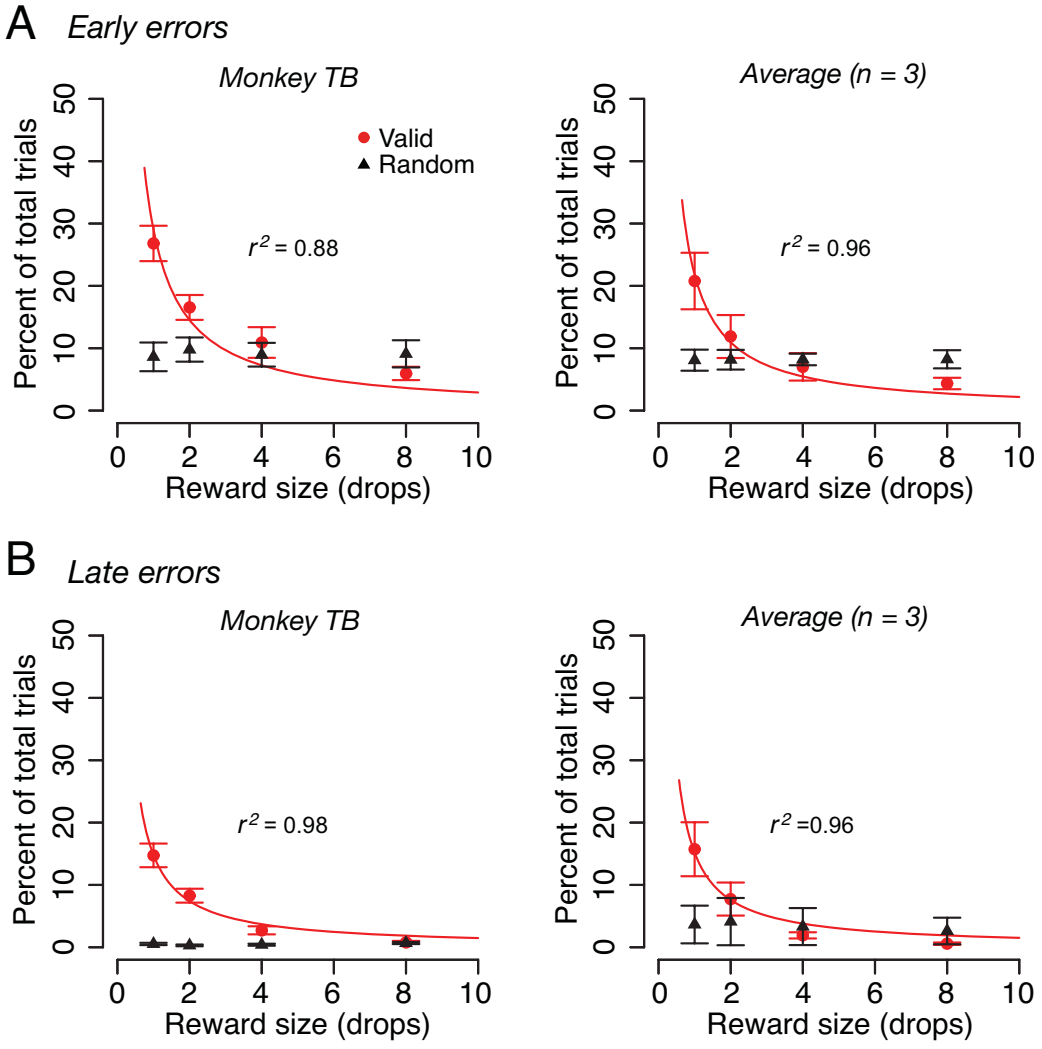
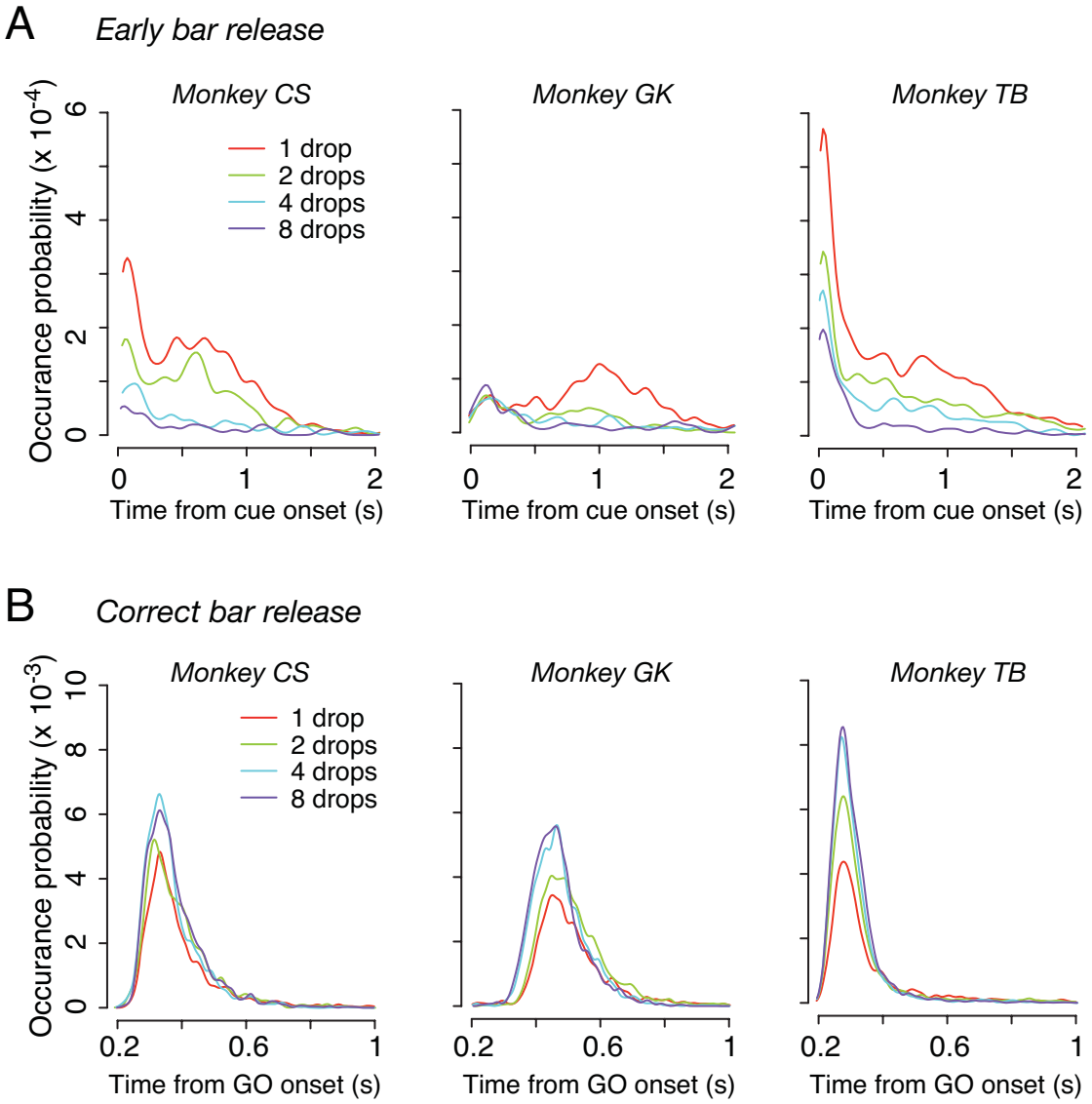
