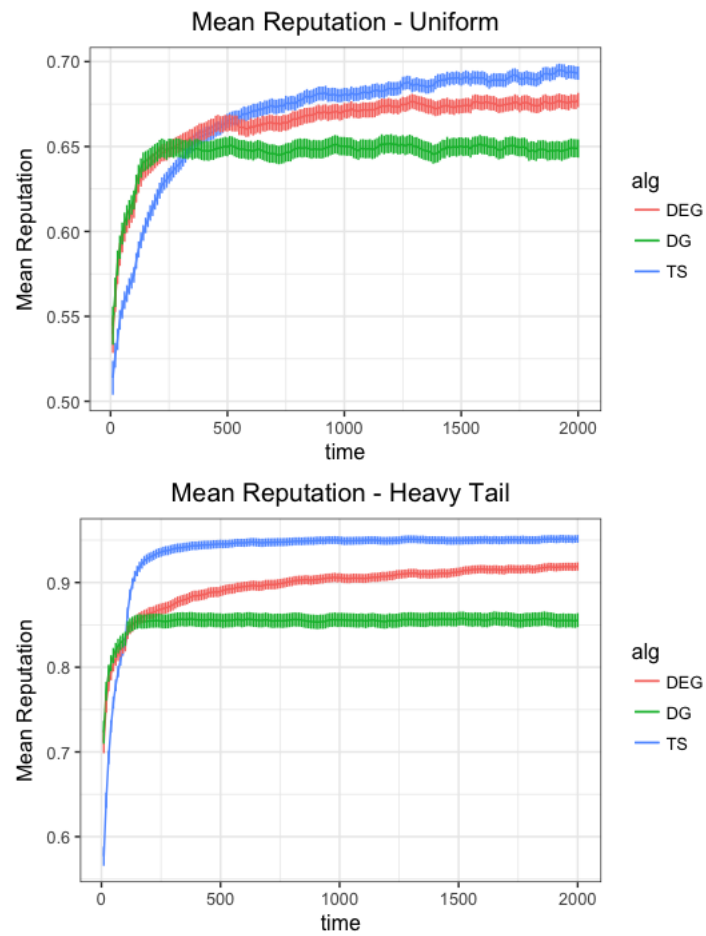


Supplemental Material

A Additional Mean Performance Plots



B Reversal between Mean Reputation and Relative Reputation

In this section we present the results in isolation and in competition over the "Heavy Tail" prior discussed in the text for $K = 3$. We demonstrate evidence that $DEG > DG$ according to the mean reputation metric but that $DG > DEG$ according to the relative reputation proportion statistic and in the competition game.

