allModelsEval

Query	QL	BM25	improv	DPR	improv
23849	0.015137290978556700	0.018639325784678200	0.23135148892112600	0.2390705130511400	14.793480708655400
42255	0.19873362609067500	0.2624604062278990	0.32066430523512600	0.44112849809571100	1.2196973243694500
47210	0.19972017048124300	0.2021081197257510	0.011956475095899900	0.36920070817241500	0.84858999110002
67316	0.00804925511481676	0.015116998533015900	0.8780617979406670	0.08531692113423750	9.599356079196620
118440	0.004064363355323610	0.0047539224110707200	0.16965979551112200	0.008385087179268150	1.0630751845267800
121171	0.69156164008768	0.6956117754486060	0.005856506674390460	0.21950062114392500	-0.6826015087880010
135802	0.11640350705781200	0.11758499939158800	0.010149971969391200	0.05460439692901120	-0.5309041943049730
141630	0.3959329796069680	0.46899434027812000	0.18452961595590900	0.43087029676835600	0.0882404825080996
156498	0.05637986208707480	0.07010224713422570	0.2433916036537600	0.134818215222473	1.3912476943319900
169208	0.13193969197189500	0.10752701141442400	-0.18502908558155100	0.10281105809844100	-0.22077233498209400
174463	0.004101698354571920	0.030127633287527200	6.3451606342396500	0.18376976134259500	43.80333399889280
258062	0.031416020819090100	0.03173604522264770	0.010186662575773400	0.16397482683375300	4.219465182366860
324585	0.04486026948767700	0.03693557318551380	-0.17665289113655800	0.3790945165945170	7.450562623094640
330975	0.1674883209094840	0.23570604532298700	0.4072983957512430	0.544138456234222	2.2488143249599500
332593	0.2522460866644840	0.2309782071853050	-0.08431401160830510	0.2221140991169070	-0.11945472750844300
336901	0.06341180371352790	0.06341180371352790	0.0	0.17083333333333300	1.6940305010893200
390360	0.327457642613146	0.27410167883540500	-0.16294004730491400	0.23747154805334900	-0.27480224264029700
405163	0.07873917730272580	0.07352646194606120	-0.06620230913289100	0.0012683128687502500	-0.9838922260531880
555530	0.008414367852067660	0.013367949262333100	0.5887051169326050	0.25440910376231600	29.235082211172900
583468	0.6706017791559900	0.7266619689982	0.08359684030777070	0.7083914342584660	0.05635185631335200
640502	0.1199137961264670	0.08784538307007910	-0.26742888718631800	0.18800469187326700	0.5678320422363030
673670	0.0324024189386176	0.04160312654078820	0.28395125745396300	0.0009016722486658590	-0.9721726871572780
701453	0.566307755146823	0.5531306615351010	-0.023268432211926500	0.3159706769389710	-0.44205129796068
730539	0.20344189090501800	0.13556814594230700	-0.3336271829797310	0.16284652972309600	-0.19954278345198200
768208	0.23534076574508500	0.2432772736815930	0.03372347290271220	0.062313093489154700	-0.7352218461095240
877809	0.19137182792669600	0.2515772223096850	0.3145990454041670	0.20971058390654300	0.09582787695831660
911232	0.20381988596897900	0.15421931118526900	-0.24335493343990700	0.15921330910370500	-0.21885291836569100
914916	0.36375454627703700	0.28599542944183400	-0.21376809618203800	0.40612345738596900	0.11647665037473700
938400	0.16602586255757000	0.10428535518569600	-0.3718728300566140	0.3848429897812970	1.3179701273821200
940547	0.08680927292683080	0.0892470875911211	0.028082422327682800	0.31517252555731600	2.6306320158097300
940548	0	0	0	0	0
997622	0.07479556119945830	0.052391942991522700	-0.29953138727299000	0.1312528938111770	0.7548219667897610
1030303	0.5014285714285710	0.5014285714285710	0.0	0.1938961038961040	-0.6133126133126130
1037496	0.4258968940711940	0.31809212091281200	-0.25312411210108800	0.2944703005973110	-0.3085878185622880
1043135	0.11280702156229800	0.10314382048983100	-0.08566134393620650	0.12810685745735700	0.1356284004591810
1049519	0	0	0	0	0
1051399	0.020063862816988200	0.011254447163824100	-0.4390687742195450	0.1348267934364910	5.7198821416548400
1056416	0	0	0	0	0
1064670	0.22325840157795800	0.23118701224596100	0.0355131570053563	0.15211907109461000	-0.3186412246103430
1071750	0.2586665056538780	0.26846681689450700	0.037887824772114100	0.29438594400165300	0.13809069812684000
1103153	0	0	0	0	0
1105792	0.39990036418607900	0.3840273483130630	-0.03969242665062950	0.19875986089734700	-0.5029765444152930
1106979	0.6340473143890950	0.5034044214234970	-0.20604596849601500	0.5401051932913900	-0.14816263544656500
1108651	0.05472374893893580	0.0250330698713144	-0.542555648019512	0.2463603255786740	3.501890501938710
1108729	0	0	0	0	0
1109707	0.15023661744669600	0.1750420204638290	0.1651089024680240	0.13759773632094400	-0.08412650218403890
1110678	0.4205085740272620	0.3261943268993020	-0.22428614528522300	0.020146254629644700	-0.9520907399421100
1113256	0.4953413647064860	0.4969232605996410	0.0031935469271615000	0.46509010615377300	-0.06107153714214610
1115210	0.09146595719903890	0.08866063866064710	-0.030670630082482200	0.0650656814449918	-0.2886349912306450
1116380	0.0395727237495314	0.011053980666206600	-0.7206666709076980	0.058742723906224100	0.48442458189195800
1119543	0	0	0	0	0
1121353	0.25567967250559300	0.2348948644249200	-0.08129237603047690	0.10015765746649500	-0.6082689856218270
1122767	0.3459773900193690	0.3234668025512400	-0.06506375305874550	0.205151655603609	-0.4070373916858450