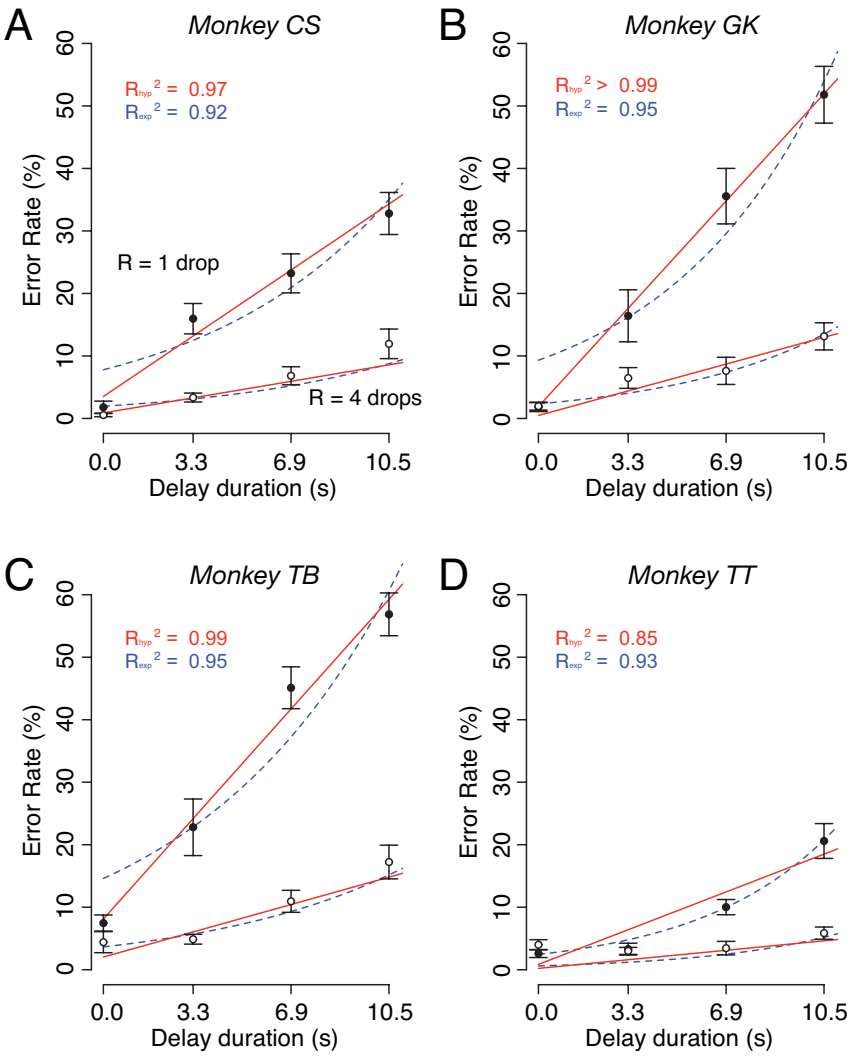
Supplemental Data



