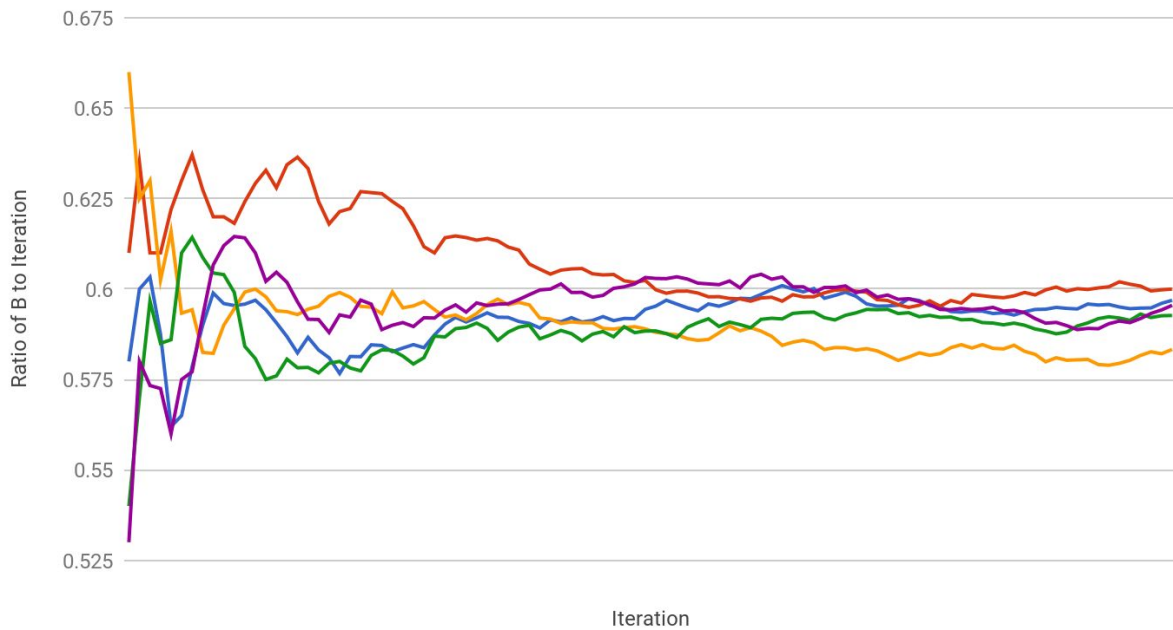## Conditional Probability Chart

Math can be found in `CS 463 Bayesian Probabilities.xlsx` as Excel formulas, and was a combined effort between Grant Sparks and myself to produce the formulas on paper, and then transfer them into Excel language and output the probability values. Green highlighted values are the only values needed as C=T was given.

P(A | B, C, D)	B	C	D
0.5	FALSE	FALSE	FALSE
0.05882352941	FALSE	FALSE	TRUE
0.8571428571	FALSE	TRUE	FALSE
0.2727272727	FALSE	TRUE	TRUE
0.9545454545	TRUE	FALSE	FALSE
0.5675675676	TRUE	FALSE	TRUE
0.9921259843	TRUE	TRUE	FALSE
0.8873239437	TRUE	TRUE	TRUE
P(B | A)	A		
0.1	FALSE		
0.7	TRUE		
P(D | A, C, E)	A	C	E
0.673	FALSE	FALSE	FALSE
	FALSE	FALSE	TRUE
0.973	FALSE	TRUE	FALSE
0.30769	FALSE	TRUE	TRUE
	TRUE	FALSE	FALSE
	TRUE	FALSE	TRUE
0.6923	TRUE	TRUE	FALSE
0.02702	TRUE	TRUE	TRUE
P(E | C, D)	C	D	
0.3	FALSE	FALSE	
0.7	FALSE	TRUE	
0.9	TRUE	FALSE	
0.1	TRUE	TRUE	

