

time [s] max belief	prob-poly set size bound																	
query	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	∞	
bday 1 box	0.0 1 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	0.0 0.00386 0	
bday 1 octalatte	0.6 1 8	0.6 0.00386 8	0.7 0.00386 8	0.7 0.00386 8	0.7 0.00386 8	0.7 0.00386 8	0.7 0.00386 8	0.8 0.00386 8	0.7 0.00386 8	0.7 0.00386 8	0.9 0.00386 8	0.7 0.00386 8	0.7 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	0.7 0.00386 8	0.7 0.00386 8	
bday 1 poly	0.7 1 8	0.7 0.00386 8	0.8 0.00386 8	0.9 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	0.9 0.00386 8	0.9 0.00386 8	0.9 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	0.8 0.00386 8	
bday 1+2 box	0.0 1 0	0.0 1 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	0.0 0.02703 0	
bday 1+2 octalatte	0.8 1 6	1.3 1 8	1.4 0.02703 8	1.4 0.02703 8	1.5 0.02703 8	1.5 0.02703 8	1.5 0.02703 8	2.1 0.02703 8	1.5 0.02703 8	2.4 0.02703 8	1.7 0.02703 8	1.5 0.02703 8	1.5 0.02703 8	1.5 0.02703 8	1.5 0.02703 8	1.4 0.02703 8	1.5 0.02703 8	
bday 1+2 poly	1.1 1 8	1.3 1 8	1.6 0.02703 8	2.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.7 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	1.6 0.02703 8	
bday 1+2+special box	0.5 1 0	0.5 1 0	0.4 4.22e-4 0	0.4 4.22e-4 0	0.4 4.22e-4 0	0.4 4.22e-4 0	0.4 4.22e-4 0	0.4 8.06e-4 0	0.4 8.06e-4 0	0.5 8.06e-4 0	0.5 4.60e-4 0	0.5 0.00186 0	0.5 0.00163 0	0.5 0.00145 0	0.5 4.60e-4 0	0.5 3.84e-4 0	0.5 3.84e-4 0	
bday 1+2+special octalatte	2.7 1 10	3.7 1 12	8.0 4.22e-4 12	5.0 4.22e-4 10	7.2 4.22e-4 11	5.9 4.22e-4 11	6.7 4.22e-4 11	8.0 8.06e-4 11	7.0 8.06e-4 11	10.7 8.06e-4 11	12.4 4.60e-4 16	14.7 0.00132 16	14.9 0.00116 16	15.9 0.00103 16	15.3 4.60e-4 14	17.2 3.84e-4 10	16.1 3.84e-4 10	
bday 1+2+special poly	3.4 1 10	5.7 1 12	5.0 4.22e-4 12	6.3 4.22e-4 10	8.7 4.22e-4 11	6.0 4.22e-4 11	6.8 4.22e-4 11	10.8 8.06e-4 11	8.7 8.06e-4 11	7.4 8.06e-4 11	10.9 4.60e-4 14	14.2 4.60e-4 14	16.9 4.60e-4 14	18.2 4.60e-4 14	18.5 4.22e-4 12	18.0 3.84e-4 10	18.2 3.84e-4 10	
bday large 1 box	0.0 1 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	0.0 0.00141 0	
bday large 1 octalatte	0.6 1 8	0.6 0.00141 8	0.8 0.00141 8	0.8 0.00141 8	0.7 0.00141 8	0.8 0.00141 8	0.7 0.00141 8	0.7 0.00141 8	0.7 0.00141 8	0.7 0.00141 8	1.7 0.00141 8	0.7 0.00141 8	0.7 0.00141 8	0.7 0.00141 8	0.7 0.00141 8	0.7 0.00141 8	0.8 0.00141 8	
bday large 1 poly	0.7 1 8	0.7 0.00141 8	0.8 0.00141 8	0.9 0.00141 8	0.8 0.00141 8	0.8 0.00141 8	0.9 0.00141 8	0.9 0.00141 8	1.5 0.00141 8	0.9 0.00141 8	0.8 0.00141 8	0.8 0.00141 8	0.9 0.00141 8	0.8 0.00141 8	0.9 0.00141 8	0.8 0.00141 8	0.8 0.00141 8	
bday large 1+2 box	0.0 1 0	0.0 1 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	0.0 0.00990 0	
