

## APPENDIX: DATA OBTAINED FROM THE EXPERIMENTS

Table 1: Document Sizes and Compression Ratios (bits/byte)

Document	Size	Gzip	XMill	XCQ	XBMill	BXCQ
Original Weblog	19.97 MB	948.83 KB (0.38)	-	-	-	-
weblog	32.72 MB	1.15 MB (0.28)	725.75 KB (0.18)	683.56 KB (0.17)	523.03 KB (0.13)	480.79 KB (0.12)
sprot	21.25 MB	2.89 MB (1.09)	1.74 MB (0.65)	1.60 MB (0.60)	1.33 MB (0.50)	1.22 MB (0.46)
dblp	40.90 MB	7.42 MB (1.45)	6.15 MB (1.20)	5.76 MB (1.13)	4.66 MB (0.91)	4.31 MB (0.84)
shakespeare	7.9 MB	2.15 MB (2.18)	1.99 MB (2.02)	1.89 MB (1.92)	1.54 MB (1.56)	1.46 MB (1.48)

Table 2: Compression Time

Document	Gzip	XMill	XCQ	XBMill	BXCQ
Original Weblog	185.3ms	-	-	-	-
weblog	270.7ms	425.6ms	703.3ms	8989.9ms	10098.2ms
sprot	298ms	436.6ms	703ms	3599.4ms	3673.2ms
dblp	716.3ms	1045.5ms	1629.9ms	6064.4ms	7077.4ms
shakespeare	223.7ms	294.1ms	401.2ms	926.3ms	1167.6ms

Table 3: Decompression Time

Document	Gzip	XMill	XCQ	XBMill	BXCQ
Original Weblog	168.3ms	-	-	-	-
weblog	310.7ms	310.4ms	421.6ms	687.6ms	828.8ms
sprot	176ms	218.6ms	391.2ms	482ms	657.9ms
dblp	365.7	410.9ms	657.9ms	1074.2ms	1349.6ms
shakespeare	50.3ms	59.3ms	117.1ms	241ms	294.7ms

Table 4: Compression Ratio Comparison between XMill and XCQ

Document	Size (bytes)	XMill	XMill Ratio $R_{XMill}$ (bits/byte)	XCQ	XCQ Ratio $R_{XCQ}$ (bits/byte)	$R_{XMill} - R_{XCQ}$
Weblog	19875	1883	0.758	1745	0.702	0.056
	39020	2572	0.527	2319	0.475	0.052
	54324	2982	0.439	2710	0.399	0.040
	71626	4183	0.467	3806	0.425	0.042
	211251	9917	0.376	9149	0.346	0.029
	449565	16188	0.288	15037	0.268	0.020
	908010	24140	0.213	22547	0.199	0.014
	1830131	28668	0.125	26790	0.117	0.008
	3674260	37247	0.081	34649	0.075	0.006
	7305077	111479	0.122	104443	0.114	0.008
	10923421	208765	0.153	197285	0.144	0.008
	14554181	314443	0.173	295432	0.162	0.010
	18167765	412971	0.182	390041	0.172	0.010
	21842004	449448	0.165	422988	0.155	0.010
	25472821	525145	0.165	492759	0.155	0.010
	29091165	622545	0.171	585190	0.161	0.010
	32721925	725748	0.177	683558	0.167	0.010
	45324655	1072016	0.189	1009414	0.178	0.011
	89770579	2257865	0.201	2142953	0.191	0.010
	Sprot	49438	7191	1.164	6902	1.117
115726		14480	1.001	13480	0.932	0.069
529879		46898	0.708	43359	0.655	0.053
1057351		92997	0.704	85720	0.649	0.055
3083490		263269	0.683	243207	0.631	0.052
5200284		431165	0.663	397601	0.612	0.052
10580925		882361	0.667	816212	0.617	0.050
16200097		1297309	0.641	1187234	0.586	0.054
21253567		1738695	0.654	1596125	0.601	0.054
dblp		40901519	6149302	1.203	5760124	1.127
Shakespeare	7881896	1986370	2.016	1894245	1.923	0.094
					Sample Count:	30
					Sample Mean:	0.034
					Sample Variance:	0.000622

Table 5: Weblogs Used in Scalability Experiment

	weblog_1	weblog_2	weblog_3	weblog_4	weblog_5
Size	2.4 MB	6.8 MB	11.1 MB	15.7 MB	20.0 MB
XSize	3.7 MB	11.0 MB	18.2 MB	25.5 MB	32.7 MB

Table 6: Compression Document Sizes in Scalability Experiment

	Gzip	XMill	XCQ	XBMill	BXCQ
weblog_1	59 KB	37 KB	35 KB	27 KB	25 KB
weblog_2	334 KB	209 KB	197 KB	149 KB	144 KB
weblog_3	655 KB	413 KB	390 KB	297 KB	284 KB
weblog_4	829 KB	525 KB	493 KB	383 KB	354 KB
weblog_5	1.2 MB	726 KB	684 KB	523 KB	480 KB

Table 7: Compression Time in Scalability Experiment

	Gzip	XMill	XCQ	XBMill	BXCQ
weblog_1	0.460	0.440	0.707	12.440	12.207
weblog_2	1.060	1.422	2.230	32.456	34.058
weblog_3	1.673	2.413	3.775	49.538	51.881
weblog_4	2.183	3.331	5.220	73.078	80.756
weblog_5	2.847	4.289	6.762	89.929	100.982

Table 8: Decompression Time in Scalability Experiment

	Gzip	XMill	XCQ	XBMill	BXCQ
weblog_1	0.227	0.137	0.450	0.630	0.908
weblog_2	0.723	0.660	1.391	2.286	2.753
weblog_3	1.540	1.368	2.323	3.578	4.606
weblog_4	2.213	2.206	3.297	5.310	6.429
weblog_5	2.917	2.854	4.212	6.876	8.288

