

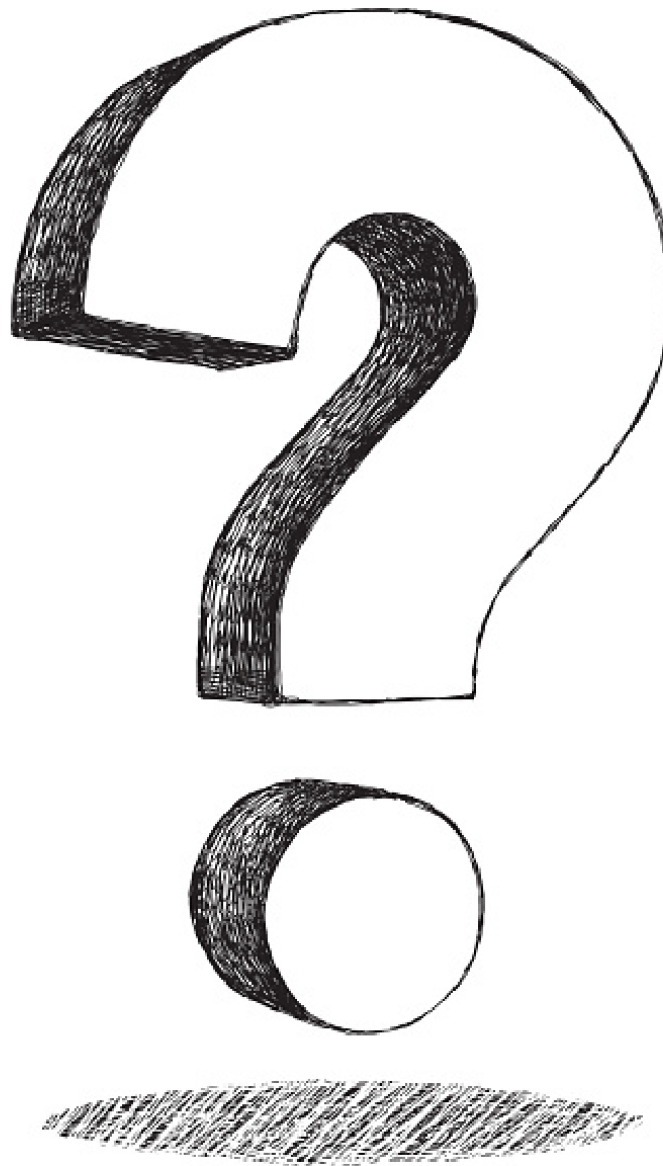
On an exceptionally hot evening early in July a young man came out of the garret in which he lodged in S. Place and walked slowly, as though in hesitation, towards K. bridge. He had successfully avoided meeting his landlady on the staircase. His garret was under the roof of a high, five-storied house and was more like a cupboard than a room. The landlady who provided him with garret, dinners, and attendance, lived on the floor below, and every time he went out he was obliged to pass her kitchen, the door of which invariably stood open. And each time he passed, the young man had a sick, frightened feeling, which made him scowl and feel ashamed. He was

# Natural language processing as a tool in psychological research

Seminar, Tue 4:15pm - 5:45pm

thought, with an odd smile. 'Hm ... yes, all is in a man's hands and he lets it all slip from cowardice, that's an axiom. It would be interesting to know what it is men are most afraid of. Taking a new step, uttering a new word is what they fear most.... But I am talking too much. It's because I chatter that I do nothing. Or perhaps it is that I chatter because I do nothing. I've learned to chatter this last month, lying for days together in my den thinking ... of Jack the Giant-killer. Why am I going there now? Am I capable of that? Is that serious? It is not serious at all. It's simply a fantasy to amuse myself; a plaything! Yes, maybe it is a plaything.' On an exceptionally hot evening early

