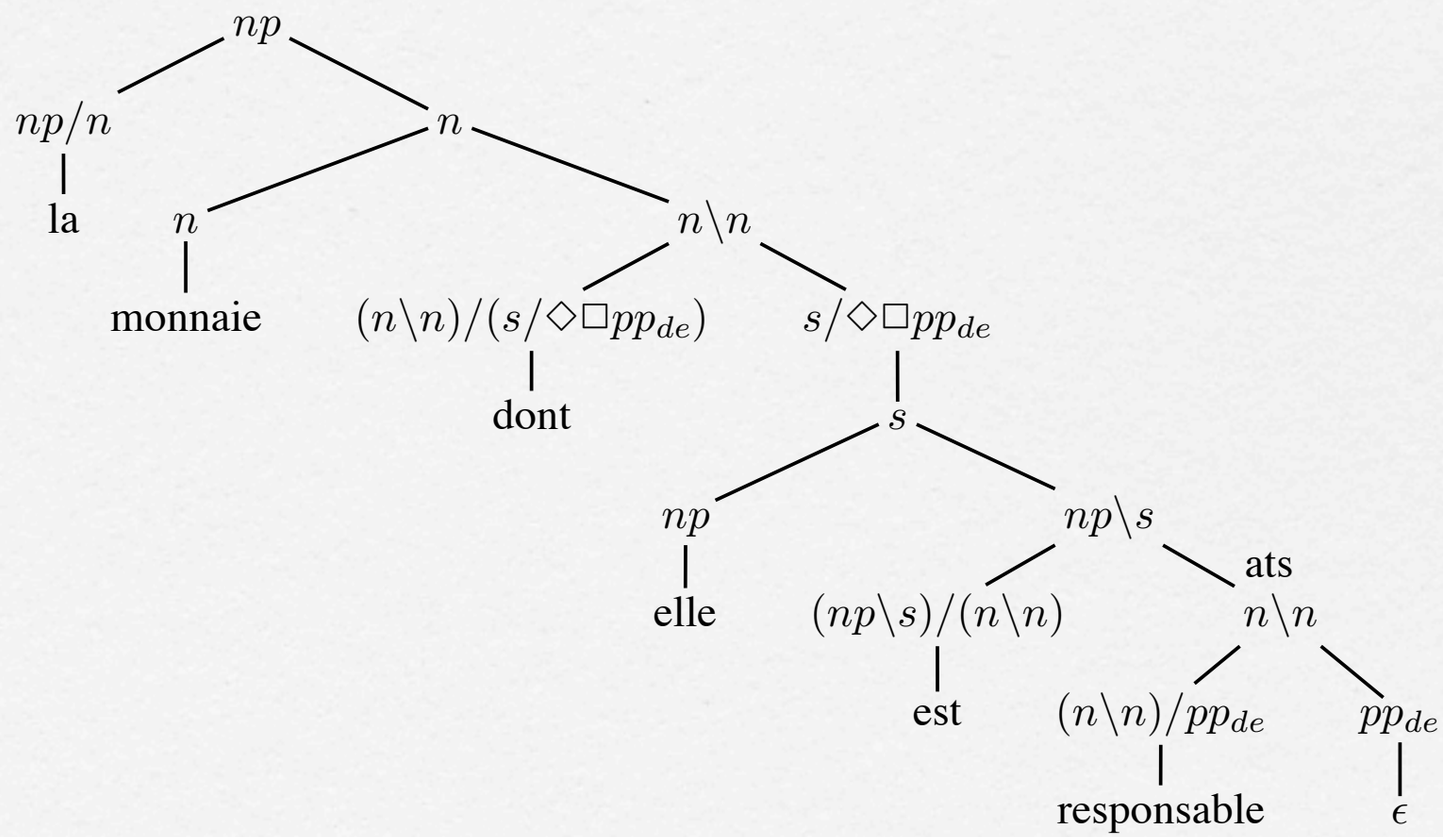


The extracted lexicon

- The extraction algorithm has been run on the 12.440 sentences (371.033 words) of the Paris VII annotated treebank.

- A total of 815 different formulas have been assigned to the words in the corpus.