Table 9: XCQ: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for Weblog XML Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Compression Time (s)	44.089	41.270	39.992	38.997	37.843	36.636	35.455	32.730	29.830	28.653	26.314
Decompression Time (s)	12.848	12.553	12.353	12.187	12.112	12.002	11.867	11.787	11.656	11.641	11.546
Compressed Size (MB)	5.652	5.227	4.918	4.667	4.468	4.302	4.039	3.761	3.558	3.454	3.254
Compression Ratio (bits/byte)	0.504	0.466	0.438	0.416	0.398	0.383	0.360	0.335	0.317	0.308	0.290

Table 10: XCQ: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for Weblog XML Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Compression Time (s)	24.787	22.013	20.321	19.871	19.622	19.548	19.499	19.503	19.631	19.394	19.533
Decompression Time (s)	11.566	11.411	11.366	11.346	11.256	11.206	11.090	11.090	11.030	11.071	11.221
Compressed Size (MB)	3.113	2.794	2.580	2.499	2.444	2.388	2.273	2.219	2.176	2.154	2.143
Compression Ratio (bits/byte)	0.277	0.249	0.230	0.223	0.218	0.213	0.203	0.198	0.194	0.192	0.191

Table 11: XCQ: Query Response Times for Weblog XML Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Aggregation (Selectivity 0.01%)	0.360	0.351	0.321	0.307	0.294	0.280	0.264	0.274	0.271	0.283	0.301
Aggregation (Selectivity 0.05%)	0.521	0.511	0.471	0.451	0.431	0.420	0.401	0.407	0.415	0.420	0.437
Aggregation (Selectivity 0.08%)	0.935	0.885	0.808	0.765	0.721	0.704	0.638	0.635	0.640	0.643	0.644
Aggregation (Selectivity 0.1%)	0.928	0.885	0.808	0.764	0.728	0.708	0.650	0.635	0.633	0.627	0.641
Aggregation (Selectivity 0.4%)	0.945	0.916	0.832	0.794	0.785	0.738	0.701	0.679	0.660	0.657	0.652
Aggregation (Selectivity 1%)	3.465	2.914	2.373	2.016	1.783	1.596	1.315	1.132	0.871	0.747	0.874
Aggregation (Selectivity 5%)	3.452	2.911	2.370	2.023	1.782	1.592	1.319	1.128	0.671	0.648	0.875
Aggregation (Selectivity 10%)	3.465	2.917	2.377	2.020	1.786	1.596	1.315	1.132	0.674	0.651	0.875
Aggregation (Selectivity 50%)	3.502	2.937	2.390	2.036	1.793	1.602	1.322	1.135	0.674	0.647	0.878
Aggregation (Selectivity 75%)	3.502	2.938	2.390	2.026	1.793	1.599	1.322	1.132	0.674	0.648	0.878
Selectivity (0.01%)	2.160	2.133	2.093	2.073	2.049	2.030	2.010	2.010	2.000	2.010	2.030
Selectivity (0.05%)	3.054	2.974	2.841	2.774	2.734	2.674	2.634	2.597	2.550	2.570	2.597
Selectivity (0.08%)	3.916	3.735	3.565	3.475	3.385	3.308	3.195	3.135	3.070	3.060	3.081
Selectivity (0.1%)	4.220	3.999	3.829	3.662	3.562	3.515	3.388	3.302	3.228	3.220	3.221
Selectivity (0.4%)	4.946	4.524	4.311	4.109	3.922	3.826	3.624	3.484	3.374	3.274	3.272
Selectivity (1%)	17.458	15.212	13.319	12.004	11.082	10.251	9.016	7.841	7.204	6.556	5.999
Selectivity (5%)	31.726	25.457	18.263	18.000	16.070	14.314	12.167	9.988	8.576	8.048	7.020
Selectivity (10%)	35.568	28.017	23.210	19.829	17.088	15.502	12.809	10.535	9.143	8.566	7.538
Selectivity (50%)	42.618	33.745	28.311	24.655	21.718	19.962	17.118	14.758	12.200	11.400	10.952
Selectivity (75%)	45.262	36.259	30.878	27.179	24.529	22.379	19.588	16.700	15.742	14.958	13.920

Table 12: XCQ: Query Response Times for Weblog XML Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Aggregation (Selectivity 0.01%)	0.304	0.367	0.407	0.434	0.455	0.461	0.517	0.521	0.547	0.541	0.541
Aggregation (Selectivity 0.05%)	0.449	0.501	0.528	0.547	0.557	0.574	0.558	0.548	0.541	0.541	0.544
Aggregation (Selectivity 0.08%)	0.651	0.654	0.618	0.614	0.598	0.587	0.561	0.548	0.544	0.541	0.544
Aggregation (Selectivity 0.1%)	0.640	0.643	0.618	0.614	0.598	0.587	0.561	0.547	0.544	0.541	0.544
Aggregation (Selectivity 0.4%)	0.660	0.650	0.625	0.598	0.599	0.595	0.555	0.559	0.544	0.541	0.544
Aggregation (Selectivity 1%)	0.811	0.698	0.621	0.617	0.588	0.591	0.561	0.551	0.544	0.541	0.544
Aggregation (Selectivity 5%)	0.815	0.698	0.634	0.614	0.558	0.591	0.561	0.551	0.544	0.541	0.544
Aggregation (Selectivity 10%)	0.815	0.698	0.638	0.611	0.554	0.587	0.561	0.551	0.544	0.544	0.544
Aggregation (Selectivity 50%)	0.818	0.701	0.638	0.618	0.558	0.591	0.564	0.551	0.544	0.544	0.548
Aggregation (Selectivity 75%)	0.814	0.701	0.638	0.617	0.554	0.591	0.564	0.551	0.544	0.541	0.547
Selectivity (0.01%)	2.036	2.110	2.166	2.207	2.220	2.247	2.400	2.497	2.761	2.991	3.071
Selectivity (0.05%)	2.614	2.684	2.781	2.847	2.927	2.984	3.191	3.255	3.365	3.425	3.422
Selectivity (0.08%)	3.075	3.105	3.150	3.164	3.184	3.205	3.338	3.391	3.432	3.482	3.465
Selectivity (0.1%)	3.215	3.208	3.235	3.251	3.262	3.288	3.371	3.415	3.461	3.489	3.468
Selectivity (0.4%)	3.224	3.239	3.308	3.353	3.380	3.426	3.587	3.664	3.628	3.656	3.642
Selectivity (1%)	5.668	4.737	4.233	4.056	3.942	3.836	3.649	3.629	3.605	3.598	3.562
Selectivity (5%)	6.362	5.228	4.663	4.483	4.376	4.286	4.096	4.046	4.012	4.006	3.959
Selectivity (10%)	6.890	4.810	5.184	5.004	4.890	4.787	4.617	4.563	4.523	4.503	4.460
Selectivity (50%)	10.600	9.384	9.160	8.956	8.602	8.419	8.479	8.396	8.319	8.299	8.239
Selectivity (75%)	13.253	12.101	11.547	11.347	11.003	10.899	10.742	10.739	10.689	10.638	10.595