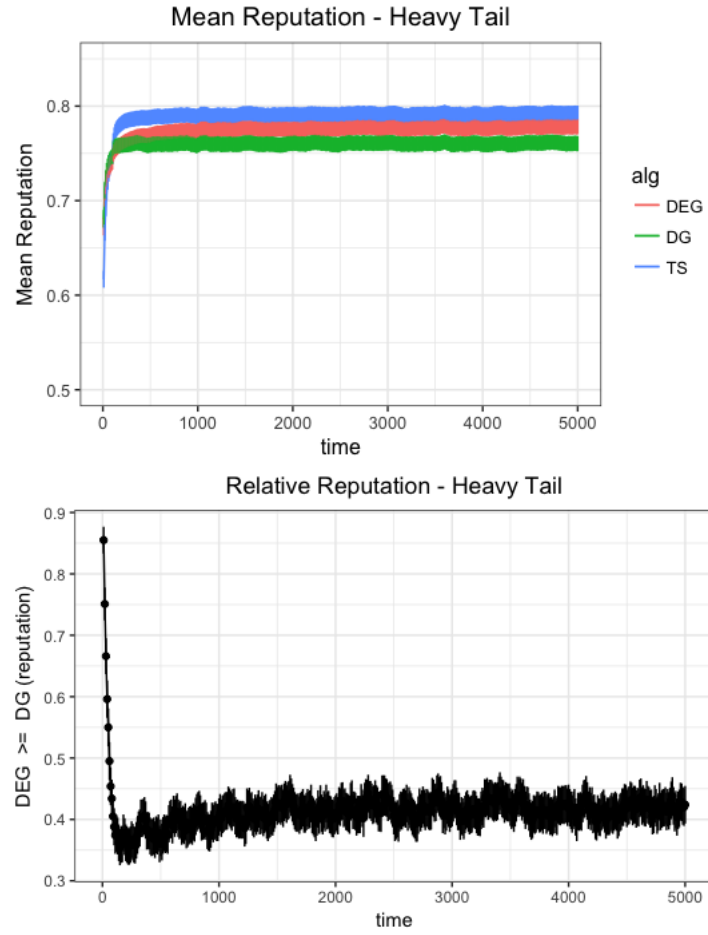


Table 1: Duopoly Experiment Heavy Tail K=3, t=5000

	k = 20	k = 250	k = 500
	0.4 ± 0.02	0.59 ± 0.01	0.6 ± 0.01
TS vs DG	eeog	eeog	eeog
	avg: 770	avg: 2700	avg: 2700
	med: 0	med: 2979.5	med: 3018
	0.46 ± 0.02	0.73 ± 0.01	0.72 ± 0.01
TS vs DEG	eeog	eeog	eeog
	avg: 830	avg: 2500	avg: 2700
	med: 0	med: 2576.5	med: 2862
	0.61 ± 0.01	0.61 ± 0.01	0.6 ± 0.01
DG vs DEG	eeog	eeog	eeog
	avg: 1400	avg: 2400	avg: 2400
	med: 556	med: 2538.5	med: 2587.5

C Additional Permanent Duopoly Experiments

Table 2: Duopoly Experiment Needle In Haystack

	$T_0 = 20$	$T_0 = 250$	$T_0 = 500$
	0.64 ± 0.03	0.6 ± 0.03	0.64 ± 0.03
TS vs DG	eeog	eeog	eeog
	avg: 200	avg: 370	avg: 580
	med: 27	med: 0	med: 121.5
	0.57 ± 0.03	0.52 ± 0.03	0.56 ± 0.02
TS vs DEG	eeog	eeog	eeog
	avg: 150	avg: 460	avg: 740
	med: 14	med: 78.5	med: 627.5
	0.46 ± 0.03	0.42 ± 0.02	0.42 ± 0.02
DG vs DEG	eeog	eeog	eeog
	avg: 340	avg: 650	avg: 690
	med: 128.5	med: 408	med: 466.5

Table 3: Duopoly Experiment Heavy Tail

	$T_0 = 20$	$T_0 = 250$	$T_0 = 500$
	0.29 ± 0.03	0.72 ± 0.02	0.76 ± 0.02
TS vs DG	eeog	eeog	eeog
	avg: 55	avg: 570	avg: 620
	med: 0	med: 0	med: 98.5
	0.3 ± 0.03	0.88 ± 0.01	0.9 ± 0.01
TS vs DEG	eeog	eeog	eeog
	avg: 37	avg: 480	avg: 570
	med: 0	med: 0	med: 113.5
	0.62 ± 0.03	0.6 ± 0.02	0.57 ± 0.03
DG vs DEG	eeog	eeog	eeog
	avg: 410	avg: 790	avg: 730
	med: 7	med: 762	med: 608

Table 4: Duopoly Experiment Uniform

	$T_0 = 20$	$T_0 = 250$	$T_0 = 500$
	0.46 ± 0.03	0.52 ± 0.02	0.6 ± 0.02
TS vs DG	eeog	eeog	eeog
	avg: 230	avg: 800	avg: 910
	med: 0	med: 754	med: 906.5
	0.41 ± 0.03	0.51 ± 0.02	0.55 ± 0.02
TS vs DEG	eeog	eeog	eeog
	avg: 180	avg: 810	avg: 970
	med: 0	med: 734	med: 987
	0.51 ± 0.03	0.48 ± 0.02	0.45 ± 0.02
DG vs DEG	eeog	eeog	eeog
	avg: 470	avg: 1000	avg: 1000
	med: 57.5	med: 1088	med: 1142