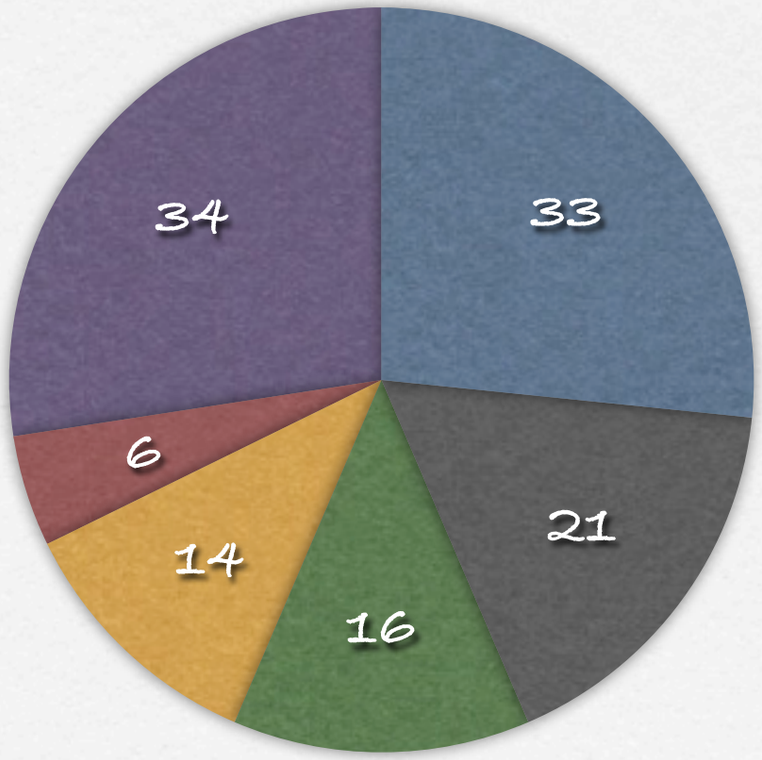
- Many frequent words have a large number of assigned formulas, eg. “et” (71) “comme” (42), “est” (37), “qui” (14).

The extracted lexicon

- Formula assignments to the present tense verb form “fait”

- 124 occurrences in the corpus with 19 different formulas assigned to it.

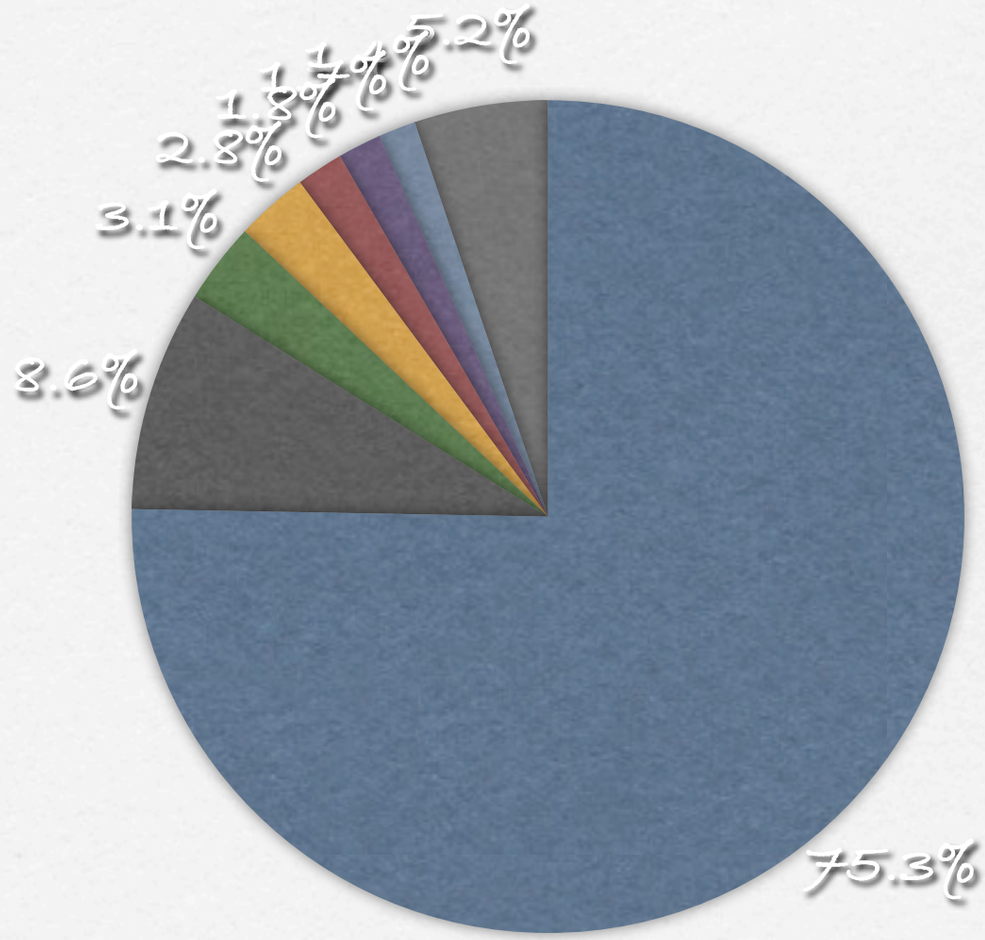
- (np\s)/np
- ((np\s)/pp_de)/np)
- (np\s)/(np/s_inf)
- ((np\s)/pp_a)/np
- ((np\s)/np)/(np\s_inf)
- other



The extracted lexicon

- Formula assignments to the comma ","

- 21,398 occurrences, 58 different formula assignments



- no formula
- (np\np)/np
- (n\n)/n
- (np\np)/n
- (s\s)/s
- ((np\s)\(np\s))/(np\s))
- ((n\n)\(n\n))\(n\n))
- other

The extracted lexicon

- The large number of assigned lexical categories becomes a hindrance to parsing.

