

1. table:

23849	0.0151	0.0186	23.2%	0.2391	1483.4%
42255	0.1987	0.2625	32.1%	0.4411	122.0%
47210	0.1997	0.2021	1.2%	0.3692	84.9%
67316	0.0080	0.0151	88.8%	0.0853	966.3%
118440	0.0041	0.0048	17.1%	0.0084	104.9%
121171	0.6916	0.6956	0.6%	0.2195	-68.3%
135802	0.1164	0.1176	1.0%	0.0546	-53.1%
141630	0.3959	0.4690	18.5%	0.4309	8.8%
156498	0.0564	0.0701	24.3%	0.1348	139.0%
169208	0.1319	0.1075	-18.5%	0.1028	-22.1%
174463	0.0041	0.0301	634.1%	0.1838	4382.9%
258062	0.0314	0.0317	1.0%	0.1640	422.3%
324585	0.0449	0.0369	-17.8%	0.3791	744.3%
330975	0.1675	0.2357	40.7%	0.5441	224.8%
332593	0.2522	0.2310	-8.4%	0.2221	-11.9%
336901	0.0634	0.0634	0.0%	0.1708	169.4%
390360	0.3275	0.2741	-16.3%	0.2375	-27.5%
405163	0.0787	0.0735	-6.6%	0.0013	-98.3%
555530	0.0084	0.0134	59.5%	0.2544	2928.6%
583468	0.6706	0.7267	8.4%	0.7084	5.6%
640502	0.1199	0.0878	-26.8%	0.1880	56.8%
673670	0.0324	0.0416	28.4%	0.0009	-97.2%
701453	0.5663	0.5531	-2.3%	0.3160	-44.2%
730539	0.2034	0.1356	-33.3%	0.1628	-20.0%
768208	0.2353	0.2433	3.4%	0.0623	-73.5%
877809	0.1914	0.2516	31.5%	0.2097	9.6%
911232	0.2038	0.1542	-24.3%	0.1592	-21.9%
914916	0.3638	0.2860	-21.4%	0.4061	11.6%
938400	0.1660	0.1043	-37.2%	0.3848	131.8%
940547	0.0868	0.0892	2.8%	0.3152	263.1%
940548	0.0000	0.0000	undef	0.0000	undef
997622	0.0748	0.0524	-29.9%	0.1313	75.5%
1030303	0.5014	0.5014	0.0%	0.1939	-61.3%
1037496	0.4259	0.3181	-25.3%	0.2945	-30.9%
1043135	0.1128	0.1031	-8.6%	0.1281	13.6%
1049519	0.0000	0.0000	undef	0.0000	undef
1051399	0.0201	0.0113	-43.8%	0.1348	570.6%
1056416	0.0000	0.0000	undef	0.0000	undef
1064670	0.2233	0.2312	3.5%	0.1521	-31.9%
1071750	0.2587	0.2685	3.8%	0.2944	13.8%
1103153	0.0000	0.0000	undef	0.0000	undef
1105792	0.3999	0.3840	-4.0%	0.1988	-50.3%
1106979	0.6340	0.5034	-20.6%	0.5401	-14.8%

1108651	0.0547	0.0250	-54.3%	0.2464	350.5%
1108729	0.0000	0.0000	undef	0.0000	undef
1109707	0.1502	0.1750	16.5%	0.1376	-8.4%
1110678	0.4205	0.3262	-22.4%	0.0201	-95.2%
1113256	0.4953	0.4969	0.3%	0.4651	-6.1%
1115210	0.0915	0.0887	-3.1%	0.0651	-28.9%
1116380	0.0396	0.0111	-72.0%	0.0587	48.2%
1119543	0.0000	0.0000	undef	0.0000	undef
1121353	0.2557	0.2349	-8.1%	0.1002	-60.8%
1122767	0.3460	0.3235	-6.5%	0.2052	-40.7%
1127540	0.2693	0.2764	2.6%	0.1705	-36.7%
1131069	0.0288	0.0856	197.2%	0.2143	644.1%
1132532	0.1666	0.1044	-37.3%	0.2442	46.6%
1133579	0.6677	0.6666	-0.2%	0.7530	12.8%
1136043	0.0976	0.1569	60.8%	0.3695	278.6%
1136047	0.0666	0.0464	-30.3%	0.0623	-6.5%
1136769	0.0000	0.0000	undef	0.0000	undef
1136962	0.4689	0.4879	4.1%	0.4199	-10.4%
all	0.1952	0.1886	-3.4%	0.2091	7.1%

2. Between ql and bm25, bm25 is somewhat split between better and worse than ql, I would say around 40 percent of the time worse 60 percent of the time better. Most of the negative improvement lies between 0 and 40 percent while the positive improvement varies dramatically, with some improvements going over 100%. between ql and dpr, dpr is also somewhat split between better and worse, with a 70/30 split. However, compared with bm25, dpr has much better improvement statistics with some queries going over 200% and a single query going over 2000. Overall, it seems as ql performs the worst, dpr the best, and bm25 somewhere in between.

3. If a query has no retrieved documents, its precision and recall never increased and stay 0, as such calculating the MAP or average of average precisions will result in 0 as all average precisions will be 0 as all precisions of the query are 0, so the sum of all average precisions (all 0) divided by the number of queries will result in 0.

4.

