# UNM04

2023-07-03

Design

In this experiment, two groups received similar training. In this phase they were presented with 2 stimuli in each trial, one predictive of the outcome and one non-predictive. The only difference between the two group was the contingency between the predictive stimuli and the outcomes. In the certain group, the contingency was 1, that is, the predictive stimulus was always followed by a particular outcome. In the uncertain group this contingency was lowered to 0.8, so the predictive stimuli were followed by their corresponding outcome only on the 80% of the trials, and in the 20% remaining, they were followed by another outcome. after the training phase, all subjects did a recognition memory test. In each trial, they were presented with a stimulus from the previous phase and a similar but new stimulus and had to decide which one they had seen before, and then rate the confidence of their response in a scale from 1 (completely unsure) to 10 (completely sure).
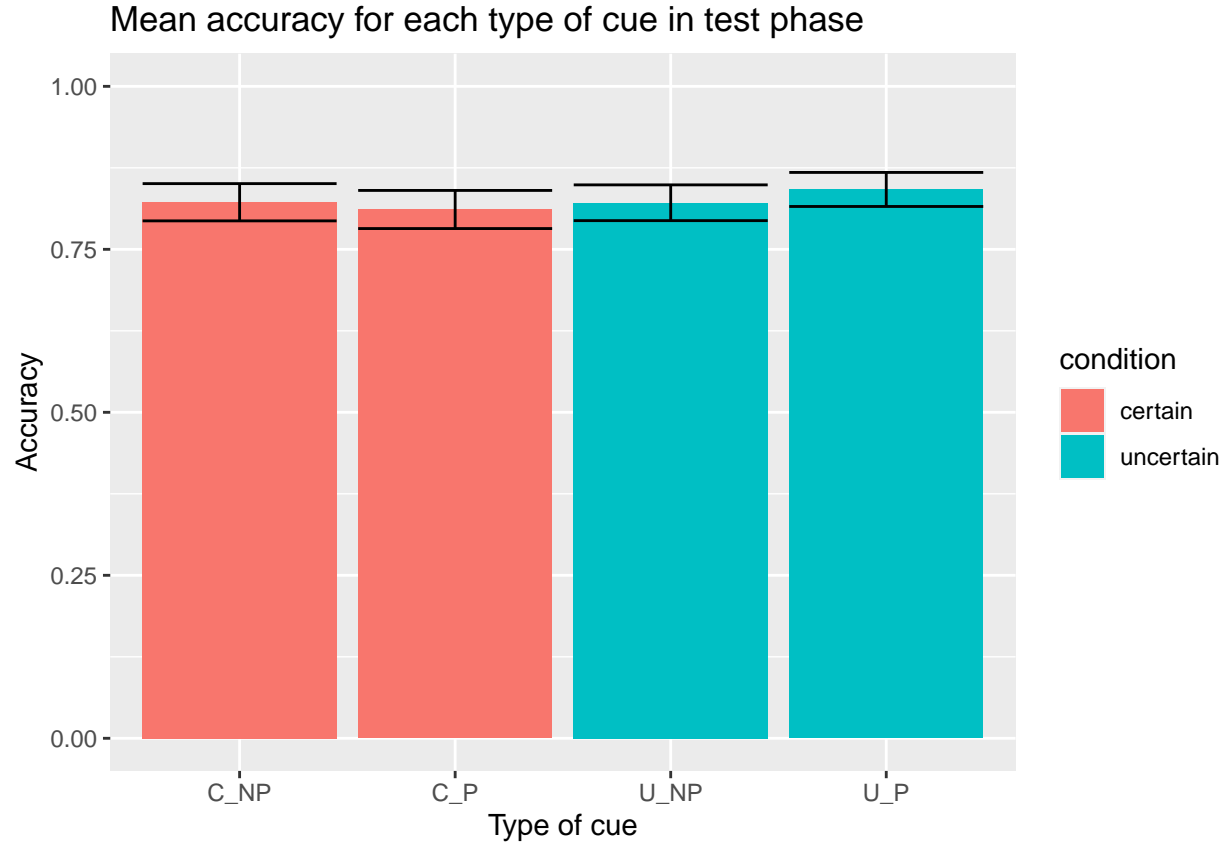
Group	Training	Test
Certain	AX - O1	A vs a
	AY - O1	B vs b
	BX - O2	X vs x
	BY - O2	Y vs y
Uncertain	0.8 AX - O1 / 0.2 AX - O2	A vs a
	0.8 AY - O1 / 0.2 AY - O2	B vs b
	0.8 BX - O2 / 0.2 BX - O1	X vs x
	0.8 BY - O2 / 0.2 BY - O1	Y vs y

