Natural Language Processing Applications

Lecture 2: NLP Applications

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- Development Status
- Sample Applications

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NLPA - NLP Applications

DEVELOPMENT STATUS

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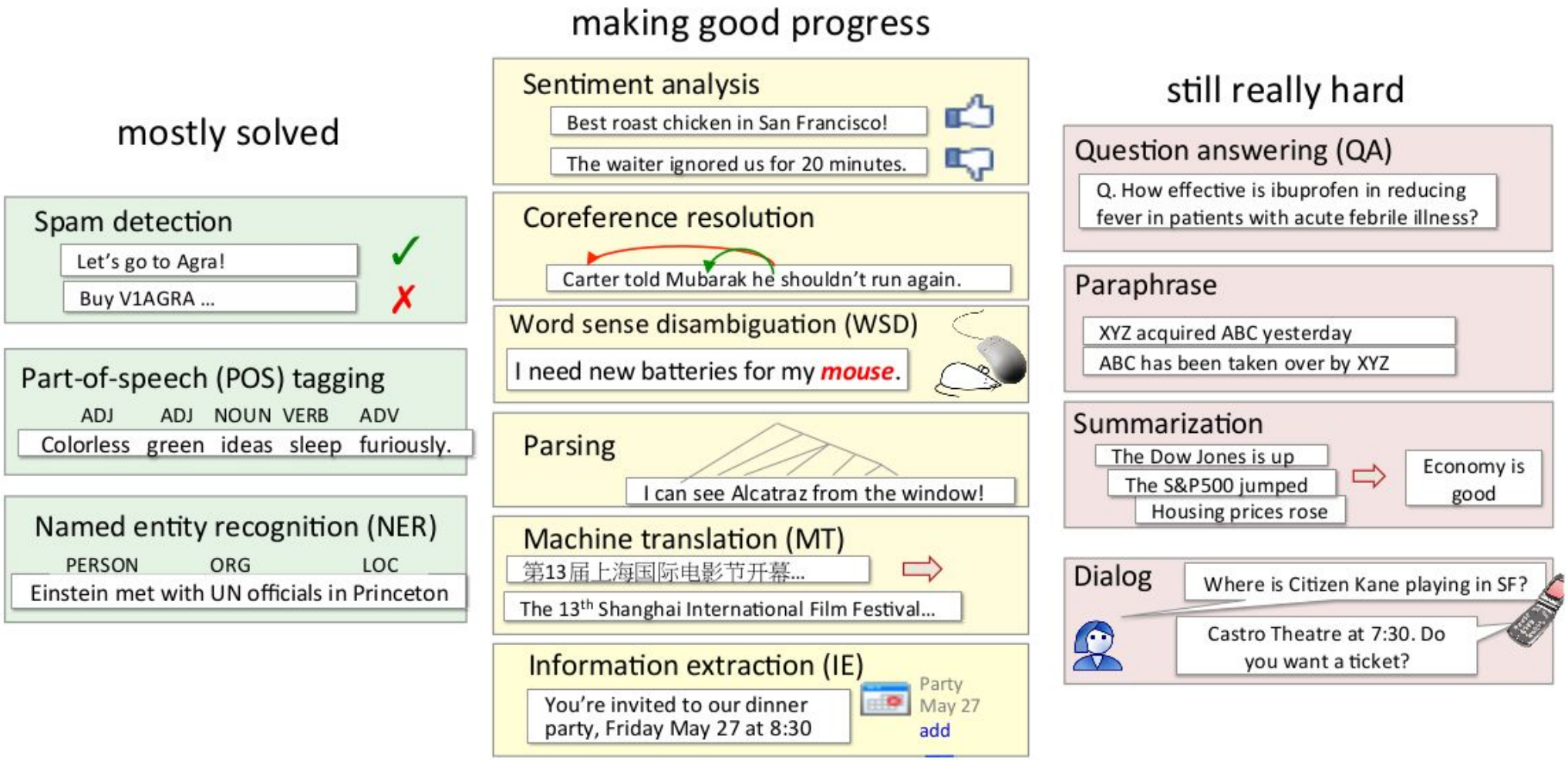
Development Status



