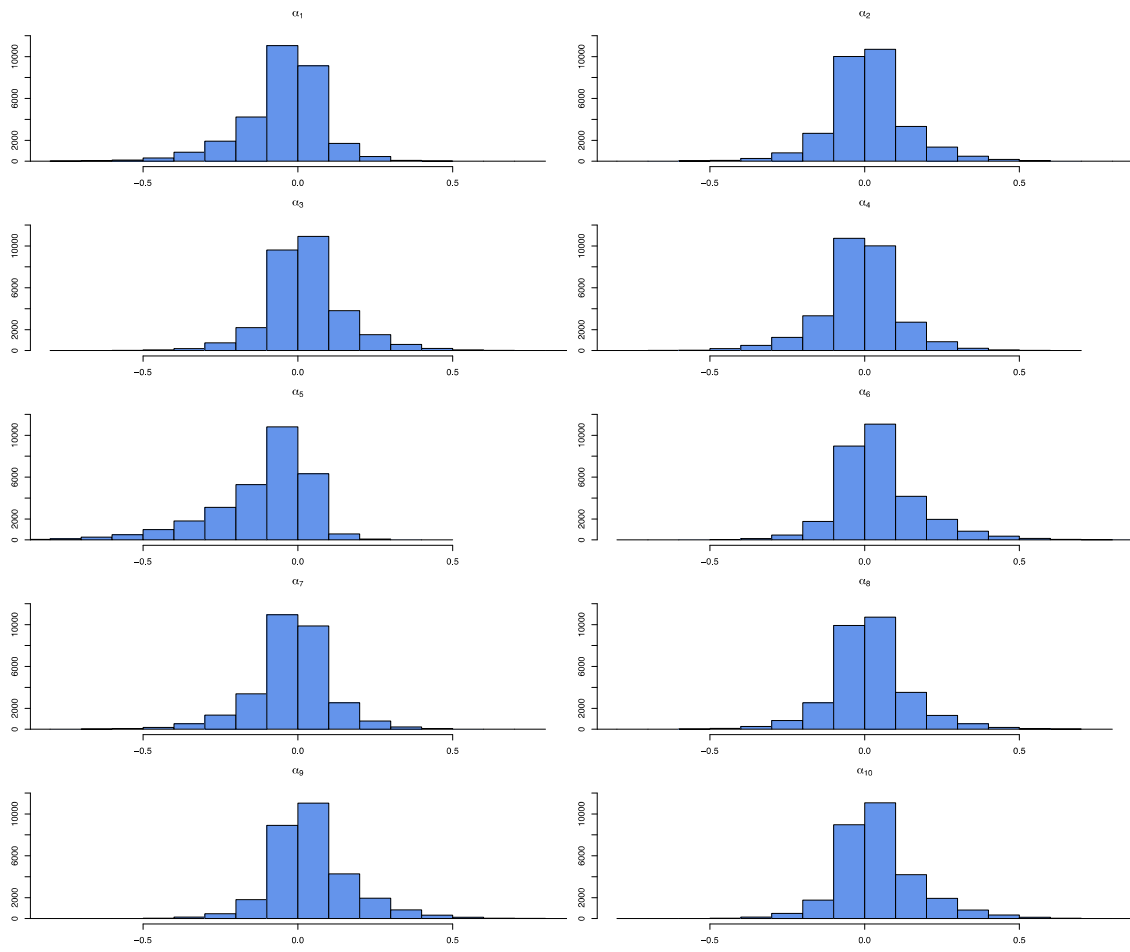# Psychophysics of the hoverfly: categorical or continuous colour discrimination?