Results

Training
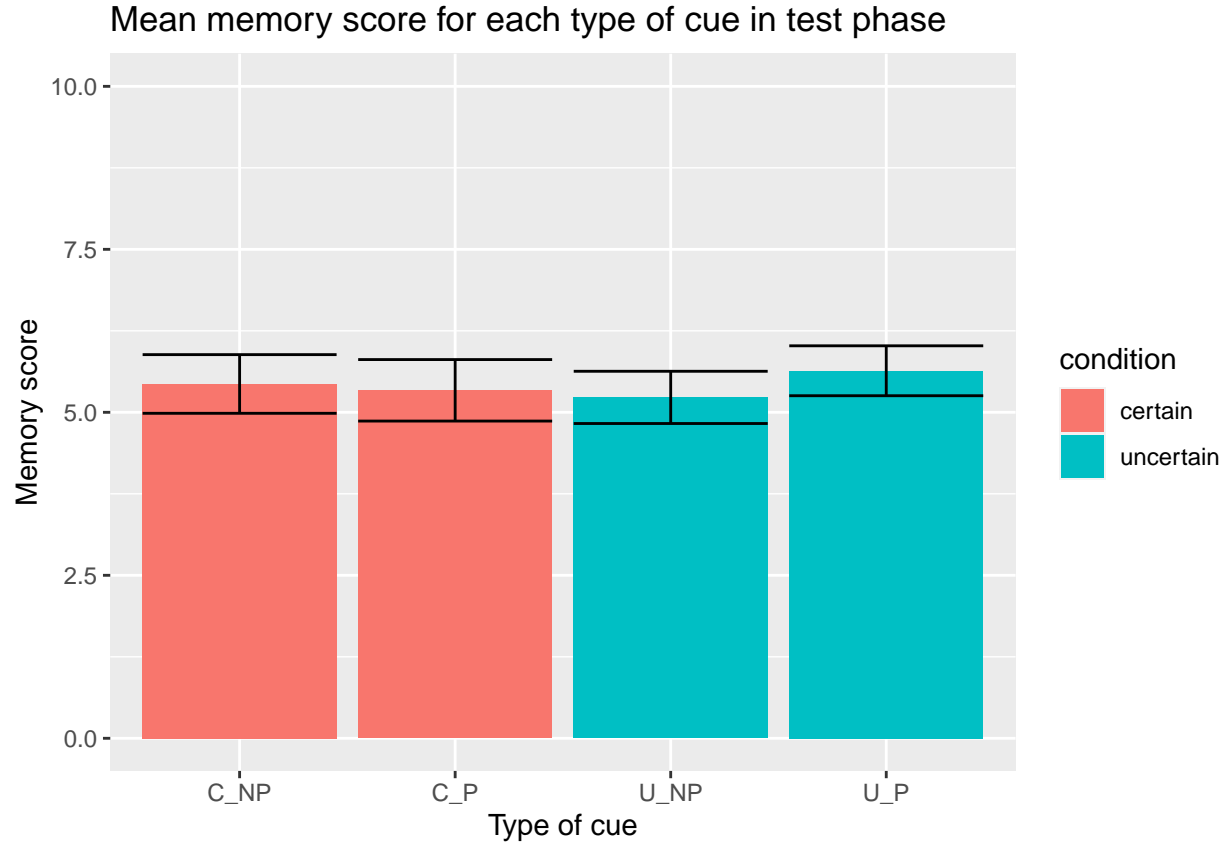
Mean corrected accuracy for the 4 blocks of the training phase
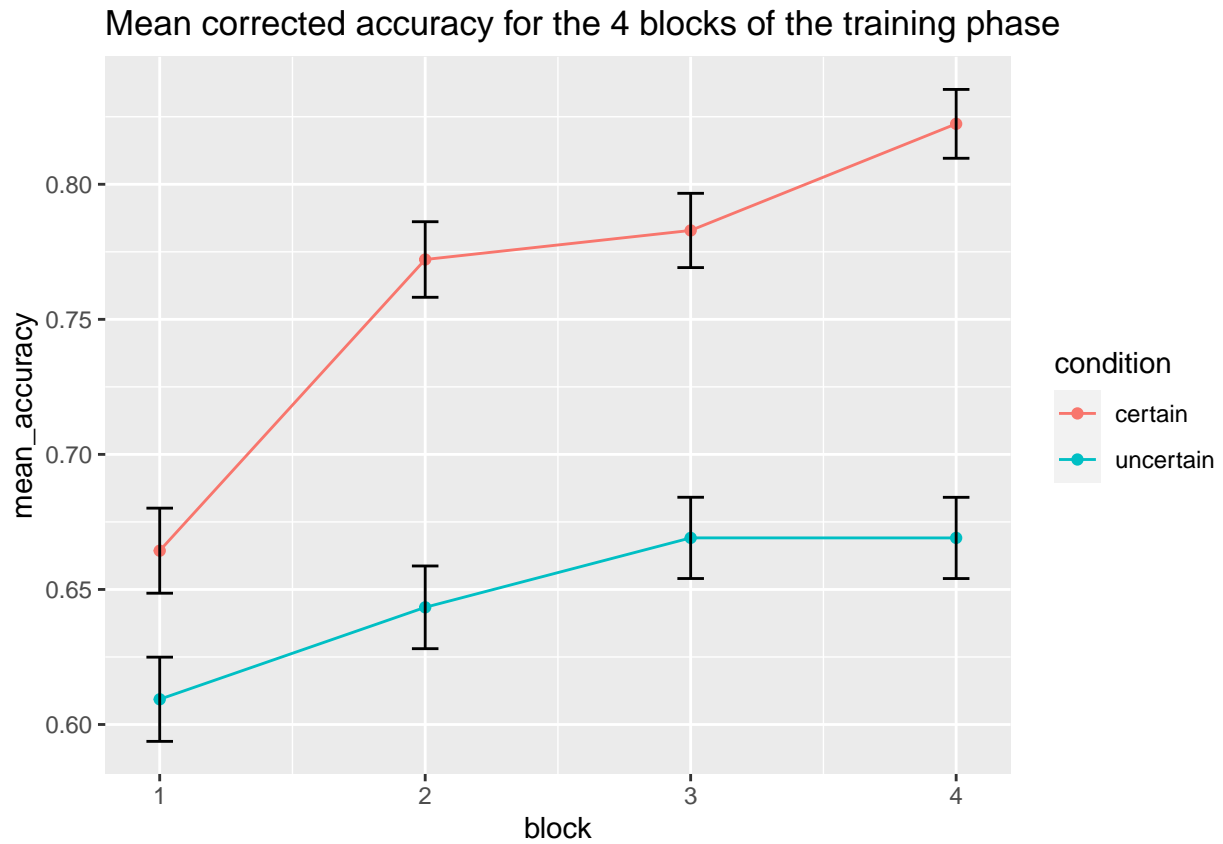
Subjects in the certain group showed higher accuracy through training than the uncertain group, reaching an asymptote of 0.825 around block 4. However, the uncertain group showed a slower increase in their accuracy that reached 0.675 in block 4. A mixed methods ANOVA confirmed a significant effect of the Block ($F(2.59, 238.34) = 15.17$, $p < .001$, $\eta_p^2 = .14$, $\mathrm{BF}_{10} = 9.7\mathrm{x}10^5 \pm 0.57\%$), the Condition ($F(1, 92) = 12.04$, $p < .001$, $\eta_p^2 = .12$, $\mathrm{BF}_{10} = 4\mathrm{x}10^1 \pm 3.88\%$), and the interaction between them ($F(2.59, 238.34) = 3.20$, $p = .030$, $\eta_p^2 = .03$, $\mathrm{BF}_{10} = 1.2\mathrm{x}10^0 \pm 9.46\%$). Extreme evidence in favor of the alternative hypothesis was found for the effect of Block, very strong for the effect of Condition and anecdotal in the case of the interaction. ## Test ### Accuracy