Table 13: XCQ: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for DBLP Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Compression Time (s)	34.607	32.640	31.603	31.081	29.848	27.471	25.556	23.017	21.188	20.360	18.839
Decompression Time (s)	7.766	7.556	7.395	7.265	7.160	7.090	6.960	6.960	6.779	6.729	6.659
Compressed Size (MB)	8.709	8.438	8.233	8.069	7.935	7.820	7.638	7.433	7.285	7.204	7.043
Compression Ratio (bits/byte)	1.703	1.650	1.610	1.578	1.552	1.530	1.494	1.454	1.425	1.409	1.377

Table 14: XCQ: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for DBLP Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Compression Time (s)	18.085	16.496	15.799	15.657	15.604	15.555	15.842	16.119	16.579	16.657	17.205
Decompression Time (s)	6.624	6.544	6.479	6.444	6.414	6.399	6.329	6.279	6.224	6.164	5.999
Compressed Size (MB)	6.922	6.610	6.391	6.290	6.214	6.131	5.950	5.870	5.807	5.777	5.760
Compression Ratio (bits/byte)	1.354	1.293	1.250	1.230	1.215	1.199	1.164	1.148	1.136	1.130	1.127

Table 15: XCQ: Query Response Times for DBLP Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Structural	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531
Aggregation (Selectivity 0.02%)	0.010	0.010	0.010	0.010	0.010	0.007	0.010	0.010	0.010	0.010	0.010
Aggregation (Selectivity 0.05%)	0.020	0.017	0.017	0.013	0.017	0.013	0.017	0.013	0.013	0.010	0.017
Aggregation (Selectivity 0.08%)	0.067	0.060	0.053	0.050	0.050	0.047	0.043	0.043	0.043	0.043	0.043
Aggregation (Selectivity 0.1%)	0.083	0.067	0.060	0.054	0.053	0.050	0.047	0.043	0.043	0.043	0.043
Aggregation (Selectivity 0.4%)	0.100	0.083	0.073	0.067	0.063	0.060	0.060	0.054	0.057	0.057	0.054
Aggregation (Selectivity 1%)	0.307	0.254	0.227	0.217	0.207	0.200	0.190	0.187	0.187	0.187	0.187
Aggregation (Selectivity 5%)	0.451	0.361	0.317	0.294	0.277	0.267	0.257	0.244	0.240	0.237	0.237
Aggregation (Selectivity 10%)	0.534	0.417	0.357	0.337	0.317	0.307	0.294	0.280	0.277	0.270	0.270
Aggregation (Selectivity 50%)	0.785	0.598	0.507	0.471	0.437	0.420	0.394	0.374	0.367	0.354	0.340
Aggregation (Selectivity 75%)	0.784	0.601	0.511	0.474	0.444	0.424	0.397	0.374	0.361	0.354	0.344
Selectivity (0.02%)	0.771	0.758	0.748	0.738	0.738	0.734	0.724	0.724	0.721	0.718	0.718
Selectivity (0.05%)	0.868	0.841	0.814	0.794	0.788	0.774	0.764	0.751	0.744	0.745	0.738
Selectivity (0.08%)	1.292	1.235	1.198	1.162	1.145	1.128	1.105	1.085	1.071	1.065	1.058
Selectivity (0.1%)	1.379	1.305	1.265	1.228	1.202	1.175	1.148	1.122	1.111	1.105	1.095
Selectivity (0.4%)	2.026	1.799	1.662	1.549	1.482	1.422	1.342	1.275	1.238	1.222	1.198
Selectivity (1%)	3.559	3.118	2.841	2.594	2.470	2.327	2.166	2.043	1.943	1.910	1.866
Selectivity (5%)	6.643	5.381	4.600	4.086	3.782	3.452	3.098	2.817	2.647	2.580	2.477
Selectivity (10%)	7.941	6.413	5.425	4.824	6.145	4.046	3.642	4.450	3.131	3.074	2.951
Selectivity (50%)	21.037	17.198	15.118	13.490	12.224	11.336	9.043	8.836	8.179	7.230	7.184
Selectivity (75%)	22.863	18.757	15.122	14.664	13.653	12.551	11.316	10.238	9.353	8.549	8.489