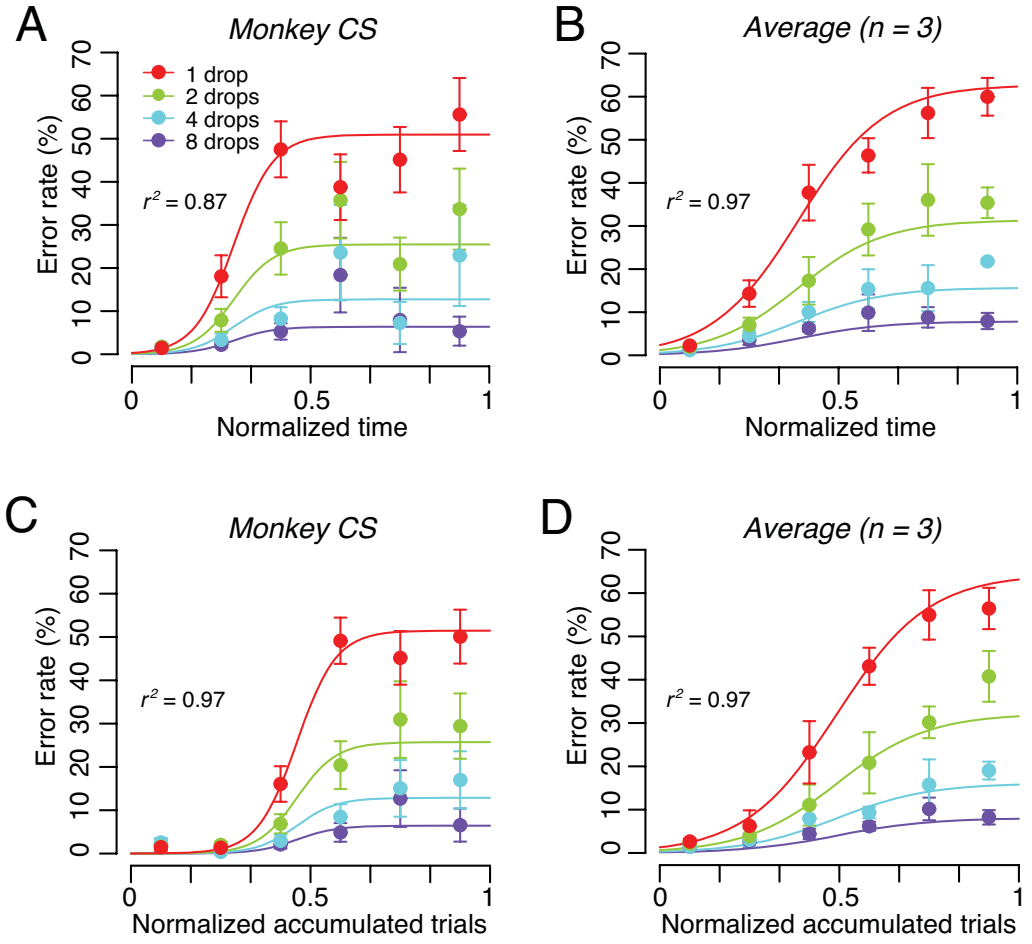
Supplemental Fig. 1. *Effect of predicted reward size on early and late bar release errors.* Percentage of early and late error trials (mean ± s.e.m.) as a function of reward size in (A) monkey TB and in the average across 3 monkeys (B), respectively. Red circles and gray triangles indicate valid- and random-cue conditions, respectively. The red curve is the best fit of Eq.1 to the data collected in the valid cue condition.