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NLPA - NLP Applications

SAMPLE APPLICATIONS

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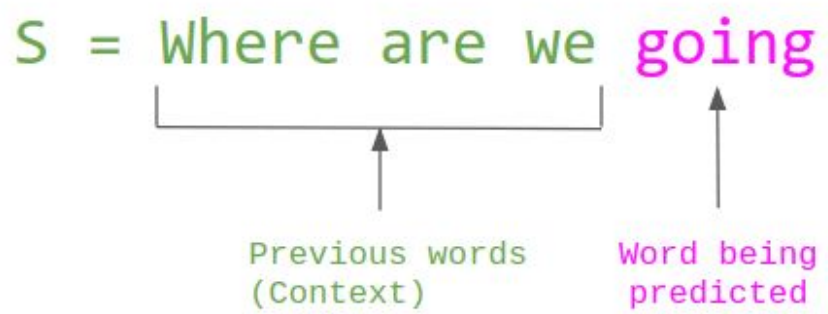
Language Models

- Prediction of next words:
  - Given a context *C*: Calculate the probability of the next word *w*?



$$P(S) = P(\text{Where}) \times P(\text{are} \mid \text{Where}) \times P(\text{we} \mid \text{Where are}) \times P(\text{going} \mid \text{Where are we})$$

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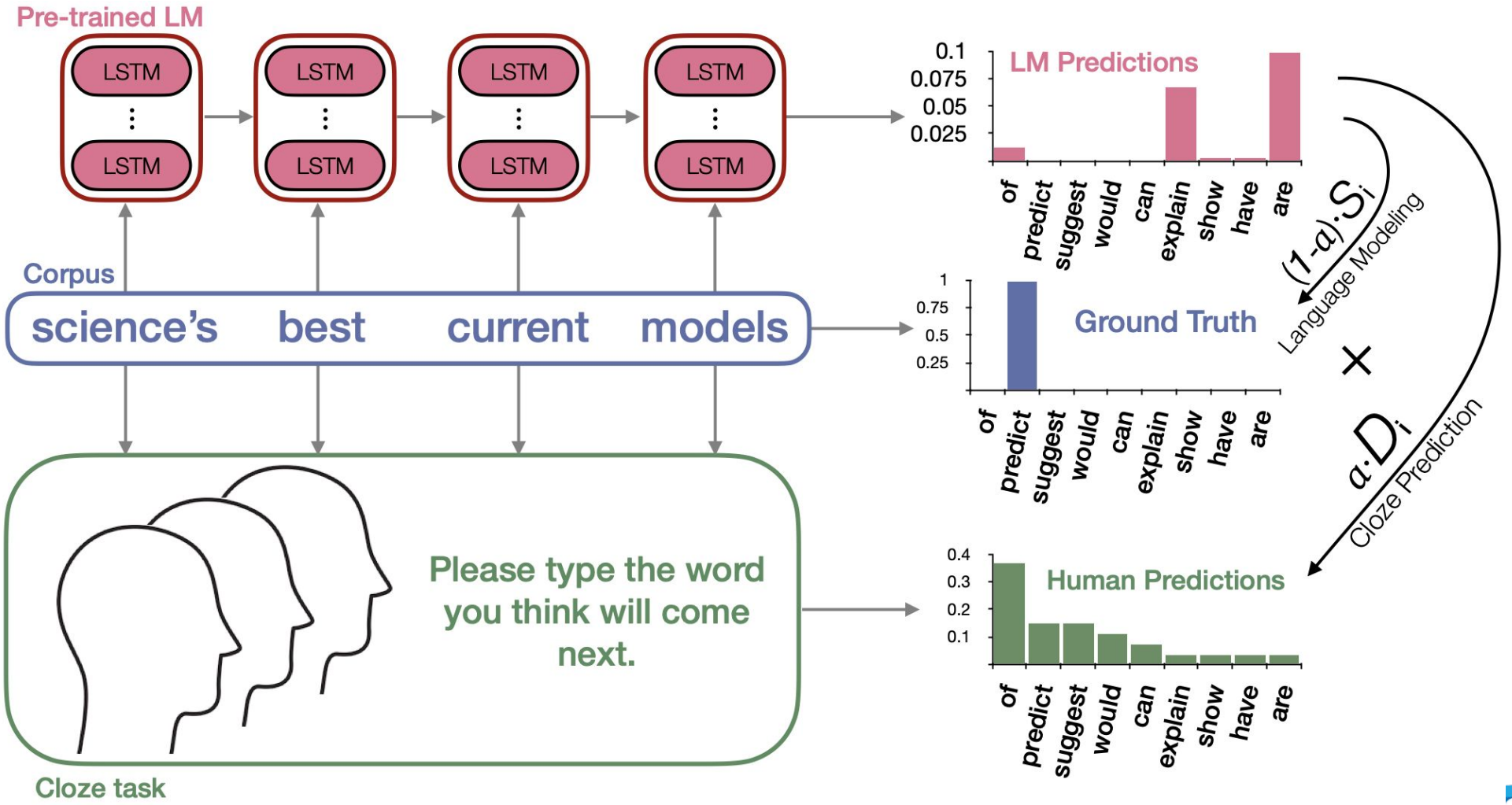
Language Models (Cont)