Table 16: XCQ: Query Response Times for DBLP Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Structural	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531
Aggregation (Selectivity 0.02%)	0.010	0.010	0.014	0.014	0.014	0.013	0.013	0.027	0.040	0.070	0.310
Aggregation (Selectivity 0.05%)	0.013	0.017	0.020	0.020	0.023	0.023	0.027	0.043	0.070	0.130	0.314
Aggregation (Selectivity 0.08%)	0.040	0.047	0.050	0.050	0.057	0.060	0.067	0.100	0.133	0.250	0.310
Aggregation (Selectivity 0.1%)	0.040	0.047	0.047	0.050	0.054	0.060	0.070	0.103	0.130	0.251	0.311
Aggregation (Selectivity 0.4%)	0.057	0.060	0.067	0.070	0.070	0.077	0.097	0.160	0.190	0.307	0.310
Aggregation (Selectivity 1%)	0.184	0.194	0.217	0.220	0.240	0.237	0.274	0.304	0.307	0.307	0.310
Aggregation (Selectivity 5%)	0.237	0.244	0.257	0.260	0.270	0.274	0.291	0.307	0.307	0.310	0.314
Aggregation (Selectivity 10%)	0.271	0.277	0.284	0.284	0.290	0.290	0.311	0.310	0.304	0.310	0.314
Aggregation (Selectivity 50%)	0.334	0.330	0.317	0.314	0.314	0.314	0.310	0.307	0.310	0.311	0.314
Aggregation (Selectivity 75%)	0.334	0.327	0.317	0.314	0.317	0.317	0.310	0.311	0.311	0.310	0.310
Selectivity (0.02%)	0.721	0.721	0.721	0.725	0.721	0.731	0.734	0.761	0.828	0.915	1.262
Selectivity (0.05%)	0.734	0.731	0.738	0.741	0.751	0.741	0.748	0.778	0.858	0.975	1.265
Selectivity (0.08%)	1.052	1.045	1.055	1.058	1.072	1.071	1.101	1.178	1.325	1.619	1.866
Selectivity (0.1%)	1.085	1.088	1.091	1.098	1.098	1.115	1.138	1.215	1.365	1.656	1.933
Selectivity (0.4%)	1.182	1.172	1.172	1.182	1.185	1.192	1.242	1.358	1.479	1.816	1.956
Selectivity (1%)	1.833	1.813	1.846	1.866	1.903	1.889	2.063	2.233	2.310	2.353	2.343
Selectivity (5%)	2.410	2.333	2.500	2.614	2.373	2.497	2.504	2.617	2.627	2.620	2.610
Selectivity (10%)	3.124	2.744	3.151	3.051	3.024	2.974	2.914	2.911	2.888	2.884	2.864
Selectivity (50%)	6.800	6.038	5.638	5.508	5.431	5.341	5.184	5.134	5.084	5.044	5.014
Selectivity (75%)	8.018	7.287	6.813	6.796	6.636	6.619	6.452	6.392	6.336	6.313	6.272

Table 17: XCQ: Query Response Times for Weblog with Different SD

Block Standard Deviation (SD)	17559.970	17575.420	17598.346	17642.224	17716.096	18615.374	19617.873	21170.827	22785.234
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Aggregation (Selectivity 0.01%)	0.177	0.222	0.243	0.262	0.284	0.304	0.323	0.344	0.365
Aggregation (Selectivity 0.05%)	0.210	0.254	0.327	0.335	0.351	0.394	0.404	0.424	0.427
Aggregation (Selectivity 0.08%)	0.277	0.314	0.447	0.461	0.507	0.571	0.604	0.621	0.638
Aggregation (Selectivity 0.1%)	0.280	0.297	0.447	0.475	0.504	0.571	0.604	0.624	0.641
Aggregation (Selectivity 0.4%)	0.265	0.433	0.545	0.574	0.577	0.617	0.634	0.658	0.665
Aggregation (Selectivity 1%)	0.486	0.561	0.594	0.623	0.724	0.818	0.831	0.861	0.865
Aggregation (Selectivity 5%)	0.424	0.561	0.594	0.630	0.721	0.804	0.841	0.858	0.865
Aggregation (Selectivity 10%)	0.511	0.564	0.597	0.630	0.724	0.814	0.838	0.861	0.868
Aggregation (Selectivity 50%)	0.688	0.704	0.721	0.732	0.771	0.825	0.844	0.864	0.868
Aggregation (Selectivity 75%)	0.841	0.845	0.851	0.854	0.858	0.868	0.868	0.875	0.878
Selectivity (0.01%)	1.827	1.973	2.131	2.243	2.315	2.384	2.393	2.432	2.464
Selectivity (0.05%)	1.966	2.120	2.267	2.305	2.410	2.500	2.514	2.544	2.567
Selectivity (0.08%)	2.206	2.363	2.627	2.692	2.811	2.951	2.971	3.021	3.054
Selectivity (0.1%)	2.330	2.440	2.724	2.804	2.924	3.078	3.108	3.155	3.195
Selectivity (0.4%)	2.335	2.667	2.908	2.961	3.104	3.206	3.259	3.304	3.334
Selectivity (1%)	2.537	3.178	4.333	4.787	4.894	5.515	5.661	5.885	5.932
Selectivity (5%)	3.555	4.566	5.074	5.598	5.742	6.453	6.636	6.867	6.943
Selectivity (10%)	4.596	5.064	5.618	6.146	6.309	6.994	7.174	7.397	7.461
Selectivity (50%)	10.068	10.274	10.368	10.515	10.622	10.979	11.149	11.396	11.460
Selectivity (75%)	13.793	13.873	13.893	13.917	13.923	13.957	13.917	13.934	13.957

Table 18: BXCQ: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for Weblog XML Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Compression Time (s)	109.888	106.953	105.561	104.139	103.328	102.467	101.255	100.544	106.933	119.962	125.139
Decompression Time (s)	22.352	21.771	21.381	21.121	20.860	20.710	20.299	19.959	19.768	19.668	19.478
Compressed Size (MB)	7.468	6.734	6.225	5.781	5.482	5.177	4.739	4.293	3.959	3.777	3.456
Compression Ratio (bits/byte)	0.666	0.600	0.555	0.515	0.489	0.461	0.422	0.383	0.353	0.337	0.308