D Additional Temporary Monopoly Experiments

Heavy Tail Prior

Table 5: Temporary Monopoly Experiment Heavy Tail X = 50

	TS	DEG	DG
	0.054 ± 0.01	0.16 ± 0.02	0.18 ± 0.02
TS	Var:0.05	Var:0.1	Var:0.1
	ES:100%	ES:97%	ES:95%
	0.33 ± 0.03	0.31 ± 0.02	0.26 ± 0.02
DEG	Var:0.2	Var:0.2	Var:0.1
	ES:95%	ES:76%	ES:79%
	0.39 ± 0.03	0.41 ± 0.03	0.33 ± 0.02
DG	Var:0.2	Var:0.2	Var:0.2
	ES:95%	ES:76%	ES:67%

Table 6: Temporary Monopoly Experiment Heavy Tail X = 200

	TS	DEG	DG
	0.003 ± 0.003	0.083 ± 0.02	0.17 ± 0.02
TS	Var:0.002	Var:0.07	Var:0.1
	ES:100%	ES:97%	ES:95%
	0.045 ± 0.01	0.25 ± 0.02	0.23 ± 0.02
DEG	Var:0.03	Var:0.1	Var:0.1
	ES:92%	ES:75%	ES:78%
	0.12 ± 0.02	0.36 ± 0.03	0.3 ± 0.02
DG	Var:0.08	Var:0.2	Var:0.1
	ES:88%	ES:76%	ES:64%

Table 7: Temporary Monopoly Experiment Heavy Tail X = 300

	TS	DEG	DG
	0.0017 ± 0.002	0.059 ± 0.01	0.16 ± 0.02
TS	Var:0.001	Var:0.05	Var:0.1
	ES:100%	ES:99%	ES:95%
	0.029 ± 0.007	0.23 ± 0.02	0.23 ± 0.02
DEG	Var:0.01	Var:0.1	Var:0.1
	ES:93%	ES:74%	ES:78%
	0.097 ± 0.02	0.34 ± 0.03	0.29 ± 0.02
DG	Var:0.06	Var:0.2	Var:0.1
	ES:89%	ES:76%	ES:66%

Table 8: Temporary Monopoly Experiment Heavy Tail X = 500

	TS	DEG	DG
	0.002 ± 0.003	0.043 ± 0.01	0.16 ± 0.02
TS	Var:0.002	Var:0.04	Var:0.1
	ES:100%	ES:98%	ES:94%
	0.03 ± 0.007	0.21 ± 0.02	0.24 ± 0.02
DEG	Var:0.01	Var:0.1	Var:0.1
	ES:92%	ES:76%	ES:78%
	0.091 ± 0.01	0.32 ± 0.03	0.3 ± 0.02
DG	Var:0.05	Var:0.2	Var:0.1
	ES:87%	ES:78%	ES:65%

Needle In Haystack Prior

Table 9: Temporary Monopoly Experiment Needle In Haystack X = 50

	TS	DEG	DG
	0.34 ± 0.03	0.4 ± 0.03	0.48 ± 0.03
TS	Var:0.2	Var:0.2	Var:0.2
	ES:92%	ES:90%	ES:85%
	0.22 ± 0.02	0.34 ± 0.03	0.42 ± 0.03
DEG	Var:0.1	Var:0.2	Var:0.2
	ES:93%	ES:83%	ES:75%
	0.18 ± 0.02	0.28 ± 0.02	0.37 ± 0.03
DG	Var:0.1	Var:0.2	Var:0.2
	ES:89%	ES:78%	ES:70%

Table 10: Temporary Monopoly Experiment Needle In Haystack X = 200

	TS	DEG	DG
	0.17 ± 0.02	0.31 ± 0.03	0.41 ± 0.03
TS	Var:0.1	Var:0.2	Var:0.2
	ES:95%	ES:90%	ES:86%
	0.13 ± 0.02	0.26 ± 0.02	0.36 ± 0.03
DEG	Var:0.1	Var:0.2	Var:0.2
	ES:95%	ES:85%	ES:78%
	0.093 ± 0.02	0.23 ± 0.02	0.33 ± 0.03
DG	Var:0.07	Var:0.1	Var:0.2
	ES:94%	ES:83%	ES:74%