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1127540	0.2692621676294590	0.27636999511643400	0.02639742355768410	0.17050995757664900	-0.3667511515717530
1131069	0.028814935064935100	0.08562271062271060	1.9714698447092800	0.21428571428571400	6.436619718309860
1132532	0.16660184164055200	0.10436807720933700	-0.3735478780930070	0.24421185900342000	0.46584129322119900
1133579	0.6676571704934190	0.6666206944940100	-0.0015524075007591200	0.7530350709728340	0.1278768569448860
1136043	0.09764980417564950	0.1569245219245150	0.6070131757995550	0.36953322238041800	2.784269978828760
1136047	0.06661288243014360	0.04635103246543950	-0.3041731452764030	0.06231929042263010	-0.06445588076774980
1136769	0	0	0	0	0
1136962	0.46892396951648500	0.48785926289122300	0.04038030598918400	0.4198975992349080	-0.1045507874808130
all	0.19517608020742600	0.18860628312322500	-0.033660872158204300	0.2091196575682880	0.07144101544637180

2. I think it's interesting that BM2 seems to be harmful compared to QL, as according to the project description BM2 is more sophisticated. Although, sometimes more complex solutions don't necessarily mean they're better. I'm also surprised that DPR, the neural network approach, doesn't seem to provide a very substantial boost over QL, at only 7%. I thought it would be substantially better because the project description states that DPR is not in our textbook, which makes me think that it's a lot newer, especially considering neural networks are all the rage at the moment. It seems from this data that all three methods are pretty much equally effective, but then again, 61 queries isn't a very large sample size.

3. I would argue that the mean average precision for a query that retrieves no documents is simply undefined. Lecture 9 states that when calculating AP, we sample the precision value for each time recall increases. Clearly if no documents are retrieved, this will never occur. One could argue that it should be 0, but I think that would be misrepresenting the state of the query — a precision of 0 would suggest that it retrieved exclusively irrelevant documents, which isn't actually what occurred in this instance. An AP value of undefined makes it more clear that the query didn't retrieve irrelevant documents, but rather didn't retrieve any documents at all.