**1.8 Challenges In Natural Language Processing**

A number of times a sentence is understood differently because of the mixing of the word boundaries. At the other level the syntax of the language is helpful in deciding the appropriate combination of words so as to make larger meanings. These are the major challenges faced in the NLP systems: Development of a program for understanding natural language

• A large number of natural languages that further contain infinite number of sentences.

• A large amount of ambiguity in natural languages

• Number of meanings of a single word

• Different meanings of sentences in different contexts

• The above problems makes it difficult to design programs that understand a natural language, a major challenge.

**Accuracy:** Natural language techniques can never guarantee a complete and correct result, and as a result, the entire system must be able to take this into account and provide the appropriate fallbacks.

**Efficiency:** Research shows that response times greater than four seconds renders a system too slow to be acceptable, and many NLP systems fall into this category. The natural language systems that have been developed for research have not placed an emphasis on efficiency, leaving it and other issues related with software design as “implementation detail.” To date it is still unclear how efficient a system can be.



**Scalability:** Any system that is deployed would likely need to be able to deal with a large number of users or documents. Runtime, complexity and memory results of research projects in the field are usually not reported.

There are many challenges to developing sophisticated NLP applications; these include the complexity of natural language, multiple technology approaches, and choice of metrics to measure success.