## Mean accuracy for each type of cue in test phase

No significant effects were found, and the bayesian evidence was moderate in favour of the null hypothesis in all cases (Condition: $F(1, 92) = 0.15$, $p = .698$, $\eta_p^2 < .01$, $BF_{10} = 2.2\text{x}10^{-1} \pm 0.97\%$; Predictiveness: $F(1, 92) = 0.03$, $p = .872$, $\eta_p^2 < .01$, $BF_{10} = 1.6\text{x}10^{-1} \pm 1.04\%$; interaction: $F(1, 92) = 0.30$, $p = .584$, $\eta_p^2 < .01$, $BF_{10} = 2.3\text{x}10^{-1} \pm 5.68\%$). ### Memory score

## Mean memory score for each type of cue in test phase

No significant effects were found, and the bayesian evidence was moderate in favour of the null hypothesis in all cases (Condition: $F(1, 92) = 0.15$, $p = .698$, $\eta_p^2 < .01$, $\mathrm{BF}_{10} = 2.2\mathrm{x}10^{-1} \pm 0.97\%$; Predictiveness: $F(1, 92) = 0.03$, $p = .872$, $\eta_p^2 < .01$, $\mathrm{BF}_{10} = 1.6\mathrm{x}10^{-1} \pm 1.04\%$; interaction: $F(1, 92) = 0.30$, $p = .584$, $\eta_p^2 < .01$, $\mathrm{BF}_{10} = 2.3\mathrm{x}10^{-1} \pm 5.68\%$).

