

Supplemental Table 1

Block during day	Number of sessions		Errors (% of trials)		
	Mk1	Mk2	Mk1	Mk2	Combined
first	76	63	1.75	2.37	2.07
second	51	49	1.58	2.14	1.93
third	21	27	1.78	2.55	2.33
fourth	13	10	1.71	1.30	1.46

Each day's recordings consisted of 1 to 4 blocks, during which different sets of neurons were recorded.

Supplemental Figure Caption

Supplemental Figure 1. Extended task description. **A.** Depiction of first-chance, second-chance, correct, error, and rewarded trials. Each extended series of cues and choice sequences end in a reward, after an unlimited number of second-chance trials, indicated by ellipses. **B.** Possible sequence of cues and goals, for cues in the set of novel cues. Abbreviations: 2nd, second-chance trial; Ch, change trial; Rp, repeat trial. Note that the cue circled in the second row appears three times. The first time is a special case: the first trial in a new block. The second time that stimulus appears, on trial 2, the goal must be the one to the right of the fixation point (green circles). The third time that stimulus appears, on trial 7, the goal must not be the one to the right of the fixation point (black circles). This aspect of the task design prevents the monkeys from learning to map a cue to a fixed goal.

Supplemental Figure 2. Mean normalized activity averages (bin width, 25 ms), with a value of 1.0 corresponding to the arithmetic mean of each neuron's activity during correct trials, in the format of Fig. 2.

Supplemental Figure 3. Mean normalized activity averages in the format of Fig. 3.

Supplemental Figure 4. Mean normalized activity averages in the format of Fig. 4.