bday large 1+2 octalatte	0.8 1 6	1.3 1 8	1.5 0.00990 8	1.5 0.00990 8	1.4 0.00990 8	1.5 0.00990 8	1.5 0.00990 8	1.5 0.00990 8	1.5 0.00990 8	1.4 0.00990 8	3.0 0.00990 8	1.5 0.00990 8	1.4 0.00990 8	1.4 0.00990 8	1.4 0.00990 8	1.4 0.00990 8	1.5 0.00990 8	
bday large 1+2 poly	1.1 1 8	1.3 1 8	1.6 0.00990 8	1.6 0.00990 8	1.6 0.00990 8	1.6 0.00990 8	1.6 0.00990 8	1.6 0.00990 8	3.1 0.00990 8	1.7 0.00990 8	1.6 0.00990 8	1.6 0.00990 8	2.6 0.00990 8	1.6 0.00990 8	1.6 0.00990 8	1.6 0.00990 8	1.6 0.00990 8	
bday large 1+2+special box	0.5 1 0	0.5 1 0	0.4 1.61e-4 0	0.4 1.61e-4 0	0.4 1.61e-4 0	0.4 1.61e-4 0	0.5 1.61e-4 0	0.5 3.08e-4 0	0.5 3.08e-4 0	0.5 3.08e-4 0	0.5 1.76e-4 0	0.5 3.08e-4 0	0.5 3.08e-4 0	0.5 3.08e-4 0	0.5 1.76e-4 0	0.5 3.08e-4 0	0.5 1.47e-4 0	
bday large 1+2+special octalatte	3.8 1 10	6.3 1 12	8.5 1.61e-4 12	8.5 1.61e-4 10	7.6 1.61e-4 11	11.6 1.61e-4 11	8.7 1.61e-4 11	12.3 3.08e-4 11	10.7 3.08e-4 11	10.9 3.08e-4 11	18.5 1.76e-4 11	18.4 3.08e-4 11	21.7 3.08e-4 11	24.3 3.08e-4 11	28.8 1.76e-4 11	32.2 3.08e-4 11	49.3 1.47e-4 10	
bday large 1+2+special poly	4.0 1 10	4.8 1 12	7.0 1.61e-4 12	7.1 1.61e-4 10	9.3 1.61e-4 11	7.9 1.61e-4 11	15.5 1.61e-4 11	8.6 3.08e-4 11	12.3 3.08e-4 11	9.5 3.08e-4 11	16.1 1.76e-4 11	18.8 3.08e-4 11	23.1 3.08e-4 11	25.7 3.08e-4 11	33.6 1.76e-4 11	33.7 3.08e-4 11	50.2 1.47e-4 10	
pizza box	0.1 1 0	0.1 1 0	0.1 1 0	0.1 1 0	0.1 1 0	0.2 1 0	0.2 1 0	0.2 1 0	0.2 1 0	0.2 1 0	0.2 1 0	0.3 1 0	0.3 1 0	0.3 1 0	0.4 1 0	0.4 1 0	0.4 1 0	
pizza octalatte	? ? 29	35.2 1 30	45.6 1 30	42.2 1.63e-9 30	73.9 1 33	59.5 4.60e-10 30	88.4 4.60e-10 36	79.3 2.14e-10 30	74.0 2.14e-10 30	80.2 2.14e-10 30	98.0 1.08e-10 27	120.1 6.00e-11 29	147.3 6.00e-11 27	165.6 6.00e-11 27	185.2 6.00e-11 26	209.0 6.00e-11 26	209.0 6.00e-11 26	
pizza poly	204.4 1 45	89.1 1 40	84.5 1 38	78.5 8.66e-10 40	2161.9 4.95e-10 80	71.3 1.50e-10 36	91.7 1.50e-10 33	72.7 1.37e-10 27	453.6 1.37e-10 66	79.2 1.37e-10 27	110.1 6.00e-11 29	120.4 6.00e-11 26	145.0 6.00e-11 26	168.3 6.00e-11 26	190.9 6.00e-11 26	217.8 6.00e-11 26	212.8 6.00e-11 26	
travel box	0.2 1 0	0.2 1 0	0.2 1 0	0.2 1 0	0.2 1 0	0.2 1 0	0.2 0.02778 0	0.2 0.01389 0	0.3 0.01389 0	0.3 0.00417 0	0.4 0.00370 0	0.4 0.00253 0	0.4 5.05e-4 0	0.5 5.05e-4 0	0.4 5.05e-4 0	0.5 5.05e-4 0	0.4 5.05e-4 0	
travel octalatte	9.9 1 20	5.9 1 17	10.3 1 21	8.3 1 16	14.0 1 21	12.7 1 16	16.1 0.01667 17	17.0 0.00833 16	22.0 0.00833 17	23.3 0.00417 20	38.2 0.00247 17	45.8 0.00152 18	51.4 5.05e-4 20	62.7 5.05e-4 19	68.8 5.05e-4 18	76.0 5.05e-4 18	120.7 5.05e-4 16	
travel poly	210.0 1 34	9.8 1 19	15.2 1 23	11.9 1 18	23.0 1 25	18.9 1 22	31.7 0.00556 28	21.8 0.00278 22	37.1 0.00278 28	29.2 0.00278 22	57.5 0.00123 22	60.5 0.00101 22	66.7 5.05e-4 19	71.3 5.05e-4 25	81.0 5.05e-4 20	83.0 5.05e-4 20	121.0 5.05e-4 16	

Table I
QUERY EVALUATION BENCHMARKS