Vocabulary elimination W(q,t) threshold value analysis

Below are the result for mean average precision, throughput and mean response time for all 225 queries with vocabulary elimination with default ranking strategy based on different w(q,t) threshold values.

W(q,t) threshold	MAP	Throughput	MRT in milisec
0.001	0.380533819	0.238974513	4184.546667
0.01	0.380533819	0.240064785	4165.542222
0.1	0.380533819	0.223602929	4472.213333
1	0.391457213	0.243569495	4105.604444
1.1	0.392898485	0.231223377	4324.822222
1.2	0.393070604	0.23544973	4247.191111
1.3	0.391391889	0.240603884	4156.208889
1.4	0.390935371	0.24965409	4005.542222
1.5	0.380428071	0.23836185	4195.302222
1.7	0.379533464	0.240254478	4162.253333
2	0.366631987	0.236876016	4221.617778
2.5	0.31674182	0.24178937	4135.831111
5	0.079519571	0.240659986	4155.24
7.5	0	0.237860901	4204.137778

Below are the result for average precision, throughput and mean response time for single query “what similarity laws must be obeyed when con-structing aeroelastic models of heated high speed aircraft .” executed for 3o times with vocabulary elimination with default ranking strategy based on different w(q,t) threshold values.

W(q,t) threshold	AP	MRT in milisec	Throughput
0.001	0.270375795	3748.733333	8.002703135
0.01	0.270375795	3752.933333	7.993747113
0.1	0.270375795	3772.2	7.952918721
1	0.263635046	3744.333333	8.012107184
1.1	0.282596832	3751.3	7.997227628
1.2	0.282596832	3740.466667	8.020389613
1.3	0.282596832	3750.166667	7.99964446
1.4	0.282596832	3740.9	8.019460558
1.5	0.282596832	3742.1	8.016888913

1.7	0.282596832	3727.333333	8.048649615
2	0.23332084	3730.566667	8.04167374
2.5	0.153416263	3747.3	8.00576415
5	0	3737.1	8.027614996
7.5	0	3730.266667	8.042320478

For 225 query execution mean response time and throughput W(q,t) threshold value 1.4 gives optimal result but for mean average precision W(q,t) threshold value 1.2 gives optimal result. Generally, we expect fast results from web search instead of exact results.

Hence we considered 1.4 for W(q,t) threshold value for the given search engine.