



Fig. 5 Average precision at standard recall level for the ontological model and the conventional BM25 model

B. Discussion

In conclusion, the precision value of 20 queries using an ontology-based approach is much higher than the keyword-based approach. This is because the ontology-based approach is based on the concepts and relationships extracted from text-based semantics. Besides, the use of ontology as a database domain supports semantic search because semantic indexing methods allow data to be developed and linked more widely and in detail between each concept with the other concepts more practically. The effectiveness of the matching concept in every query depending on the annotation of documents in the ontology. In conclusion, the use of the ontology-based approach to information access and retrieval of documents is effectively able to compete with the keyword-based approach. Figure 5 clearly shows the better performance of the proposed ontology-based approach for historical documents. It provides an overall performance comparison between both approaches.

IV. CONCLUSIONS

We have discussed an ontology-based approach to support in designing and developing new representation IR-system in historical domain. Several experiments have been implemented on ontology-based approach and keyword-based approach to verify the retrieval of documents by using twenty queries. The evaluation results show that the purposed ontologies improve the precision and recall of the retrieval of the documents. As a conclusion of this work, we would like to focus on the semantic retrieval approach can contribute better search ability, thus achieving an advancement on keyword-based retrieval using the introduction and exploitation of ontologies. Future research works include further experiments by considering many documents, and it is also interesting to have a generic ontology and document processing which can be used for various other event-related documents.

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