# Chapter 9 Significance of Natural Language Processing in Data Analysis Using Business Intelligence

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### ABSTRACT

In the current machine-centric world, humans expect a lot from machines right from waking us up. We expect them to do activities like reminding us on traffic, tracking of appointments, etc. The smart devices we have with us are creating a constructive impact on our day-to-day lives. Many of us have not thought about the communication between ourselves and the devices we have and the language we use for communication. Natural language processing runs behind all these activities and is currently playing a vital role with respect to the communication with humans with the use of virtual assistants like Alexa, Siri, and search engines like Bing, Google, etc. This implies that we are talking with the machines as if they are human. The advanced natural language processing techniques have drastically modified the way to discover and interact with data. In the recent world, the same advanced techniques are primarily used in the data analysis using NLP in business intelligence tools. This chapter elaborates the significance of natural language processing in business intelligence.

### INTRODUCTION

Natural Language Processing is being referred as the AI based technology which qualifies the machines/ computers in understanding, interpretating and manipulating the human natural language. It enables the computer systems in reading the characters in text, speech recognition and interpretating it. It is derived

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from a variety of disciplines like computer science and linguistics computation and tries to remove the gap between communications with computer and with humans. The terminologies involved with NLP are given in Figure 1.

#### Figure 1. NLP terminologies

Ref: https://www.blumeglobal.com/learning/natural-language-processing/



## CHRONICLE OF NATURAL LANGUAGE PROCESSING

- Georgetown, 1954 An Experiment from IBM A programmed computer was designed that translates 60 statements from Russian into English by assigning specific rules and steps to specific words.
- LISP, 1958 -- John McCarthy released the Locator/Identifier Separation Protocol, one of the computer programming language still being used in the current world.
- STUDENT, 1964 Daniel Bobrow, as part of his Ph.D. thesis work, developed an program based on AI named STUDENT created in specific to read and resolve word problems on algebra.
- ELIZA, 1964– A program developed at MIT, which deemed to be first of kind Chatbots, creates the simulation of conversations using the substitution methods and pattern-match methodology.
- ALPAC, 1964 NRC, United States National Research Council developed ALPAC (Automatic Language Processing Advisory Committee) to evaluate the development of research work on Natural Language Processing.
- SHRDLU, 1970 Terry Winograd created a computer strategy named SHRDLU, which can understand NLP and considered to be the first of kind program that can understand the context, in which the user provides several programming directions to shift several blocks in disparate ways.
- LADDER/ LIFER, 1978 An NLP database system which utilized a connotative syntax to analyse questions and inquiry any distribute database to provide solution questions regarding the US Naval ships.
- MACHINE LEARNING, 1980 Machine Learning algorithms gathered significance by replacing the traditional complex and handwritten rules used in NLP systems. Few of the ML algorithms like Decision Trees provided the systems with traditional rules which were handwritten but many

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