Chart

Ratio of B to Iterations vs Iteration

Raw run data

Run 1	Run 2	Run 3	Run 4	Run 5
0.58	0.61	0.66	0.54	0.53
0.6	0.635	0.625	0.57	0.58
0.6033333333	0.61	0.63	0.5966666667	0.5733333333
0.5875	0.61	0.6025	0.585	0.5725
0.562	0.622	0.616	0.586	0.56
0.565	0.63	0.5933333333	0.61	0.575
0.5785714286	0.6371428571	0.5942857143	0.6142857143	0.5771428571
0.59	0.6275	0.5825	0.60875	0.5925
0.5988888889	0.62	0.5822222222	0.6044444444	0.6066666667
0.596	0.62	0.59	0.604	0.612
0.5954545455	0.6181818182	0.5945454545	0.5990909091	0.6145454545
0.5958333333	0.6241666667	0.5991666667	0.5841666667	0.6141666667
0.5969230769	0.6292307692	0.6	0.5807692308	0.61

0.5942857143	0.6328571429	0.5978571429	0.575	0.6021428571
0.5906666667	0.628	0.594	0.576	0.6046666667
0.586875	0.634375	0.59375	0.580625	0.601875
0.5823529412	0.6364705882	0.5929411765	0.5782352941	0.5964705882
0.5866666667	0.6333333333	0.5944444444	0.5783333333	0.5916666667
0.5831578947	0.6242105263	0.5952631579	0.5768421053	0.5915789474
0.581	0.618	0.598	0.5795	0.588
0.5766666667	0.6214285714	0.599047619	0.58	0.5928571429
0.5813636364	0.6222727273	0.5977272727	0.5781818182	0.5922727273
0.5813043478	0.6269565217	0.5952173913	0.5773913043	0.5969565217
0.5845833333	0.6266666667	0.595	0.5816666667	0.5958333333
0.5844	0.6264	0.5932	0.5832	0.5888
0.5826923077	0.6242307692	0.5992307692	0.5830769231	0.59
0.5837037037	0.6222222222	0.5948148148	0.5814814815	0.5907407407
0.5846428571	0.6175	0.5953571429	0.5792857143	0.5896428571
0.5837931034	0.6117241379	0.5965517241	0.5810344828	0.5920689655
0.5873333333	0.61	0.5943333333	0.587	0.592
0.5903225806	0.6141935484	0.5922580645	0.5867741935	0.5941935484
0.5921875	0.6146875	0.5928125	0.5890625	0.595625
0.5909090909	0.6142424242	0.5915151515	0.5893939394	0.5936363636
0.5920588235	0.6135294118	0.5932352941	0.5905882353	0.5961764706
0.5934285714	0.614	0.5957142857	0.5891428571	0.5954285714
0.5922222222	0.6133333333	0.5972222222	0.5858333333	0.5958333333
0.5921621622	0.6116216216	0.5956756757	0.5881081081	0.5959459459
0.5910526316	0.6107894737	0.5963157895	0.5894736842	0.5971052632
0.5905128205	0.6069230769	0.5956410256	0.59	0.5984615385
0.58925	0.6055	0.592	0.58625	0.59975
0.5914634146	0.6041463415	0.5917073171	0.5873170732	0.6
0.590952381	0.6052380952	0.5904761905	0.5885714286	0.6014285714
0.5920930233	0.6055813953	0.5909302326	0.5876744186	0.5990697674
0.5909090909	0.6056818182	0.5906818182	0.5856818182	0.5990909091
0.5913333333	0.6042222222	0.5906666667	0.5875555556	0.5977777778
0.5923913043	0.6039130435	0.5891304348	0.5882608696	0.5982608696
0.5912765957	0.6040425532	0.5889361702	0.5868085106	0.600212766