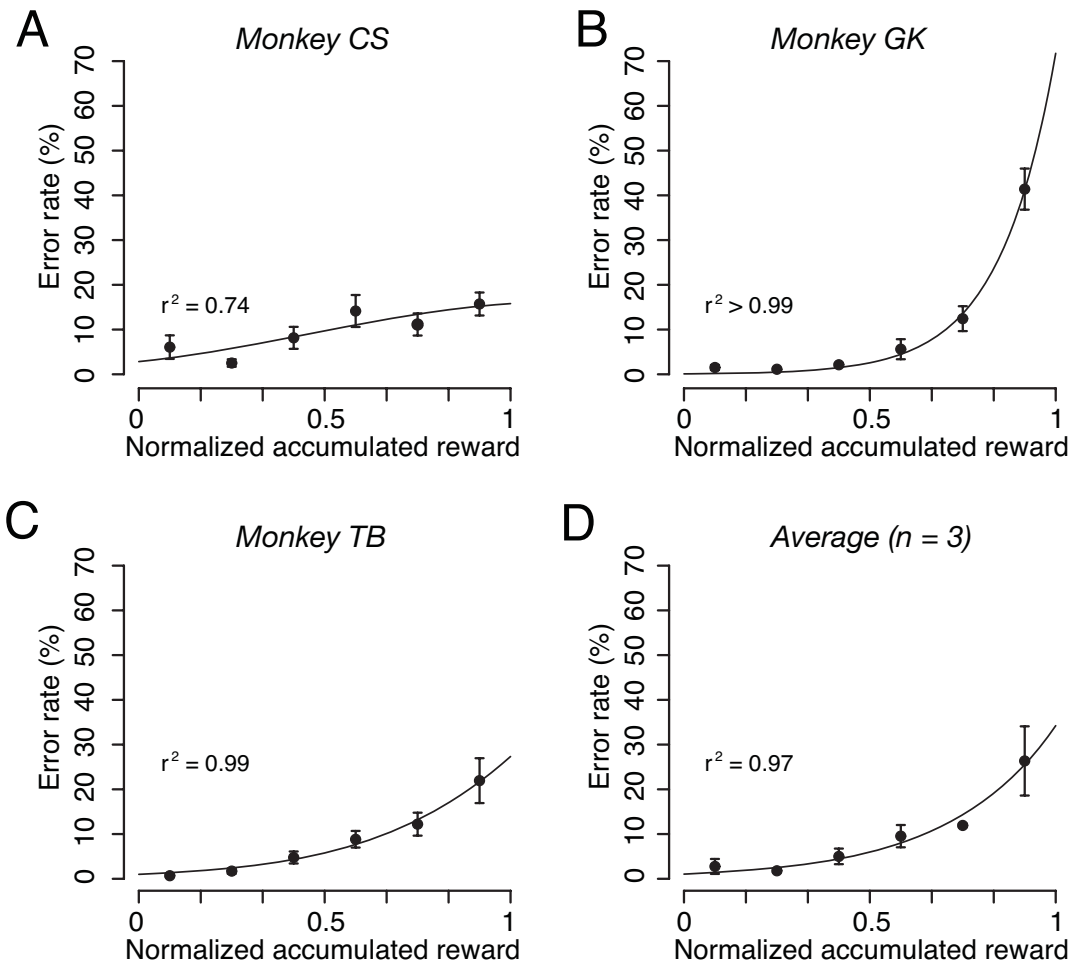
Supplemental Fig. 2. *Effect of predicted reward size on the timing of early bar errors and correct bar release.* Smoothed histogram of the occurrence probability of (A) early bar errors and (B) correct bar release relative to all trials in each incentive condition, measured as the time elapsed since cue and GO signal onset, respectively. Histograms had a bin width of 1ms and were smoothed with a Gaussian kernel (SD; A: 50 ms; B: 10 ms).



