Supplementary Material

In order to test the discriminability of the pink and light-blue stimuli from fixation, we conducted an additional experiment. The experimental stimuli and conditions were identical to those in Experiment 3, but now on each trial, a target and distractor always appeared for 100 ms. This duration is shorter than normal SRTs in Experiments 1-3. Subjects were instructed to continuously fixate the central fixation diamond and eye-position was monitored at 500 Hz. There were two blocks of trials. In one block subjects indicated whether the blue, stimulus was on the left or the right, or whether both stimuli were pink. In the other block, they indicated the location of the pink stimulus or whether both stimuli were blue. Each block mimics the experimental condition of E3 where the "different" color was only ever the property of the distractor stimulus (counterbalanced between subjects). Explicit instructions were given as to which color was considered "different". This was identical to instructions in Experiment 3. The task had a 3-alternative forced choice design. The keys "j", "k", and "l" were used to indicate a "left", "right" or "same" choice, respectively. There were 60 trials in each block for a total of 40 trials in each of the three conditions.

A trial was considered correct if the response was correct and the eye was within 1 degree of visual angle from the central fixation. A correct response was a response in which the subject correctly identified the location of the "different" stimulus (blue in one block, pink in the other). Accuracy performance from three subjects are plotted in the left column and corresponding eye data in the right column of Figure S1. On average response errors were made on 1.6% of trials and errors in eye data occurred also on 1.6% of trials. Accuracy data from the left and right "different" conditions were collapsed. Sample eye data from the entire 100 ms stimulus period for every correct trial are plotted on the right. The data demonstrate that subjects could clearly distinguish the colors of the two objects during brief displays while maintaining fixation on the fixation diamond.
Figure S1: accuracy (left column) and eye-position data for 120 trials in the color discrimination task.