

ABSTRACT

Information has always been a human need every day. Nowadays with the internet, searching for information is much easier. But this world is composed of various tribes and languages, therefore online documents that available are also not consists of only one language. With the search engine system as MLIR (*Monolingual Information Retrieval*) which is still frequently used, then the relevant documents in different languages with the query will not be retrieved.

Therefore, in this Final Project created a system that can retrieve the information in cross-language (Indonesia-English). The system is expected to translate the query (Indonesian language) into another language (English), and this system is also expected to perform the indexing and the search for relevant documents in different languages with queries. Search for documents relevant to this system using *belief networks*. *Belief network* is a graphical formalism to represent explicitly indepenence between the variables of a joint probability distribution which is described through a *Directed Acyclic Graph* (DAG). The relationship between the *query*, *term*, and the documents described in the form of *nodes*, and the probability is indicated by the *edge* conditions. With this method, the expected relevant documents (different from *query* language) can be retrieved. Collection of documents used is English language documents.

Query translation process with the selection of the translation results using the *dice coefficient* is carried out does not work well because of the **18 queries** that are translated, only **7 queries** that successfully translated well. Likewise, the performance results of the search process is not good, it is influenced by the '*koefisien dice*' values and also the value of *tf* and *idf*.

Key words: belief network, cross language information retrieval, query translate, dice coefficient