Corrected memory score (hits x1, errors x0)
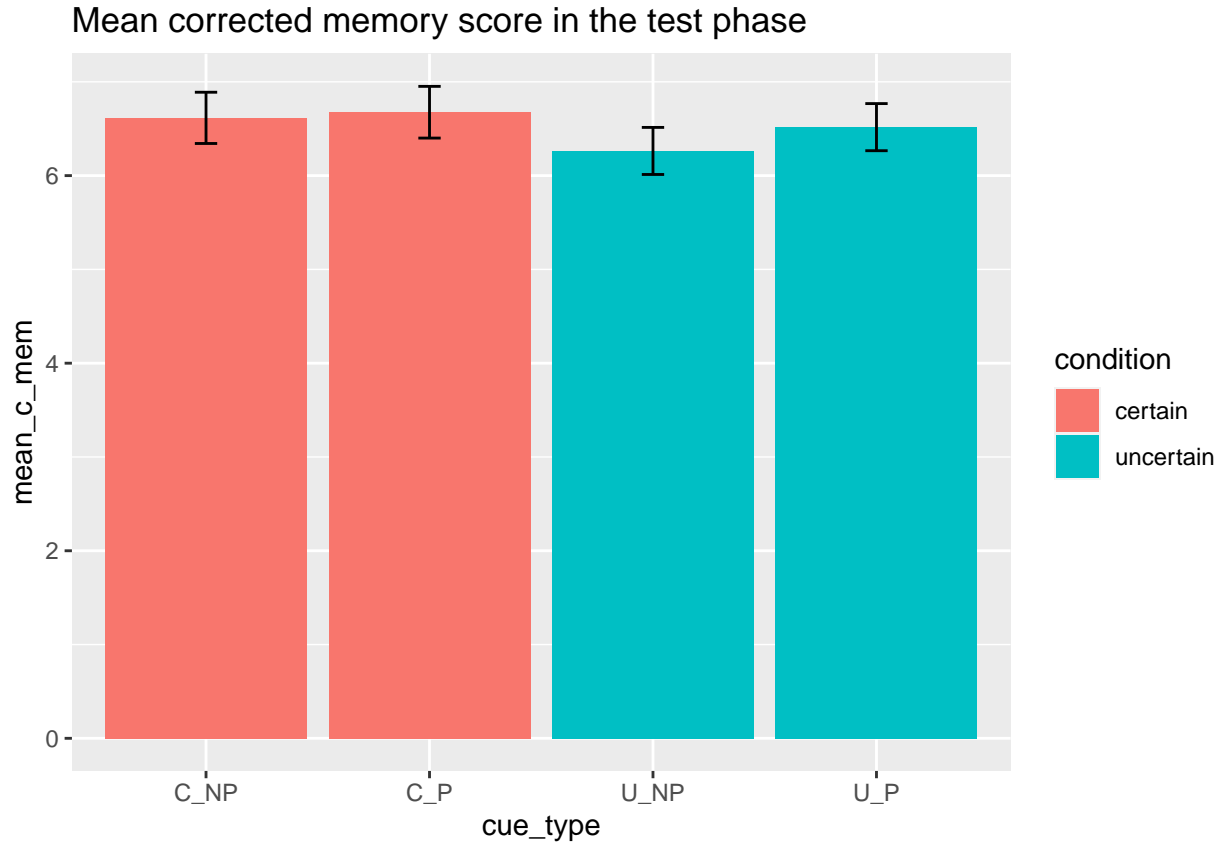
Mean corrected memory score in the test phase

There were no significant differences in memory due to the condition, and the bayesian analysis indicated anecdotal evidence for the null hypothesis ($F(1, 92) = 0.39$, $p = .535$, $\eta_p^2 < .01$, $BF_{10} = 3.2\text{x}10^{-1} \pm 0.95\%$;). Both the effect of predictiveness and the interaction were also not significant, being the bayesian evidence moderate ($F(1, 92) = 0.27$, $p = .607$, $\eta_p^2 < .01$, $BF_{10} = 1.8\text{x}10^{-1} \pm 1.11\%$; $F(1, 92) = 0.15$, $p = .697$, $\eta_p^2 < .01$, $BF_{10} = 2.3\text{x}10^{-1} \pm 2.2\%$).

