Comparing and Evaluating Terminology Services APIs: RxNav, UMLSKS, and LexBIG

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Abstract

To facilitate the integration of terminologies into numerous aspects of e-Science, e-Business and e-Government, various terminology services APIs (application programming interfaces) have been developed in the recent past. These APIs, in general, are tuned to efficiently and effectively provide a host of functional characteristics ranging from retrieving concept attributes such as definitions and synonyms, to navigating relationships between concepts (e.g., finding sub- or super-concepts of a given concept).

In this study, we compare and evaluate three publicly available terminology services APIs, RxNav, UMLSKS, and LexBIG, with respect to retrieval of information from one biomedical terminology, RxNorm, common to these services. Specifically, we established a list of queries covering a wide spectrum of terminology services functionalities such as finding RxNorm concepts by their name, or navigating different types of relationships based on the current implementation of the Rx-Nav API. Training and test data were generated from the RxNorm dataset to verify and evaluate the implementation of the functionalities, respectively.

Our results revealed issues with various aspects of the API implementation and documentation that are currently being addressed. The study contributes to provide a methodological model in comparing and evaluating terminology services APIs developed by different organizations.