Supplemental Fig. 3. *Effect of predicted reward-size and delay-to-reward on error rate.* Same as Fig. 4 of the main text, but showing the data for all four individual monkeys. Full red lines and dashed blue curves are the best fit to the data of the models given by Eqs. 2 and 3, respectively. Eq. 2 gave a significantly better fit in 3 monkeys (A-C). Monkey TT's data were fit better by the model Eq. 3 (D). Best-fit parameters are reported in the Supplemental Table 3.



Supplemental Fig. 4. *Effect of time and cumulative number of trial on error rate in the reward-size task with valid cues. A-B* Percentage of error trials (mean ± s.e.m.) for each reward size as a function of normalized time in (A) monkey CS and (B) in the average across 3 monkeys, respectively. *C-D:* Percentage of error trials (mean ± s.e.m.) for each reward size as a function of normalized accumulated trial number in (C) monkey CS and (D) in average across 3 monkeys, respectively. Full lines are the best fits of Eq. 6 to the data.



Supplemental Fig. 5. *Effect of accumulated reward on error rates in the reward-size task with random cues.* Percentage of error trials (mean ± s.e.m.) as a function of normalized accumulated reward in the random cue condition of the reward-size task are shown for 3 monkeys (*A*-*C*) and for the average across 3 monkeys (*D*). All four rewarded trials are pooled and averaged. The superimposed curves are the best fit of Eq. 6 to the data with an averaged reward size across trial types (R = 0.375 ml). Best-fit parameters are reported in Supplemental Table 4.

Supplemental Table 1. *Parameter and coefficient of determination for the best fits of Eq. 1 to the data obtained in the reward-size task with valid cues.*

Monkey	a (ml^{-1})	r^2
CS	0.32	0.99
GK	0.29	0.99
TB	0.23	0.97
Average	0.27	1.00

'Average' refers to the parameters obtained by fitting the model to the average data across monkeys. The fits corresponding to these parameters are plotted in Fig. 2 of the main text.

Supplemental Table 2. *Parameters and coefficient of determination for the best fit of Eqs. 2 and 3 to the data obtained in the reward-size-and-delay task with valid cues.*

Monkey	a_{hyp} (ml^{-1})	k_{hyp} (s^{-1})	r_{hyp}^2	AIC_{hyp}	a_{exp} (ml^{-1})	k_{exp} (s^{-1})	r_{exp}^2	AIC_{exp}
CS	1.14	0.84	0.97	15.2	0.51	0.14	0.92	23.7
GK	2.11	2.52	1.00	7.6	0.43	0.17	0.95	26.5
TB	0.49	0.60	0.99	17.3	0.27	0.14	0.95	28.7
TT	4.68	1.97	0.85	19.0	1.64	0.20	0.93	12.7
Average	0.98	0.90	1.00	4.9	0.44	0.15	0.96	21.8

N_{hyp} and N_{exp} are for Eqs. 2 and 3, respectively. AIC_X is the *evidence ratio* for model "X" from the Akaike's Information Criterion (the lower the evidence ratio, the larger the relative likelihood that the model is the better model). 'Average' refers to the parameters obtained by fitting the model to the average data across monkeys. The fits corresponding to these parameters are plotted in Fig. 4 of the main text.

Supplemental Table 3. *Parameters and coefficient of determination for the best fits of Eq. 6 to the data obtained in the reward-size task with valid cues.*

Monkey	a (ml^{-1})	S_0	σ	r^2
CS	49.53	0.59	0.11	0.99
GK	6.76	1.03	0.22	0.95
TB	5.45	0.51	0.14	0.94
Average	8.14	0.63	0.16	0.98

'Average' refers to the parameters obtained by fitting the model to the average data across monkeys. The fits corresponding to these parameters are plotted in Fig. 5 of the main text.

Supplemental Table 4. *Parameters and coefficient of determination for the best fits of Eq. 6 to the data obtained in the reward-size task with random cues.*

Monkey	a (ml^{-1})	S_0	σ	r^2
CS	0.94	0.45	0.27	0.75
GK	30.62	1.50	0.15	1.00
TB	2.67	1.28	0.28	0.99
Average	2.82	1.50	0.27	0.97

'Average' refers to the parameters obtained by fitting the model to the average data across monkeys. The fits corresponding to these parameters are plotted in Supplemental Fig. 5.

Supplemental Table 5. *Parameters and coefficient of determination for the best fit of Eq. 7 to the data obtained in the reward-size-and-delay task with valid cues.*

Monkey	a (ml^{-1})	k (s^{-1})	S_0	σ	r^2
CS	20.00	0.56	0.76	0.18	0.94
GK	21.13	1.77	1.50	0.28	0.95
TB	9.16	0.53	0.40	0.12	0.96
TT	798.57	2.79	1.50	0.16	0.89
Average	8.58	0.75	0.99	0.27	0.98

'Average' refers to the parameters obtained by fitting the model to the average data across monkeys. The fits to the data corresponding to these parameters are plotted in Fig. 6 of the main text.