Table 11: Temporary Monopoly Experiment Needle In Haystack X = 300

	TS	DEG	DG
	0.1 ± 0.02	0.28 ± 0.03	0.39 ± 0.03
TS	Var:0.07	Var:0.2	Var:0.2
	ES:95%	ES:91%	ES:87%
	0.089 ± 0.02	0.23 ± 0.02	0.36 ± 0.03
DEG	Var:0.06	Var:0.2	Var:0.2
	ES:94%	ES:88%	ES:80%
	0.05 ± 0.01	0.21 ± 0.02	0.33 ± 0.03
DG	Var:0.03	Var:0.1	Var:0.2
	ES:96%	ES:83%	ES:74%

Table 12: Temporary Monopoly Experiment Needle In Haystack X = 500

	TS	DEG	DG
	0.053 ± 0.01	0.23 ± 0.02	0.37 ± 0.03
TS	Var:0.04	Var:0.2	Var:0.2
	ES:95%	ES:92%	ES:88%
	0.051 ± 0.01	0.2 ± 0.02	0.33 ± 0.03
DEG	Var:0.04	Var:0.1	Var:0.2
	ES:97%	ES:89%	ES:80%
	0.031 ± 0.009	0.18 ± 0.02	0.31 ± 0.02
DG	Var:0.02	Var:0.1	Var:0.2
	ES:98%	ES:88%	ES:76%

Uniform Prior

Table 13: Temporary Monopoly Experiment Uniform X = 50

	TS	DEG	DG
	0.27 ± 0.03	0.21 ± 0.02	0.26 ± 0.02
TS	Var:0.2	Var:0.1	Var:0.2
	ES:91%	ES:88%	ES:83%
	0.39 ± 0.03	0.3 ± 0.03	0.34 ± 0.03
DEG	Var:0.2	Var:0.2	Var:0.2
	ES:84%	ES:80%	ES:73%
	0.39 ± 0.03	0.31 ± 0.02	0.33 ± 0.02
DG	Var:0.2	Var:0.2	Var:0.2
	ES:85%	ES:74%	ES:70%

Table 14: Temporary Monopoly Experiment Uniform X = 200

	TS	DEG	DG
	0.12 ± 0.02	0.16 ± 0.02	0.2 ± 0.02
TS	Var:0.08	Var:0.1	Var:0.1
	ES:89%	ES:87%	ES:84%
	0.25 ± 0.02	0.24 ± 0.02	0.29 ± 0.02
DEG	Var:0.1	Var:0.1	Var:0.1
	ES:81%	ES:77%	ES:71%
	0.23 ± 0.02	0.24 ± 0.02	0.29 ± 0.02
DG	Var:0.1	Var:0.1	Var:0.1
	ES:80%	ES:76%	ES:69%

Table 15: Temporary Monopoly Experiment Uniform X = 300

	TS	DEG	DG
	0.094 ± 0.02	0.15 ± 0.02	0.2 ± 0.02
TS	Var:0.06	Var:0.1	Var:0.1
	ES:90%	ES:86%	ES:85%
	0.2 ± 0.02	0.23 ± 0.02	0.29 ± 0.02
DEG	Var:0.1	Var:0.1	Var:0.1
	ES:80%	ES:74%	ES:70%
	0.21 ± 0.02	0.23 ± 0.02	0.29 ± 0.02
DG	Var:0.1	Var:0.1	Var:0.1
	ES:79%	ES:74%	ES:70%

Table 16: Temporary Monopoly Experiment Uniform X = 500

	TS	DEG	DG
	0.061 ± 0.01	0.12 ± 0.02	0.2 ± 0.02
TS	Var:0.03	Var:0.08	Var:0.1
	ES:91%	ES:88%	ES:84%
	0.17 ± 0.02	0.21 ± 0.02	0.29 ± 0.02
DEG	Var:0.09	Var:0.1	Var:0.1
	ES:79%	ES:75%	ES:73%
	0.18 ± 0.02	0.22 ± 0.02	0.29 ± 0.02
DG	Var:0.1	Var:0.1	Var:0.1
	ES:78%	ES:75%	ES:70%