Table 19: BXCQ: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for Weblog XML Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Compression Time (s)	122.375	123.788	123.958	125.340	127.283	131.338	154.772	174.420	213.016	221.017	226.225
Decompression Time (s)	19.378	18.957	18.757	18.757	18.947	19.357	20.720	21.461	21.972	21.681	21.050
Compressed Size (MB)	3.240	2.1718	2.371	2.239	2.142	2.041	1.794	1.661	1.532	1.518	1.483
Compression Ratio (bits/byte)	0.289	0.242	0.211	0.200	0.191	0.182	0.160	0.148	0.137	0.135	0.132

Table 20: BXCQ: Query Response Times for Weblog XML Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Aggregation (Selectivity 0.01%)	1.636	1.395	1.215	1.122	1.055	1.005	0.938	0.878	0.845	0.831	0.808
Aggregation (Selectivity 0.05%)	1.636	1.392	1.215	1.118	1.055	1.005	0.941	0.881	0.848	0.831	0.811
Aggregation (Selectivity 0.08%)	1.639	1.395	1.215	1.122	1.058	1.005	0.938	0.881	0.848	0.831	0.811
Aggregation (Selectivity 0.1%)	1.632	1.392	1.215	1.122	1.055	1.008	0.938	0.878	0.848	0.828	0.811
Aggregation (Selectivity 0.4%)	1.636	1.392	1.215	1.118	1.055	1.005	0.938	0.881	0.848	0.831	0.811
Aggregation (Selectivity 1%)	1.636	1.392	1.215	1.122	1.055	1.008	0.938	0.881	0.848	0.831	0.811
Aggregation (Selectivity 5%)	1.639	1.392	1.215	1.115	1.058	1.008	0.941	0.878	0.845	0.831	0.811
Aggregation (Selectivity 10%)	1.636	1.392	1.215	1.122	1.055	1.005	0.938	0.948	0.845	0.835	0.808
Aggregation (Selectivity 50%)	1.646	1.392	1.215	1.122	1.055	1.008	0.938	0.878	0.848	0.831	0.805
Aggregation (Selectivity 75%)	1.636	1.392	1.215	1.118	1.055	1.005	0.938	0.881	0.848	0.831	0.811
Selectivity (0.01%)	3.428	3.175	2.991	2.898	2.831	2.781	2.724	2.677	2.657	2.654	2.664
Selectivity (0.05%)	4.072	3.769	3.672	3.465	3.408	3.368	3.345	3.352	3.395	3.445	3.575
Selectivity (0.08%)	4.466	4.146	4.062	3.845	3.789	3.772	3.762	3.805	3.895	3.982	4.176
Selectivity (0.1%)	4.730	4.380	4.299	4.059	4.006	3.982	3.976	4.026	4.126	4.226	4.446
Selectivity (0.4%)	6.004	5.489	5.346	4.990	4.887	4.825	4.744	4.799	4.858	4.913	5.100
Selectivity (1%)	13.977	12.695	12.198	11.253	10.926	10.759	10.422	10.201	10.128	10.071	10.044
Selectivity (5%)	26.181	22.139	20.055	18.229	16.925	15.936	14.100	13.009	12.301	12.031	11.563
Selectivity (10%)	29.763	24.559	21.468	19.642	18.073	16.991	15.376	14.047	13.266	12.932	12.178
Selectivity (50%)	37.297	30.871	27.179	24.605	22.900	21.628	19.845	18.380	17.538	17.155	16.574
Selectivity (75%)	39.230	33.525	29.733	27.163	25.403	24.152	22.352	20.867	20.012	19.618	19.007

Table 21: BXCQ: Query Response Times for Weblog XML Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Aggregation (Selectivity 0.01%)	0.791	0.765	0.741	0.734	0.725	0.718	0.708	0.701	0.701	0.738	0.801
Aggregation (Selectivity 0.05%)	0.791	0.761	0.734	0.731	0.731	0.721	0.711	0.704	0.701	0.744	0.805
Aggregation (Selectivity 0.08%)	0.791	0.761	0.741	0.734	0.731	0.724	0.714	0.704	0.701	0.745	0.801
Aggregation (Selectivity 0.1%)	0.788	0.761	0.741	0.734	0.731	0.724	0.714	0.708	0.701	0.744	0.804
Aggregation (Selectivity 0.4%)	0.791	0.761	0.741	0.734	0.728	0.728	0.711	0.704	0.701	0.748	0.807
Aggregation (Selectivity 1%)	0.791	0.761	0.741	0.731	0.724	0.724	0.708	0.704	0.701	0.745	0.805
Aggregation (Selectivity 5%)	0.791	0.761	0.741	0.735	0.731	0.724	0.711	0.701	0.701	0.744	0.801
Aggregation (Selectivity 10%)	0.791	0.761	0.741	0.734	0.731	0.721	0.711	0.701	0.704	0.744	0.801
Aggregation (Selectivity 50%)	0.791	0.761	0.741	0.731	0.725	0.724	0.714	0.701	0.705	0.744	0.801
Aggregation (Selectivity 75%)	0.791	0.758	0.738	0.734	0.724	0.728	0.714	0.704	0.704	0.748	0.804
Selectivity (0.01%)	2.671	2.764	2.924	3.014	3.138	3.331	4.577	5.782	8.285	10.465	11.270
Selectivity (0.05%)	3.695	4.239	5.007	5.538	6.079	6.970	10.535	12.348	14.200	14.387	14.331
Selectivity (0.08%)	4.370	5.107	6.125	6.643	7.247	8.108	11.300	13.072	14.267	14.441	14.364
Selectivity (0.1%)	4.660	5.431	6.493	7.067	7.611	8.526	11.483	13.156	14.291	14.441	14.377
Selectivity (0.4%)	5.302	6.029	6.903	7.513	8.089	8.890	11.798	13.007	14.413	14.589	14.508
Selectivity (1%)	10.071	10.071	10.094	10.118	10.255	10.766	12.308	13.553	14.421	14.554	14.467
Selectivity (5%)	11.253	10.779	10.712	10.665	10.862	11.513	13.129	13.974	14.828	14.952	14.871
Selectivity (10%)	11.844	11.363	11.219	11.256	11.433	11.977	13.636	14.481	15.329	15.449	15.359
Selectivity (50%)	16.200	15.609	15.392	15.395	15.556	16.016	17.492	18.323	19.178	19.325	19.201
Selectivity (75%)	18.627	18.009	17.789	17.752	17.922	18.363	19.828	20.657	21.521	21.665	21.608