0.591875	0.6022916667	0.589375	0.5895833333	0.600625
0.5918367347	0.6018367347	0.5895918367	0.5879591837	0.6014285714
0.5944	0.6024	0.589	0.5884	0.6032
0.5952941176	0.5998039216	0.5880392157	0.5884313725	0.6029411765
0.5969230769	0.5988461538	0.5876923077	0.5876923077	0.6028846154
0.5958490566	0.5994339623	0.5873584906	0.5866037736	0.6033962264
0.5948148148	0.5994444444	0.5862962963	0.5894444444	0.6027777778
0.594	0.5989090909	0.5858181818	0.5907272727	0.6016363636
0.5958928571	0.5978571429	0.5860714286	0.5917857143	0.6014285714
0.5952631579	0.5978947368	0.5878947368	0.5896491228	0.6012280702
0.5962068966	0.5974137931	0.5898275862	0.590862069	0.6022413793
0.5974576271	0.5972881356	0.5884745763	0.5901694915	0.6003389831
0.5973333333	0.5966666667	0.5893333333	0.5893333333	0.6033333333
0.5985245902	0.5975409836	0.5883606557	0.5916393443	0.6040983607
0.5998387097	0.5977419355	0.5869354839	0.5919354839	0.6027419355
0.600952381	0.5966666667	0.5844444444	0.5917460317	0.6033333333
0.6	0.5984375	0.5853125	0.59328125	0.600625
0.5992307692	0.5978461538	0.5858461538	0.5935384615	0.6006153846
0.6001515152	0.5978787879	0.5851515152	0.5936363636	0.5990909091
0.5974626866	0.5989552239	0.5832835821	0.5920895522	0.6004477612
0.5982352941	0.5997058824	0.5838235294	0.5914705882	0.6004411765
0.5991304348	0.5998550725	0.5837681159	0.5927536232	0.6008695652
0.598	0.5994285714	0.5831428571	0.5934285714	0.599
0.595915493	0.5991549296	0.5835211268	0.5943661972	0.5997183099
0.5952777778	0.5970833333	0.5829166667	0.5943055556	0.5977777778
0.5953424658	0.5968493151	0.5816438356	0.5943835616	0.5983561644
0.5955405405	0.5956756757	0.5802702703	0.5932432432	0.5971621622
0.5973333333	0.5949333333	0.5812	0.5934666667	0.5973333333
0.5968421053	0.5955263158	0.5823684211	0.5923684211	0.5965789474
0.5954545455	0.5967532468	0.5816883117	0.5927272727	0.5957142857
0.595	0.5952564103	0.5821794872	0.5921794872	0.5943589744
0.5937974684	0.596835443	0.5837974684	0.592278481	0.5943037975
0.593625	0.596125	0.584625	0.5915	0.594625
0.5939506173	0.5985185185	0.5837037037	0.5916049383	0.5943209877

0.593902439	0.5981707317	0.5846341463	0.5907317073	0.5945121951
0.593253012	0.5978313253	0.5836144578	0.5906024096	0.594939759
0.593452381	0.5976190476	0.583452381	0.5901190476	0.5939285714
0.5928235294	0.5981176471	0.5844705882	0.5905882353	0.5941176471
0.5937209302	0.5990697674	0.5827906977	0.59	0.5934883721
0.5943678161	0.5983908046	0.581954023	0.5889655172	0.5918390805
0.5944318182	0.5997727273	0.5798863636	0.5884090909	0.5905681818
0.5949438202	0.6005617978	0.581011236	0.5876404494	0.5907865169
0.5946666667	0.5994444444	0.5803333333	0.5881111111	0.5898888889
0.5945054945	0.6001098901	0.5804395604	0.5897802198	0.5887912088
0.5958695652	0.5998913043	0.5805434783	0.5906521739	0.5891304348
0.5955913978	0.6003225806	0.5791397849	0.591827957	0.5890322581
0.5957446809	0.6006382979	0.5789361702	0.5923404255	0.5904255319
0.5950526316	0.602	0.5794736842	0.592	0.5911578947
0.5945833333	0.6013541667	0.5803125	0.5913541667	0.5907291667
0.594742268	0.6008247423	0.5816494845	0.5930927835	0.5918556701
0.5947959184	0.5994897959	0.5826530612	0.5921428571	0.5932653061
0.5960606061	0.5997979798	0.5821212121	0.5926262626	0.5942424242
0.5969	0.6	0.5833	0.5927	0.5955