Corrected memory score (errors out)
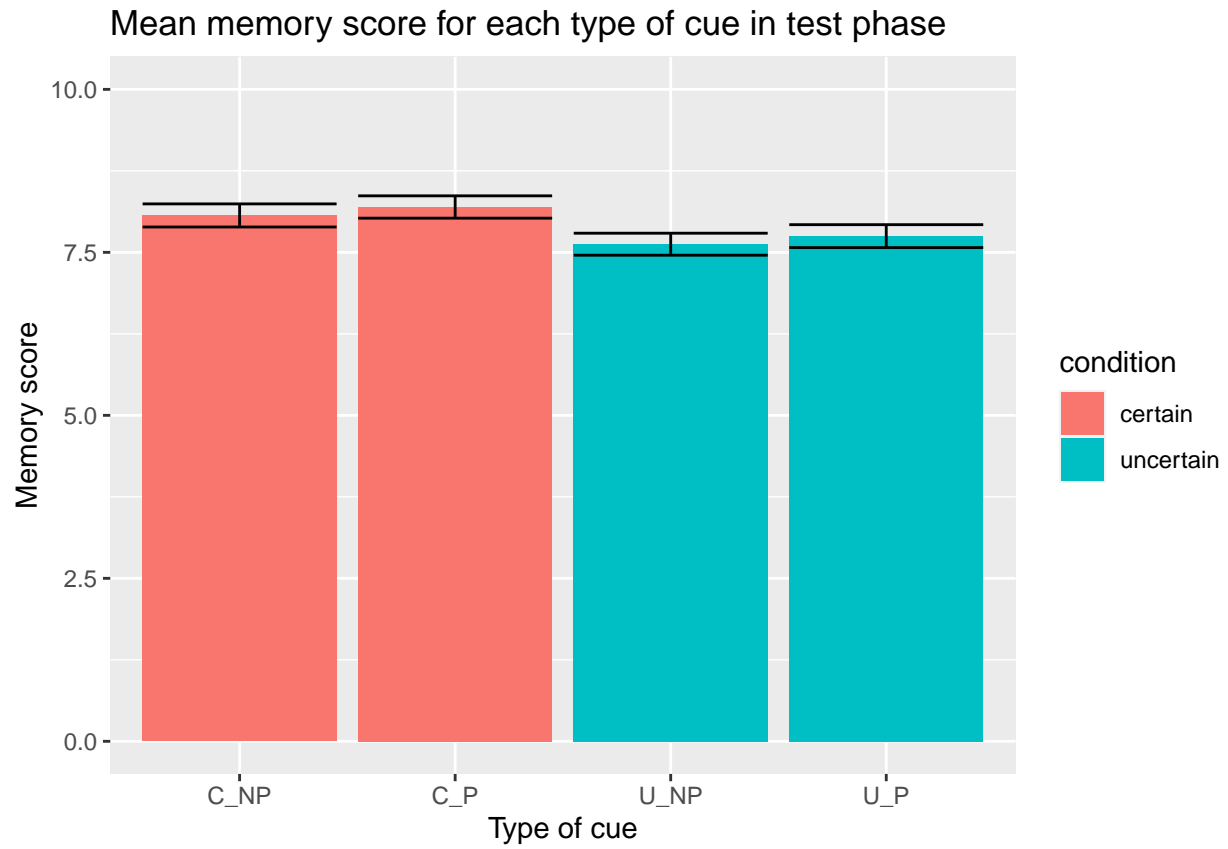
Mean memory score for each type of cue in test phase

There were no significant differences in memory due to the condition, and the bayesian analysis indicated anecdotal evidence for the null hypothesis ($F(1, 90) = 2.36$, $p = .128$, $\eta_p^2 = .03$, $\mathrm{BF}_{10} = 6.9\mathrm{x}10^{-1} \pm 0.68\%$;). Both the effect of predictiveness and the interaction were also not significant, being the bayesian evidence moderate ($F(1, 90) = 0.14$, $p = .708$, $\eta_p^2 < .01$, $\mathrm{BF}_{10} = 1.6\mathrm{x}10^{-1} \pm 1.23\%$; $F(1, 90) = 0.12$, $p = .731$, $\eta_p^2 < .01$, $\mathrm{BF}_{10} = 2.3\mathrm{x}10^{-1} \pm 5.08\%$).