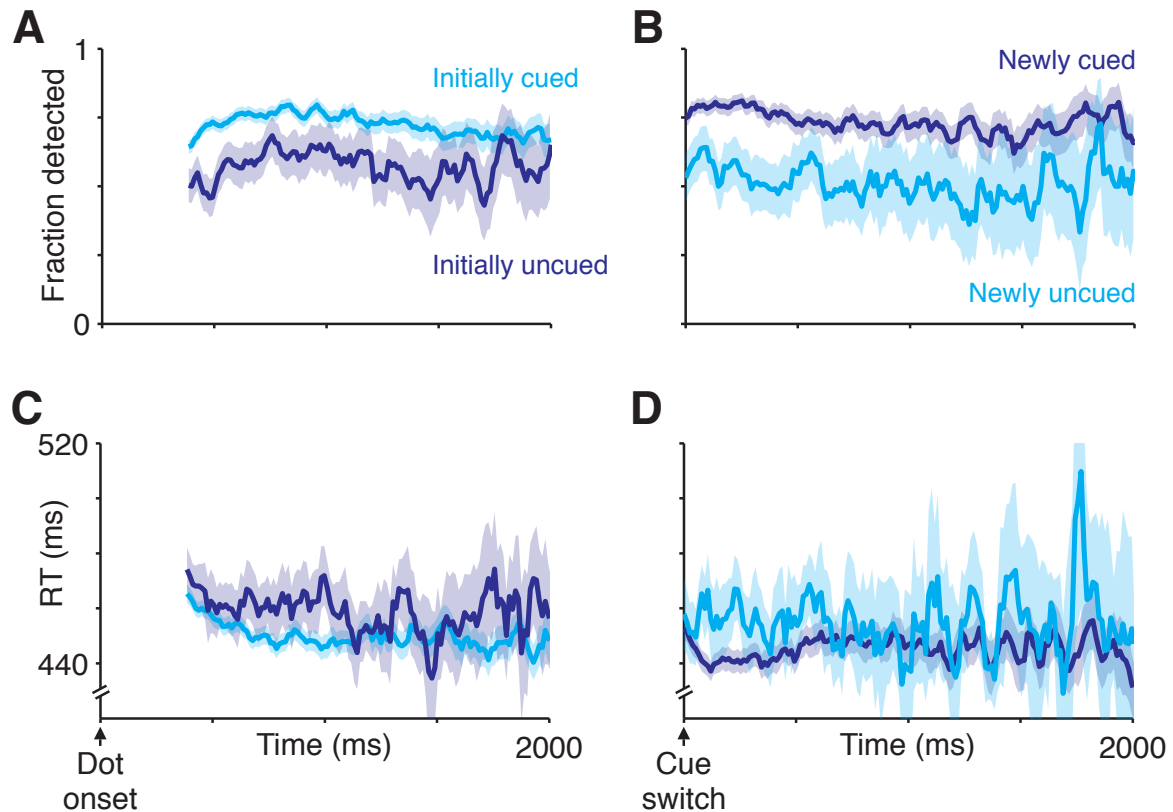
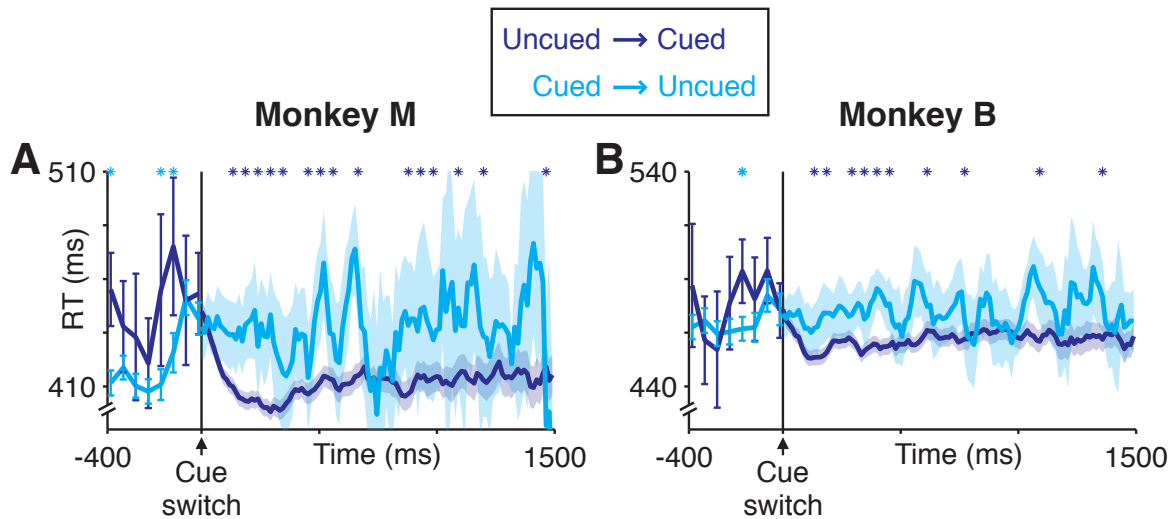


**Figure S1| Effect of cue on reaction time (RT).** **A,B,** Distribution of reaction time improvement with cue (valid-cue RT – invalid-cue RT) for individual behavioral sessions. Data are shown separately for no-switch (**A**) and switch (**B**) trials. The triangle marks the median value for each monkey. See main text for details. **C-F,** Mean reaction time (RT) is plotted as a function of the time the speed pulse occurred. Data from all behavioral sessions were combined. Data are shown separately for speed pulses occurring at the cued dot patch (valid cue) versus uncued dot patch (invalid cue). For no-switch trials (**C,E**), speed pulse times are plotted with respect to dot onset. For switch trials (**D,F**), speed pulse times are plotted with respect to the cue switch. Data were smoothed using a sliding window 4 video frames (53 ms) wide. Shaded regions are 95% confidence intervals for the mean.



**Figure S2. Behavioral shift of attention is similar in response to a non-color-based cue.**

Behavior from sessions in monkey B using the non-color attention-shift task. Instead of the fixation point and annulus color, the attentional cue was a small line at the fixation point oriented towards the cued dot patch. A cue switch was indicated by the immediate reorientation of the line towards the newly cued patch. To maintain similarity with the main task, the annuli surrounding the dot patches were left in place although they were now gray and conferred no useful information. **A-D**, Fraction of speed pulses detected (**A,B**) and reaction time (**C,D**) for various speed-pulse times relative to dot onset (**A,C**, for no-switch trials) or cue switch (**B,D**, for switch trials). Data from trials in which the speed pulse occurred at the cued patch (valid-cue trials) and uncued patch (invalid-cue trials) are shown separately. Data were smoothed using a sliding window 4 video frames (53 ms) wide. Shaded regions are 95% confidence intervals for the mean. See main text for details.



**Figure S3. Effect of attention on reaction time for speed pulses before and after the cue switch.** Mean reaction time is plotted for various speed-pulse times relative to the cue switch for monkey M (**A**) and monkey B (**B**). For pre-cue-switch behavior, speed pulses occurred randomly at fixed times spaced 4 video frames ( $\sim 53$  ms) apart. For post-cue-switch behavior, speed pulses could occur at any video frame but data were smoothed using a sliding window 4 video frames wide. Error bars and shaded regions are 95% confidence intervals for the mean. Time points with significant differences are marked by an asterisk with the color indicating the faster condition ( $p < 0.05$ , two-sided t-test). See main text for details.