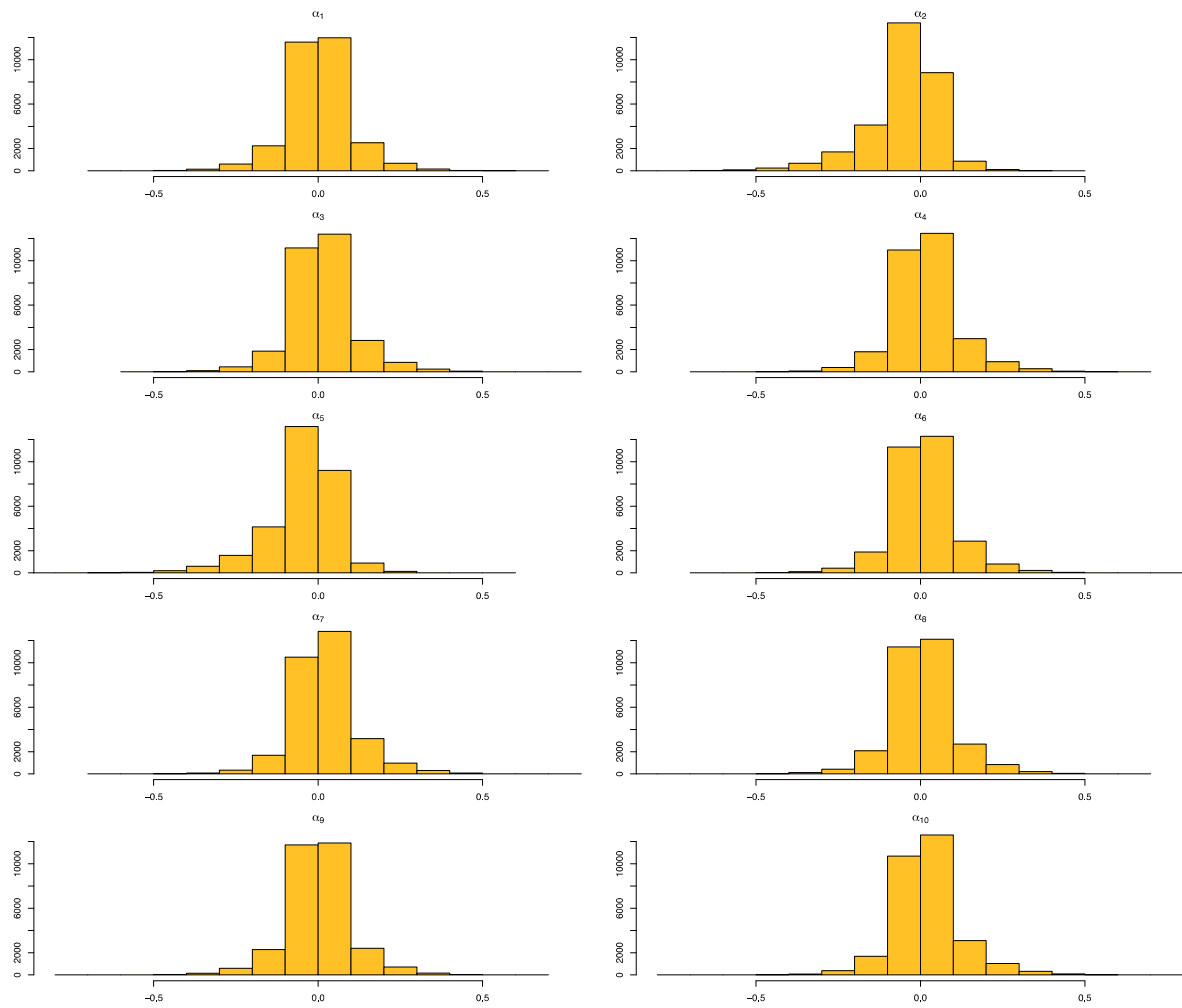Lea HANNAH[a,b], Adrian G. DYER[c,d,*], Jair E. GARCIA[c], Alan DORIN[e], Martin BURD[a]

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In a mixed model as the one used to model colour discrimination as a function of (Euclidean) colour distance, the random term of the model (α_i) describes a correlation structure between all responses belonging to the same i group. In our case, the distributions of the different $i = 1,\ldots, 10$ α values for each tested group were very similar to each other for either the blue (Fig S1) or yellow stimuli (Fig S2).

These results indicate that the relationship between the observed responses are very similar for the different cohorts independent of the tested colour (Table S1), thus suggesting that the experimental performance is homogenous across cohorts.

Figure S1. Histograms of the 30,000 α coefficients describing the correlation structure between the responses for each of the 10 group of hoverflies to the different blue stimuli. Each α coefficient defines a correlation structure between the responses for each cohort of hoverflies.

Figure S2. Histograms of the 30,000 α coefficients describing the correlation structure between the responses for each of the 10 cohort of hoverflies to the different yellow stimuli. Each α coefficient defines a correlation structure between the responses for each cohort of hoverflies.

Table S1: Mean and 95 % credibility intervals for the α coefficients describing the correlation structure between the responses for each of the 10 groups of hoverflies to the blue (second column) and yellow (third column) stimuli.

Coefficient	Mean and 95 credibility intervals (BLUE)	Mean and 95 credibility intervals (YELLOW)
α_1	-0.019 (-0.363, 0.185)	0.000 (-0.201, 0.209)
α_2	0.005 (-0.251, 0.302)	-0.020 (-0.325, 0.111)
α_3	0.009 (-0.223, 0.327)	0.003 (-0.182, 0.234)
α_4	-0.004 (-0.301, 0.243)	0.005 (-0.176, 0.239)
α_5	-0.064 (-0.543, 0.098)	-0.018 (-0.310, 0.115)
α_6	0.018 (-0.196, 0.368)	0.003 (-0.180, 0.223)
α_7	-0.006 (-0.310, 0.239)	0.006 (-0.163, 0.249)
α_8	0.005 (-0.247, 0.295)	0.003 (-0.182, 0.226)
α_9	0.019 (-0.189, 0.371)	0.001 (-0.202, 0.212)
α_{10}	0.019 (-0.192, 0.368)	0.005 (-0.169, 0.252)