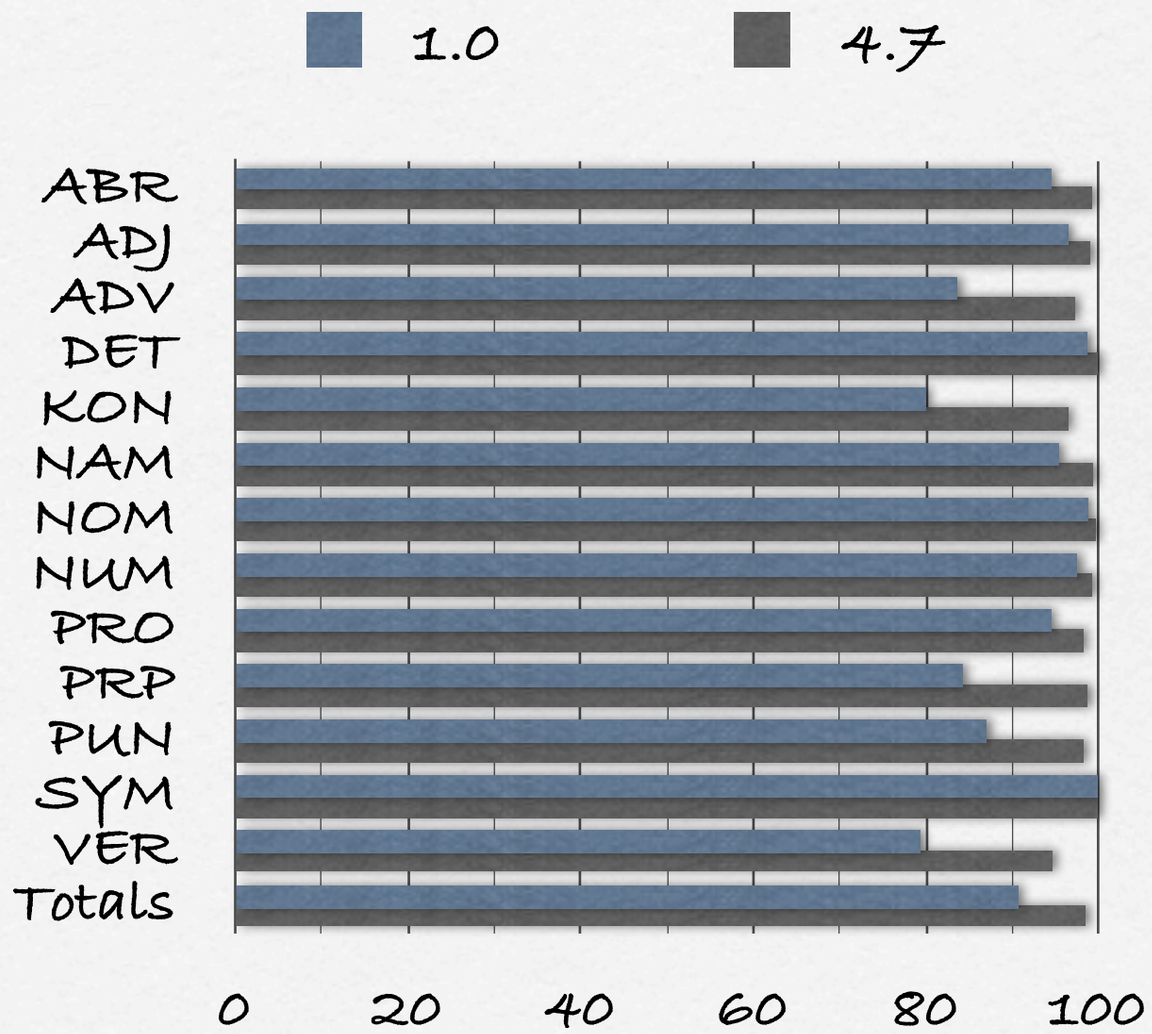
- A well-known solution to this problem is to use a supertagger which assigns each word-POS pair its most likely lexical category based on parameters estimated from the local context.

- By assigning each word all supertags within a certain probability window of the most likely supertag, we can increase the coverage.

Evaluation

- Supertagger performance is 90.7% for a single tagger and 98.4% for a multitagger which assigns (on average) 4.7 supertags to each word.

- this is the same level of performance as the best supertaggers for English.



Conclusions

- A wide-coverage type-logical grammar for French has been developed with semantic applications in mind.
- Evaluation using a supertagger gives state-of-the art performance
- Model files are distributed under the LGPL license.

Thank you!

Richard.Moot@labri.fr
http://www.labri.fr/perso/moot