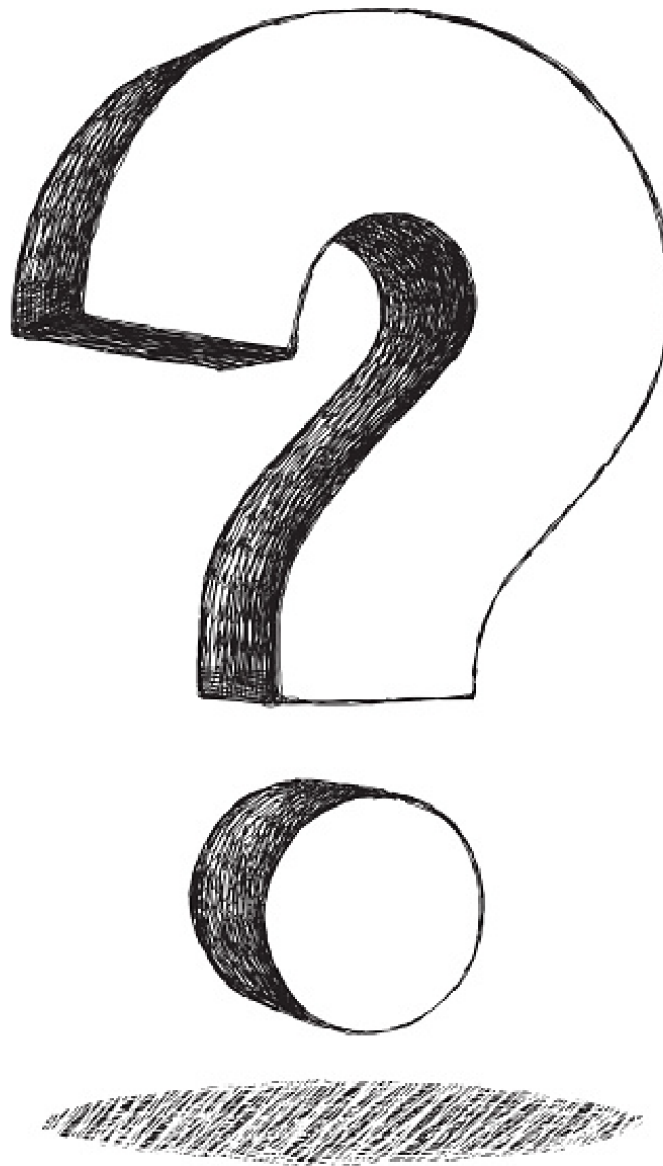
What is **natural language**?



# What is **natural language**?

In neuropsychology, linguistics, and the philosophy of language, a natural language or ordinary language is any **language that has evolved naturally in humans** through use and repetition without conscious planning or premeditation. Natural languages **can take different forms, such as speech or signing**. They are distinguished from constructed and formal languages such as those used to program computers or to study logic.

Which kind of **text resources**  
can you think of?



