

Assignment 2: Search Evaluation

I did my evaluations using the “osteoporosis” topic, because I felt that I knew it slightly better than the others and would have a better chance of formulating meaningful queries. I typed the data into an Excel spreadsheet and then generated charts, which was both easier and harder than I had anticipated. I spent so much time wrestling with Excel that I had less time than I wanted to experiment.

One characteristic of the osteoporosis topic is that the word “osteoporosis” itself is an incredibly good keyword, because it has a specific technical meaning. It is relatively unlikely that a document containing the word “osteoporosis” is about a completely unrelated topic. I hypothesized that a search for only “osteoporosis” would have a high precision-recall curve, and that turned out to be the case. Therefore, the main query variation that I tested was whether I could generate a query that would have a higher precision-recall curve than that of only the keyword “osteoporosis.” I did not manage to do so; almost all the queries had significantly lower precision, whether they contained that word or not. Even queries which contained the word “osteoporosis” in addition to one or two other words had lower precision. This occurred in both databases.

One unanticipated effect of the “osteoporosis” topic was to minimize the difference between the stemmed database and the unstemmed one. For the queries containing the word “osteoporosis,” the precision curves were remarkably similar, though they differed more for other words. I believe that this is because the word “osteoporosis” either has no stem to which it can be truncated or has a stem which is truly unique only to “osteoporosis” and whatever related words it may have.

The interesting thing about this set of searches is that in both databases, searching for one keyword, “osteoporosis,” significantly improved precision compared to searching with “osteoporosis” combined with other keywords. This is non-intuitive, because the usual strategy to narrow down search queries is to add keywords, and that did not work in this case.