Table 22: XCQ Without BSS: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for Weblog XML Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Compression Time (s)	40.743	38.888	37.540	36.329	35.514	34.777	33.688	30.651	28.317	27.119	25.005
Decompression Time (s)	12.581	12.360	12.240	12.087	11.950	11.827	11.767	11.593	11.536	11.443	11.416
Compressed Size (MB)	5.519	5.115	4.822	4.580	4.392	4.234	3.981	3.712	3.517	3.416	3.223
Compression Ratio (bits/byte)	0.492	0.456	0.430	0.408	0.391	0.377	0.355	0.331	0.313	0.304	0.287

Table 23: XCQ Without BSS: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for Weblog XML Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Compression Time (s)	23.606	20.812	19.310	18.827	18.646	18.556	18.509	18.456	18.446	18.410	18.364
Decompression Time (s)	11.389	11.299	11.239	11.176	11.139	11.099	11.042	11.032	11.028	11.022	11.015
Compressed Size (MB)	3.087	2.778	2.570	2.491	2.437	2.383	2.270	2.217	2.175	2.153	2.143
Compression Ratio (bits/byte)	0.275	0.248	0.229	0.222	0.217	0.212	0.202	0.198	0.194	0.192	0.191

Table 24: XCQ Without BSS: Query Response Times for Weblog XML Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Selectivity (0.01%)	3.161	2.911	2.751	2.661	2.594	2.520	2.450	2.390	2.354	2.337	2.317
Selectivity (0.05%)	3.612	3.291	3.088	2.951	2.871	2.777	2.684	2.597	2.550	2.530	2.497
Selectivity (0.08%)	3.872	3.522	3.291	3.145	3.071	2.954	2.864	2.757	2.710	2.674	2.647
Selectivity (0.1%)	4.063	3.679	3.428	3.261	3.188	3.061	2.951	2.834	2.767	2.747	2.710
Selectivity (0.4%)	4.897	4.339	3.988	3.768	3.621	3.463	3.270	3.119	3.028	2.976	2.916
Selectivity (1%)	10.719	9.160	8.819	7.203	6.663	6.179	5.491	4.894	4.483	4.283	3.986
Selectivity (5%)	19.661	15.779	18.820	11.136	9.650	8.643	7.277	6.206	5.575	5.194	4.727
Selectivity (10%)	31.599	25.233	20.960	17.782	15.993	14.157	12.064	10.248	9.063	8.512	7.520
Selectivity (50%)	38.258	31.055	26.255	22.642	20.620	18.987	16.394	14.387	13.182	12.581	11.497
Selectivity (75%)	40.856	33.632	28.771	25.580	23.153	21.468	18.867	16.764	15.452	14.848	13.860

Table 25: XCQ Without BSS: Query Response Times for Weblog XML Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Selectivity (0.01%)	2.297	2.280	2.280	2.287	2.297	2.313	2.410	2.504	2.744	2.977	3.064
Selectivity (0.05%)	2.484	2.494	2.554	2.634	2.684	2.761	3.061	3.181	3.335	3.414	3.415
Selectivity (0.08%)	2.640	2.660	2.757	2.797	2.861	2.928	3.175	3.288	3.408	3.465	3.475
Selectivity (0.1%)	2.697	2.707	2.804	2.857	2.921	2.984	3.208	3.315	3.421	3.475	3.478
Selectivity (0.4%)	2.892	2.870	2.927	2.994	3.049	3.092	3.305	3.442	3.568	3.649	3.461
Selectivity (1%)	3.822	3.549	3.468	3.462	3.432	3.452	3.475	3.532	3.562	3.582	3.555
Selectivity (5%)	4.493	4.092	4.644	4.467	3.926	3.939	4.046	3.979	4.002	3.976	3.952
Selectivity (10%)	6.816	5.788	5.205	5.024	4.881	4.777	4.563	4.550	4.507	4.486	4.467
Selectivity (50%)	10.766	9.040	9.116	8.923	8.813	8.499	8.319	8.375	8.299	8.278	8.238
Selectivity (75%)	12.622	12.074	10.939	11.163	11.163	11.012	10.772	10.698	10.628	10.632	10.565

Table 26: XCQ Without BSS: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for DBLP Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Compression Time (s)	93.658	73.629	61.702	53.406	47.902	43.472	37.036	23.991	22.171	21.300	19.645
Decompression Time (s)	78.836	61.672	49.404	41.606	33.805	26.555	16.627	10.502	9.837	9.483	8.875
Compressed Size (MB)	8.791	8.505	8.289	8.119	7.976	7.856	7.666	7.453	7.302	7.218	7.053
Compression Ratio (bits/byte)	1.719	1.664	1.621	1.588	1.560	1.537	1.499	1.458	1.428	1.412	1.380

Table 27: XCQ Without BSS: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for DBLP Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Compression Time (s)	18.686	16.761	15.902	15.759	15.702	15.635	15.755	15.895	16.060	16.190	16.290
Decompression Time (s)	8.482	7.694	7.250	7.090	6.977	6.876	6.656	6.562	6.506	6.489	6.456
Compressed Size (MB)	6.931	6.615	6.394	6.293	6.216	6.132	5.951	5.870	5.807	5.776	5.748
Compression Ratio (bits/byte)	1.356	1.294	1.251	1.231	1.216	1.199	1.164	1.148	1.136	1.130	1.124

