Uncovering Hidden Structure in the *De Re Publica*

A Computational Analysis of the Text

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Lati 318 – Cicero: *De Re Publica*
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Outline

1. Getting and Cleaning the Data
2. Exploratory Text Analysis
3. Underlying Word Structure: Word2Vec

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Getting and Cleaning the Data

- Text obtained from *The Latin Library* at the sentence level:
  - `['nempe', 'ab', 'iis', 'qui', 'haec', 'disciplinis', 'informata', 'alia', 'moribus', 'confirmarunt', ',', 'sanxerunt', 'autem', 'alia', 'legibus', '.']`
- Cleaned up messy elements of data:
  - Line numbers: `[1,2,...,71]`
  - Angle brackets: `['&', 'lt', ';', 'im&gt', ';', 'petu', 'liberavissent', ',', 'nec',...]`
    - `&lt;` should be <   `&gt;` should be >
  - Hyphens encoded as `&#`
  - English words: `['Cicero', 'The', 'Latin', 'Library', 'The', 'Classics', 'Page']`

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Exploratory Text Analysis: Tokenization and POS Tagging

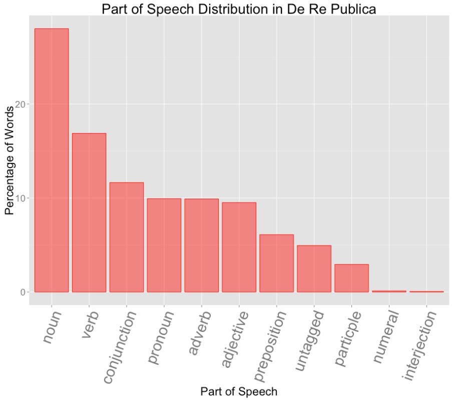
- Map each word to its base form (*lemma* or *token*) and its POS
- Often ignore *stop words* ('et', 'sum', etc.) – highlighted in red

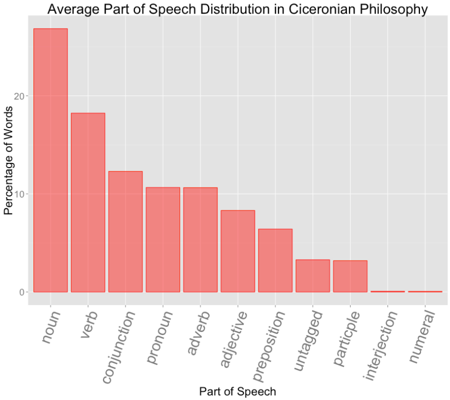
```
['nempe', 'ab', 'iis', 'qui', 'haec', 'disciplinis',
'informata', 'alia', 'moribus', 'confirmarunt', ',',
'sanxerunt', 'autem', 'alia', 'legibus', '.']
```

```
[('nempe', 'adverb'), ('ab', 'preposition'), ('is',
'pronoun'), ('qui', 'pronoun'), ('hic', 'pronoun'),
('disciplina', 'noun'), ('informo', 'noun'), ('alius2',
'adjective'), ('mos', 'noun'), ('confirmo', 'verb'),
('sancio', 'verb'), ('autem', 'conjunction'), ('alius2'
```

Exploratory Text Analysis

- Number of characters: 109,777 (*average*: 136,893)
- Number of words: 20,067 (*average*: 24,924)
- Number of sentences: 820 (*average*: 1,059)


Part of Speech Distribution in De Re Publica


Average Part of Speech Distribution in Ciceronian Philosophy

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