# Text sources

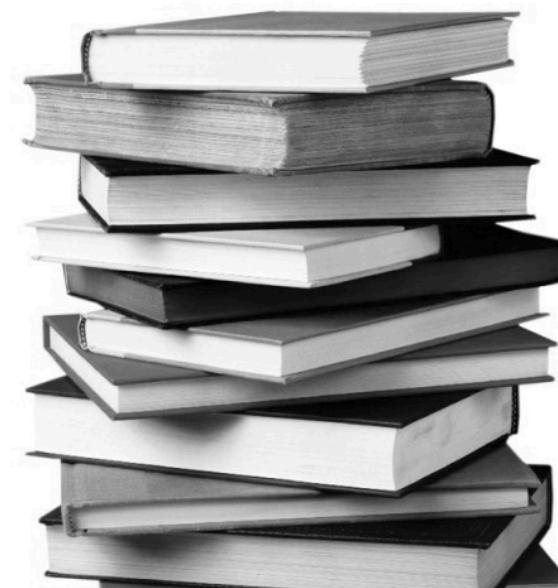
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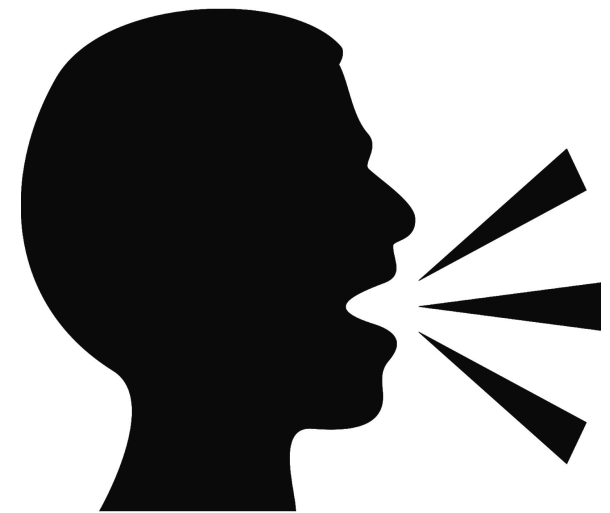
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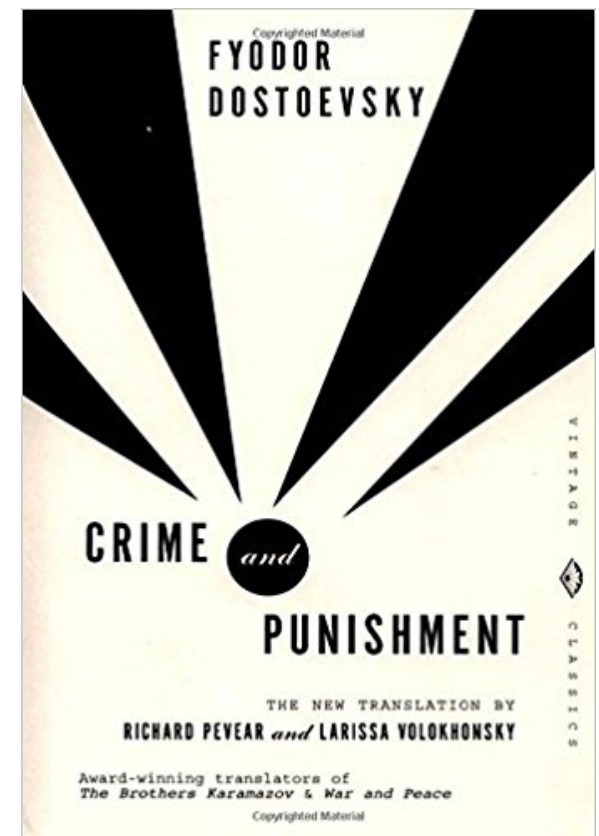
*Books*



*Spoken*



On an exceptionally hot evening early in July a young man came out of the garret in which he lodged in S. Place and walked slowly, as though in hesitation, towards K. bridge. He had successfully avoided meeting his landlady on the staircase. His garret was under the roof of a high, five-storied house and was more like a cupboard than a room. The landlady who provided him with garret, dinners, and attendance, lived on the floor below, and every time he went out he was obliged to pass her kitchen, the door of which invariably stood open. And each time he passed, the young man had a sick, frightened feeling, which made him scowl and feel ashamed. He was hopelessly in debt to his landlady, and was afraid of meeting her. This was not because he was cowardly and abject, quite the contrary; but for some time past he had been in an overstrained irritable condition, verging on hypochondria. He had become so completely absorbed in himself, and isolated from his fellows that he dreaded meeting, not only his landlady, but anyone at all. He was crushed by poverty, but the anxieties of his position had of late ceased to weigh upon him. He had given up attending to matters of practical importance; he had lost all desire to do so. Nothing that any landlady could do had a real terror for him. But to be stopped on the stairs, to be forced to listen to her trivial, irrelevant gossip, to pestering demands for payment, threats and complaints, and to rack his brains for excuses, to prevaricate, to lie—no, rather than that, he would creep down the stairs like a cat and slip out unseen. This evening, however, on coming out into the street, he became acutely aware of his fears. ‘I want to attempt a thing like that and am frightened by these trifles,’ he thought, with an odd smile. ‘Hm ... yes, all is in a man’s hands and he lets it all slip from cowardice, that’s an axiom. It would be interesting to know what it is men are most afraid of. Taking a new step, uttering a new word is what they fear most.... But I am talking too much. It’s because I chatter that I do nothing. Or perhaps it is that I chatter because I do nothing. I’ve learned to chatter this last month, lying for days together in my den thinking ... of Jack the Giant-killer. Why am I going there now? Am I capable of that? Is that serious? It is not serious at all. It’s simply a fantasy to amuse myself; a plaything! Yes, maybe it is a plaything.’