Table 28: XCQ Without BSS: Query Responses Time for DBLP Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Structural	0.530	0.530	0.530	0.530	0.530	0.530	0.530	0.530	0.530	0.530	0.530
Selectivity (0.02%)	1.369	1.282	1.232	1.195	1.168	1.145	1.115	1.091	1.075	1.068	1.055
Selectivity (0.05%)	1.435	1.339	1.279	1.232	1.202	1.175	1.142	1.105	1.092	1.082	1.105
Selectivity (0.08%)	1.786	1.673	1.612	1.556	1.516	1.489	1.449	1.409	1.389	1.379	1.358
Selectivity (0.1%)	1.843	1.722	1.656	1.599	1.556	1.525	1.479	1.442	1.415	1.412	1.392
Selectivity (0.4%)	2.340	2.106	1.969	1.866	1.776	1.736	1.646	1.572	1.525	1.509	1.479
Selectivity (1%)	3.522	3.128	2.911	2.730	2.581	2.473	2.313	2.193	2.100	2.073	2.023
Selectivity (5%)	5.822	4.860	4.333	3.919	3.615	3.395	3.131	2.874	2.724	2.674	2.580
Selectivity (10%)	11.523	5.868	5.061	4.530	4.213	4.847	3.605	3.318	3.165	3.114	2.994
Selectivity (50%)	19.571	16.447	14.410	13.146	12.037	11.096	9.908	8.906	8.178	6.563	7.204
Selectivity (75%)	21.187	18.123	16.030	14.271	13.463	12.591	11.286	10.064	9.337	9.120	8.492

Table 29: XCQ Without BSS: Query Response Times for DBLP Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Structural	0.530	0.530	0.530	0.530	0.530	0.530	0.530	0.530	0.530	0.530	0.530
Selectivity (0.02%)	1.062	1.035	1.032	1.032	1.028	1.031	1.035	1.048	1.098	1.152	1.265
Selectivity (0.05%)	1.058	1.045	1.041	1.038	1.042	1.035	1.038	1.048	1.095	1.158	1.272
Selectivity (0.08%)	1.352	1.335	1.335	1.335	1.342	1.335	1.355	1.402	1.506	1.679	1.856
Selectivity (0.1%)	1.379	1.362	1.362	1.362	1.362	1.359	1.379	1.426	1.539	1.709	1.876
Selectivity (0.4%)	1.462	1.435	1.435	1.432	1.432	1.432	1.462	1.512	1.592	1.826	1.963
Selectivity (1%)	1.993	1.959	1.970	1.980	2.000	1.996	2.113	2.240	2.300	2.377	2.373
Selectivity (5%)	2.517	2.437	2.430	2.430	2.697	2.587	2.520	2.644	2.637	2.647	2.644
Selectivity (10%)	2.921	2.841	2.961	3.018	3.078	3.028	2.911	2.934	2.914	2.914	2.894
Selectivity (50%)	6.763	6.056	5.535	5.545	5.278	5.294	5.134	5.154	5.097	5.060	5.027
Selectivity (75%)	8.082	7.294	6.827	6.799	6.549	6.629	6.403	6.409	6.383	6.319	6.279

Table 30: BXCQ Without BSS: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for Weblog XML Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Compression Time (s)	104.129	101.996	100.484	99.232	98.371	97.670	96.799	95.897	102.206	114.354	120.413
Decompression Time (s)	22.142	21.561	21.161	20.950	20.790	20.499	20.179	19.858	19.628	19.498	19.297
Compressed Size (MB)	7.322	6.612	6.117	5.688	5.397	5.103	4.677	4.243	3.917	3.740	3.426
Compression Ratio (bits/byte)	0.653	0.589	0.545	0.507	0.481	0.455	0.417	0.378	0.349	0.333	0.305

Table 31: BXCQ: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for Weblog XML Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Compression Time (s)	118.139	120.643	121.024	122.566	124.148	127.743	151.057	170.705	209.781	217.332	222.710
Decompression Time (s)	19.167	18.817	18.636	18.636	18.787	19.207	20.559	21.290	21.832	21.491	20.840
Compressed Size (MB)	3.214	2.702	2.360	2.231	2.135	2.035	1.790	1.659	1.531	1.517	1.482
Compression Ratio (bits/byte)	0.286	0.241	0.210	0.199	0.190	0.181	0.160	0.148	0.136	0.135	0.132

Table 32: BXCQ Without BSS: Query Response Times for Weblog XML Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Selectivity (0.01%)	3.415	3.198	2.988	2.904	2.831	2.784	2.731	2.674	2.651	2.650	2.664
Selectivity (0.05%)	4.046	3.799	3.695	3.492	3.432	3.395	3.372	3.375	3.418	3.475	3.598
Selectivity (0.08%)	4.446	4.176	4.086	3.879	3.812	3.795	3.785	3.832	3.916	4.009	4.200
Selectivity (0.1%)	4.697	4.413	4.319	4.093	4.029	4.009	4.006	4.112	4.146	4.253	4.470
Selectivity (0.4%)	5.974	5.519	5.369	5.020	4.917	4.854	4.770	4.821	4.880	4.957	5.130
Selectivity (1%)	13.930	12.735	12.204	11.313	10.926	10.779	10.455	10.221	10.145	10.098	10.071
Selectivity (5%)	26.078	22.202	20.035	18.306	16.944	15.970	14.120	13.009	12.328	12.061	11.580
Selectivity (10%)	29.726	24.659	21.464	19.358	18.113	17.001	15.392	14.054	13.286	12.698	12.191
Selectivity (50%)	37.063	30.871	27.116	24.706	22.859	21.641	19.852	18.390	17.562	17.181	16.601
Selectivity (75%)	39.019	33.539	29.723	27.279	25.410	24.168	22.355	20.880	20.036	19.651	19.044

