

Supplementary Materials

Methods

There were three color values in each of four color categories. The 1931 CIE color coordinate system values (x, y, and luminance) were measured using an X-rite I1 Pro spectrophotometer. The three reds were $x = 0.63$, $y = 0.33$, 48.1 cd/m²; $x = 0.60$, $y = 0.31$, 22.8 cd/m²; $x = 0.62$, $y = 0.33$, 31.3 cd/m². The three greens were $x = 0.31$, $y = 0.60$, 30.9 cd/m²; $x = 0.27$, $y = 0.45$, 46.0 cd/m²; $x = 0.31$, $y = 0.61$, 57.5 cd/m². The three blues were $x = 0.17$, $y = 0.10$, 53.5 cd/m²; $x = 0.15$, $y = 0.05$, 28.5 cd/m²; $x = 0.17$, $y = 0.12$, 28.4 cd/m². The three yellows were $x = 0.39$, $y = 0.49$, 170.3 cd/m²; $x = 0.42$, $y = 0.47$, 152.0 cd/m²; $x = 0.38$, $y = 0.50$, 147.5 cd/m².

Results

Gap-Location Task

Additional memory accuracy and search accuracy analyses. Within each memory set size, there was no reliable effect of memory match condition on memory accuracy [set-size 1: $F < 1$, set-size 2: $F(3,69) = 2.12, p = .09$]. The trend toward an effect of memory match for set-size two was driven by marginally lower accuracy in the match-2 condition. Note that because the search task was self-paced, conditions with longer search times also had longer memory retention times, which could account for this trend, as the match-2 condition had the longest search times. Accuracy on the search task was near ceiling (98.3%) and did not differ as a function of memory set size, $t(23) = .36, p = .72$. For set-size 1, there was a reliable effect of memory-match condition on search accuracy, $F(2,46) = 3.25, p = .05$, although the absolute differences in performance were minimal (see Supplementary Table 1). For set-size 2, there was no effect of memory match on search accuracy, $F < 1$.

Search RT analyses conducted over both correct and incorrect memory trials. The RT analyses including incorrect memory trials produced the same pattern of results as the analyses conducted over correct trials only. For memory set-size 1, there was a reliable memory-based capture effect for Match-1 of 72ms, $t(23)=4.50, p<.001$. For set-size 2, there were reliable memory-based capture effects both for match-1 (40 ms, $t(23)=2.47, p=.03$) and match-2 (111ms, $t(23)=7.00, p<.001$). The difference between Mem-2/Match-2 and Mem-1/Match-1 approached reliability, $t(23)=1.93, p=.07$. Finally, for Match-1 trials, capture was not significantly greater for memory-set-size 1 (72ms) than for memory-set-size 2 (40 ms), $t(23)=1.48, p=.15$, although the numerical pattern was consistent with the attenuation of capture with increasing memory load, predicted by both hypotheses.

Singleton-Shape Task

Additional memory accuracy and search accuracy analyses. For memory set-size 1, there was a reliable effect of memory-match condition on memory accuracy, $F(2,46)=6.10, p=.004$. Memory accuracy was higher in the no-color condition (84.9%) than in the match-0 (81.0%) and match-1 conditions (78.5%). As in the gap-location task, conditions with longer average search times had lower memory performance. For memory set-size 2, there was no effect of memory-match condition, $F(3,69)=1.41, p=.25$. Accuracy on the search task was 96.1% and did not differ as a function of memory set size, $t(23)=1.74, p=.10$. There was no effect of memory match on search accuracy at either set-size 1 or 2, $F_s<1$.

Search RT analyses conducted over both correct and incorrect memory trials. The RT analyses including incorrect memory trials produced the same pattern of results as the analyses conducted over correct trails only. For memory set-size 1, there was a reliable memory-based capture effect for match-1 of 65ms, $t(23)=3.97, p<.001$. For set-size 2, there was no memory-

based capture effect for match-1 (-1ms, $t(23)=0.07, p=.94$) but a reliable effect for match-2 (45 ms, $t(23)=3.68, p=.001$). Finally, the difference between Mem-2/Match-2 and Mem-1/Match-1 was not reliable, $t(23)=1.46, p=.16$. Finally, for Match-1 trials, capture was significantly greater for memory-set-size 1 (65ms) than for memory-set-size 2 (-1 ms), $t(23)=3.56, p=.002$.

Supplementary Table 1. Mean color memory accuracy and search accuracy (percentages) in the seven conditions created by the combination of memory set size and distractor color match.

Memory Set Size	Distractor Color	Gap-location Task		Shape-singleton Task	
		Memory Accuracy	Search Accuracy	Memory Accuracy	Search Accuracy
One (Mem-1)					
	No-Color	84.8	99.0	84.9	96.8
	Match-0	84.2	98.3	81.0	96.6
	Match-1	84.5	97.8	78.5	96.3
Two (Mem-2)					
	No-Color	69.5	98.4	66.4	96.3
	Match-0	68.0	97.9	66.2	95.9
	Match-1	69.5	98.3	63.2	95.2
	Match-2	65.1	98.5	66.8	95.3