E Reputation and Information Erased Experiment

Table 17: Reputation Erased Experiment Heavy Tail

	TS	DEG	DG
	0.0017 ± 0.002	0.06 ± 0.01	0.18 ± 0.02
TS	Var:0.001	Var:0.05	Var:0.1
	ES:100%	ES:99%	ES:95%
	0.04 ± 0.009	0.24 ± 0.02	0.25 ± 0.02
DEG	Var:0.02	Var:0.1	Var:0.1
	ES:93%	ES:78%	ES:79%
	0.12 ± 0.02	0.35 ± 0.03	0.33 ± 0.02
DG	Var:0.08	Var:0.2	Var:0.2
	ES:88%	ES:80%	ES:66%

Table 18: Information Erased Experiment Heavy Tail

	TS	DEG	DG
	0.022 ± 0.009	0.13 ± 0.02	0.21 ± 0.02
TS	Var: 0.02	Var: 0.1	Var: 0.2
	ES: 100 %	ES: 97 %	ES: 95 %
	0.26 ± 0.03	0.29 ± 0.02	0.28 ± 0.02
DEG	Var: 0.2	Var: 0.1	Var: 0.1
	ES: 94 %	ES: 73 %	ES: 74 %
	0.33 ± 0.03	0.39 ± 0.03	0.34 ± 0.02
DG	Var: 0.2	Var: 0.2	Var: 0.1
	ES: 94 %	ES: 73 %	ES: 58 %

Table 19: Reputation Erased Experiment Uniform

	TS	DEG	DG
	0.14 ± 0.02	0.18 ± 0.02	0.26 ± 0.03
TS	Var:0.09	Var:0.1	Var:0.2
	ES:90%	ES:88%	ES:87%
	0.26 ± 0.02	0.26 ± 0.02	0.34 ± 0.03
DEG	Var:0.2	Var:0.1	Var:0.2
	ES:81%	ES:79%	ES:75%
	0.25 ± 0.02	0.27 ± 0.02	0.34 ± 0.03
DG	Var:0.1	Var:0.1	Var:0.2
	ES:79%	ES:77%	ES:73%

Table 20: Information Erased Experiment Uniform

	TS	DEG	DG
	0.24 ± 0.02	0.2 ± 0.02	0.26 ± 0.02
TS	Var:0.1	Var:0.1	Var:0.2
	ES:88%	ES:86%	ES:85%
	0.37 ± 0.03	0.29 ± 0.02	0.31 ± 0.02
DEG	Var:0.2	Var:0.1	Var:0.1
	ES:85%	ES:75%	ES:70%
	0.35 ± 0.03	0.27 ± 0.02	0.3 ± 0.02
DG	Var:0.2	Var:0.1	Var:0.1
	ES:84%	ES:68%	ES:62%

Table 21: Reputation Erased Experiment Needle In Haystack

	TS	DEG	DG
	0.098 ± 0.02	0.27 ± 0.03	0.41 ± 0.03
TS	Var:0.07	Var:0.2	Var:0.2
	ES:95%	ES:94%	ES:90%
	0.093 ± 0.02	0.24 ± 0.02	0.38 ± 0.03
DEG	Var:0.07	Var:0.2	Var:0.2
	ES:96%	ES:89%	ES:84%
	0.064 ± 0.01	0.22 ± 0.02	0.37 ± 0.03
DG	Var:0.05	Var:0.1	Var:0.2
	ES:96%	ES:90%	ES:79%

Table 22: Information Erased Experiment Needle In Haystack

	TS	DEG	DG
	0.29 ± 0.03	0.44 ± 0.03	0.52 ± 0.03
TS	Var:0.2	Var:0.2	Var:0.2
	ES:92%	ES:87%	ES:81%
	0.19 ± 0.02	0.35 ± 0.03	0.42 ± 0.03
DEG	Var:0.1	Var:0.2	Var:0.2
	ES:91%	ES:81%	ES:71%
	0.15 ± 0.02	0.27 ± 0.02	0.35 ± 0.02
DG	Var:0.1	Var:0.1	Var:0.2
	ES:90%	ES:75%	ES:63%