<https://www.gutenberg.org/files/2554/2554-0.txt>

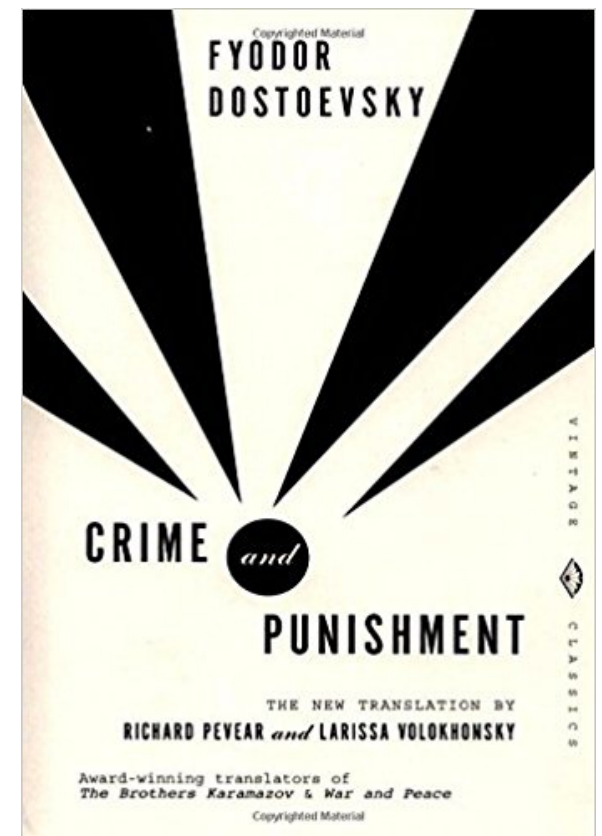


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  </p><p><i>Crime and Punishment</i> focuses on the mental anguish and moral dilemmas of <a href="https://en.wik
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[https://en.wikipedia.org/wiki/Crime\\_and\\_Punishment](https://en.wikipedia.org/wiki/Crime_and_Punishment)



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# Natural language **processing**

Natural language processing (NLP) is a subfield of linguistics, computer science, and artificial intelligence concerned with the interactions between computers and human language, in particular **how to program computers to process and analyze large amounts of natural language data.**

Challenges in natural language processing frequently involve speech recognition, natural language understanding, and natural-language generation.



# Natural language processing

## **Text and speech processing**

Optical character recognition  
Speech recognition  
Speech segmentation  
Text-to-speech  
Word segmentation (Tokenization)

## **Morphological analysis**

Lemmatization  
Morphological segmentation  
Part-of-speech tagging  
Stemming

## **Syntactic analysis**

Grammar induction  
Sentence breaking  
Parsing

## **Lexical semantics**

Lexical semantics  
Distributional semantics  
Named entity recognition  
Sentiment analysis  
Terminology extraction  
Word sense disambiguation

## **Relational semantics**

Relationship extraction  
Semantic Parsing  
Semantic Role Labelling

## **Discourse**

Coreference resolution  
Discourse analysis  
Implicit Semantic Role Labelling  
Recognizing Textual entailment  
Topic segmentation and recognition

## **Higher-level NLP applications**

Automatic summarization  
Book generation  
Dialogue management  
Machine translation  
Natural language generation  
Natural language understanding  
Question answering

**[https://dwulff.github.io/  
NLP\\_2021Autumn/](https://dwulff.github.io/NLP_2021Autumn/)**