

## **Abstract**

Language is a major important factor to make communication and social interaction inter-human. Linguist is formed by two principal components. They are grammar and lexicon. Linguist as a particular problem is communicating each other with a different language. This leads to an idea of creating machine translation. In this case, the translation is from English into Indonesian. Machine translation is formed by grammar and lexicon that are principal component to build sentence.

Natural Language Processing (NLP) is Interdisciplinary field of Artificial Intelligence that studies about machine translation and computational linguistics. Syntax is one of analyzing process in NLP. Syntax studies the rules for combining words into legal phrases and sentences. Grammar and lexicon are major component in analyzing syntax.

Grammar and lexicon are designed and implemented by using Augmented Transition Network (ATN) method. The result of ATN implementation is a translation sentences that are similar to translation by human.

**Keywords:** natural language processing, augmented transition network, machine translation.