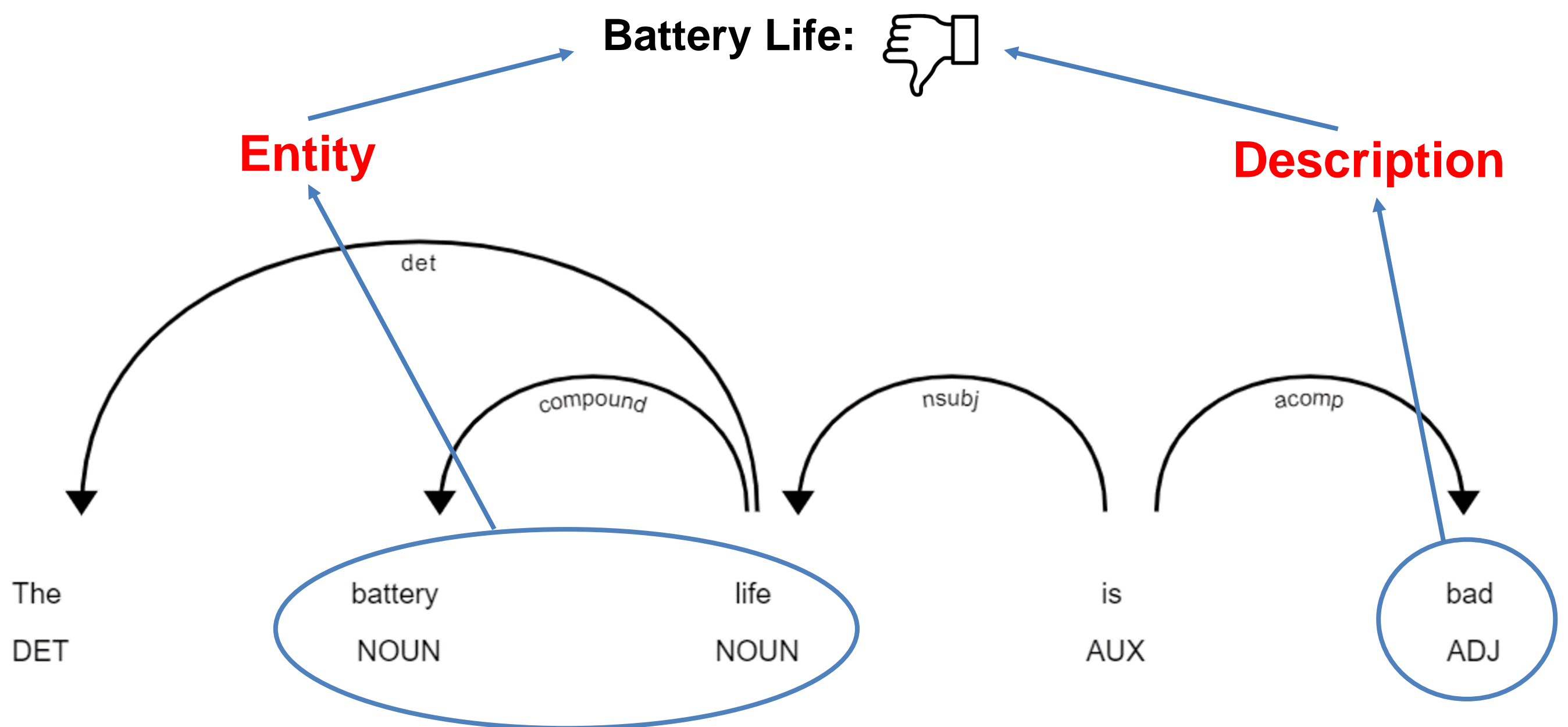


# Time Expression and Named Entity Recognition for Sentiment Analysis

Student: Jordan Tan Rei Yao

Supervisor: Professor Erik Cambria

## SenticNet vs BERT vs CNN-LSTM



### Project Objectives:

SenticNet is a novel framework that has managed to capitalize on the strengths of both symbolic and sub-symbolic AI to perform sentiment analysis. Therefore, one objective of this project is to see how the SenticNet framework compares with two popular sub-symbolic models – CNN-LSTM and BERT – for sentiment prediction. This comparison will allow us to see what are the strengths and weaknesses of SenticNet as well as traditional sub-symbolic AI.

Irrespective of the approach, it is important to understand what entities the sentiments detected in text are for. In natural language text, there are two main entity types – time expressions and named entities. Most of the time, sentiments expressed in text are directed towards specific named entities (e.g., person and object).

Therefore, the second objective of this project is to see how named entity recognition can make sentiment analysis more meaningful and insightful. The project proposes a novel approach to determine the sentiments for the entities in text. The approach looks at the grammatical structure of sentences to extract named entities and their corresponding descriptions, in order to determine the sentiments for each of them.