Table 33: BXCQ: Query Response Times for Weblog XML Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Structural	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821	0.821
Selectivity (0.01%)	2.667	2.760	2.944	3.034	3.161	3.348	4.600	5.802	8.309	10.478	11.286
Selectivity (0.05%)	3.719	4.263	5.021	5.561	6.109	6.983	10.562	12.364	14.204	14.407	14.324
Selectivity (0.08%)	4.393	5.241	6.102	6.670	7.274	8.209	11.326	13.089	14.274	14.451	14.381
Selectivity (0.1%)	4.683	5.464	6.513	7.087	7.634	8.532	11.507	13.179	14.294	14.458	14.374
Selectivity (0.4%)	5.332	6.062	6.933	7.539	8.115	8.919	11.824	13.649	15.712	15.899	15.888
Selectivity (1%)	10.050	9.880	10.000	10.131	10.288	10.785	12.328	13.573	14.431	14.551	14.471
Selectivity (5%)	11.293	10.839	10.729	10.753	10.806	11.407	13.152	13.987	14.838	14.955	14.871
Selectivity (10%)	11.854	11.403	11.240	11.253	11.507	12.027	13.666	14.487	15.342	15.519	15.369
Selectivity (50%)	16.213	15.629	15.426	15.449	15.592	16.080	17.532	18.360	19.188	19.301	19.208
Selectivity (75%)	18.657	18.022	17.809	17.819	17.956	18.430	19.919	20.683	21.537	21.664	21.581

Table 34: BXCQ Without BSS: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for DBLP Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Compression Time (s)	62.970	61.328	59.996	59.034	58.614	58.073	57.280	57.332	58.030	58.243	58.770
Decompression Time (s)	14.271	13.990	13.730	13.509	13.329	13.189	12.988	12.748	12.578	12.498	12.337
Compressed Size (MB)	9.114	8.683	8.341	8.051	7.857	7.662	7.365	7.027	6.795	6.660	6.411
Compression Ratio (bits/byte)	1.783	1.698	1.631	1.575	1.537	1.498	1.441	1.374	1.329	1.303	1.254

Table 35: BXCQ: Compression Time, Decompression Time, Compressed Document Sizes, and Compression Ratio for DBLP Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Compression Time (s)	59.220	59.425	58.784	57.652	57.132	57.152	58.003	59.755	62.690	64.432	65.193
Decompression Time (s)	12.217	11.967	11.827	11.807	11.877	11.967	12.328	12.508	12.478	11.897	10.655
Compressed Size (MB)	6.223	5.786	5.459	5.325	5.222	5.110	4.835	4.675	4.492	4.400	4.309
Compression Ratio (bits/byte)	1.217	1.132	1.068	1.042	1.021	0.999	0.946	0.914	0.879	0.860	0.843

Table 36: BXCQ Without BSS: Query Response Times for DBLP Under Different Block Sizes (A)

Block Size (Records per block)	50	60	70	80	90	100	120	150	180	200	250
Structural	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531
Selectivity (0.05%)	1.629	1.536	1.475	1.432	1.405	1.382	1.352	1.325	1.299	1.292	1.285
Selectivity (0.08%)	2.033	1.939	1.879	1.826	1.793	1.766	1.742	1.719	1.699	1.686	1.689
Selectivity (0.1%)	2.103	2.000	1.946	1.889	1.859	1.829	1.796	1.776	1.759	1.762	1.759
Selectivity (0.4%)	2.934	2.720	2.560	2.467	2.380	2.340	2.276	2.190	2.150	2.133	2.103
Selectivity (1%)	4.974	4.633	4.473	4.323	4.246	4.159	4.106	4.076	4.002	4.016	4.046
Selectivity (5%)	8.962	7.841	7.271	6.866	6.599	6.359	6.112	5.862	5.735	5.688	5.648
Selectivity (10%)	10.425	9.253	8.362	7.925	7.578	7.314	7.020	6.730	6.683	6.566	6.496
Selectivity (50%)	18.143	15.903	14.578	13.827	13.102	12.621	11.984	11.396	11.039	10.909	10.622
Selectivity (75%)	19.611	17.371	16.030	15.165	14.521	14.030	13.376	12.825	12.388	12.254	11.971

Table 37: BXCQ Without BSS: Query Response Times for DBLP Under Different Block Sizes (B)

Block Size (Records per block)	300	500	800	1000	1200	1500	3000	5000	10000	20000	No Partition
Structural	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531
Selectivity (0.05%)	1.278	1.258	1.278	1.279	1.302	1.299	1.355	1.496	1.933	2.527	3.525
Selectivity (0.08%)	1.693	1.696	1.749	1.759	1.816	1.823	2.066	2.564	3.422	5.057	6.499
Selectivity (0.1%)	1.746	1.776	1.813	1.843	1.846	1.883	2.140	2.614	3.892	5.498	6.790
Selectivity (0.4%)	2.083	2.086	2.123	2.146	2.193	2.250	2.627	3.175	4.046	6.092	7.247
Selectivity (1%)	4.042	4.196	4.396	4.513	4.702	4.837	6.109	7.414	8.132	8.502	8.529
Selectivity (5%)	5.598	5.628	5.812	5.888	6.102	6.289	7.257	8.275	8.779	9.083	9.093
Selectivity (10%)	6.429	6.483	6.673	6.753	6.960	7.190	7.965	8.619	9.033	9.340	9.350
Selectivity (50%)	10.422	10.101	9.914	9.958	9.984	10.101	10.575	10.943	11.336	11.513	11.520
Selectivity (75%)	11.744	11.407	11.273	11.203	11.276	11.393	11.844	12.224	12.621	12.808	12.805