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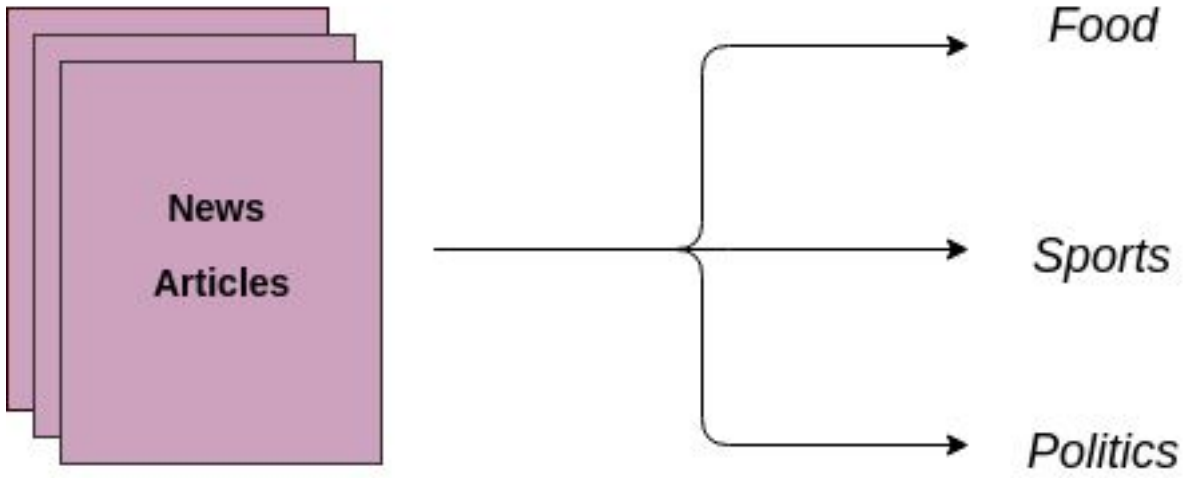
Text Classification

- Given a text ***T***, calculate the probability of $t \in T$ for a pre-defined class $c \in \mathbf{C}$.



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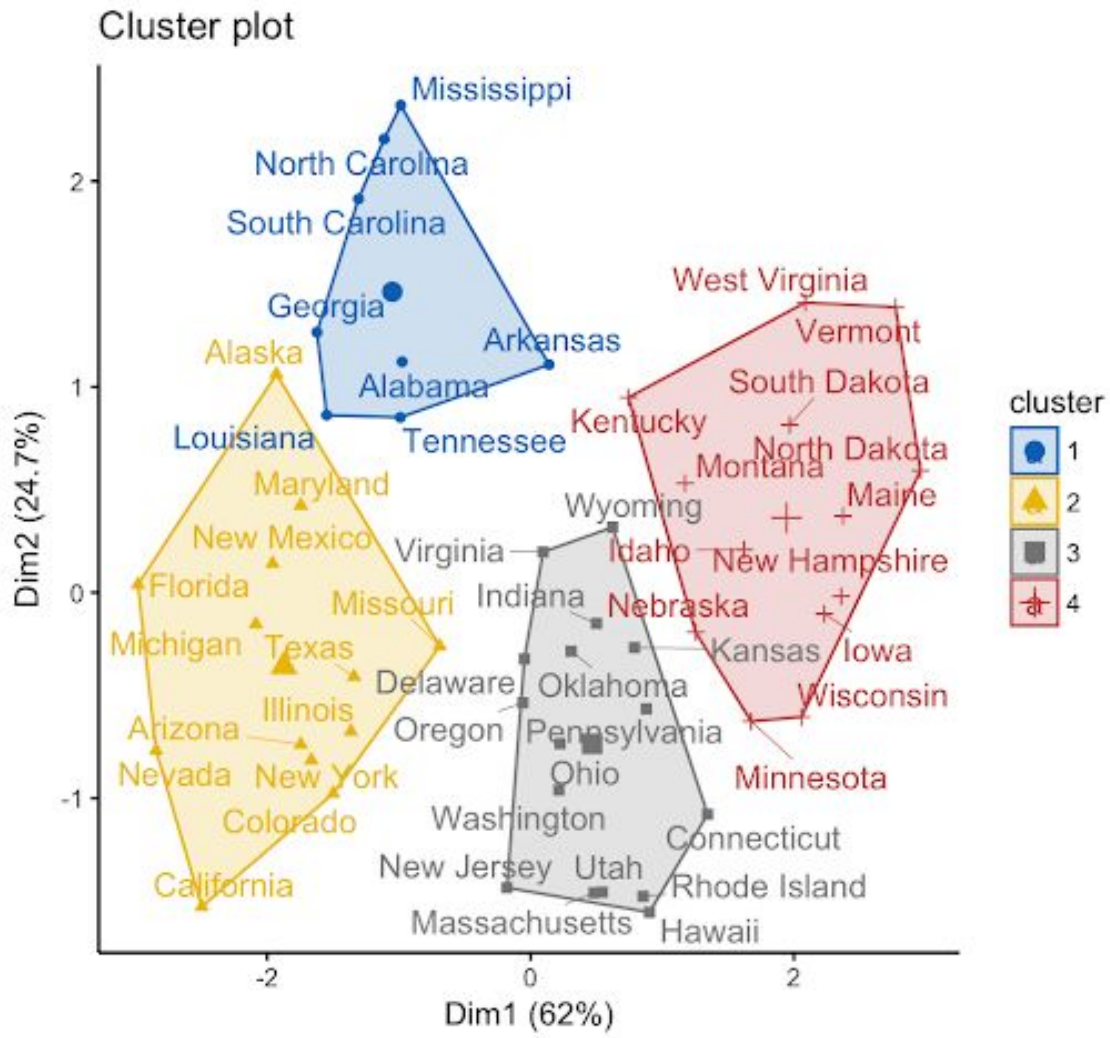
Text Clustering

- Given a text ***T*** and a number of clusters *k*, divide ***T*** to *k* clusters based on linguistic features.



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Text Similarity

- Given two texts T1 and T2, calculate the similarity score between T1 and T2.

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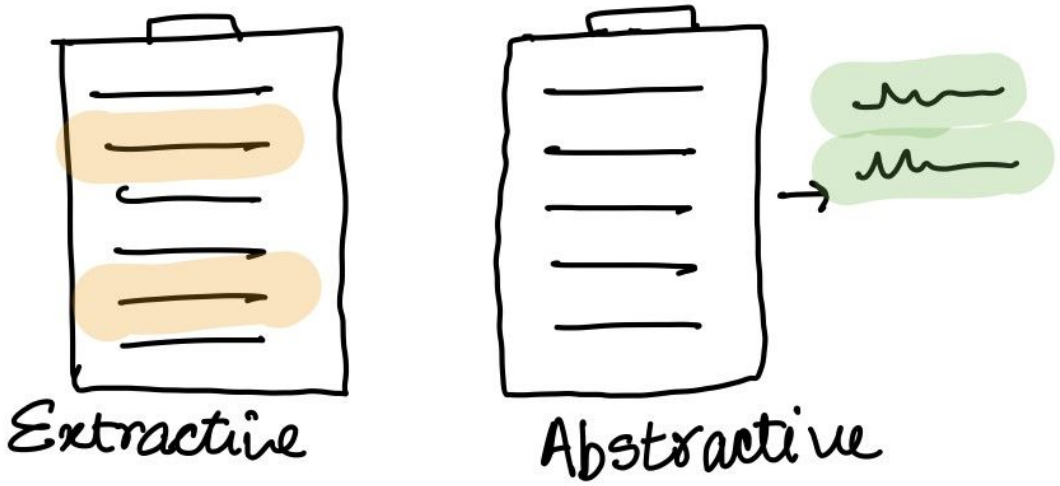
Text Summarization

- Given a text *T*, return a new text *T'* containing the content of *T* but the length of *T'* is shorter the length of *T*.



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Machine Translation

Text for Translation
Hola Mundo
你好世界
नमस्ते दुनिया
Bonjour le monde
ハローワールド
مرحبا بالعالم
Hallo Welt

Translated Text
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World

Q & A