

Supplementary Material for:

**Modelling personality, plasticity and
predictability in shelter dogs from a longitudinal
behavioural assessment**

Conor Goold¹ and Ruth C. Newberry¹

¹Department of Animal and Aquacultural Sciences, Norwegian University of
Life Sciences

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Table S1: Inter-rater reliability and validity measures from video coding sessions, which showed 14 videos (two randomly-selected videos from 7 shelter assessment contexts) to $N = 93$ participants. Consensus is a measure of inter-rater reliability, and was compared to 10,000 non-parametric bootstrap samples from a hypothetical null distribution. Validity was assessed by calculating the percentage (%) of participants who chose the correct code as well as the % of participants who chose a code in the correct colour category (green, amber and red; see Table 2 in the main text).

Videos	Consensus (95% CI)	Null 95% CI	% correct	% correct colour
Kennel assessment (1)	0.73 (0.67, 0.80)	0.45 (0.38, 0.52)	59	61
Kennel assessment (2)	0.68 (0.61, 0.74)	0.38 (0.30, 0.45)	53	54
Out of kennel (1)	0.74 (0.58, 0.91)	0.01 (0.00, 0.03)	96	100
Out of kennel (2)	0.77 (0.67, 0.86)	0.47 (0.40, 0.54)	68	83
Interacting with people (1)	0.75 (0.66, 0.84)	0.43 (0.35, 0.51)	77	83
Interacting with people (2)	0.77 (0.74, 0.81)	0.43 (0.35, 0.52)	52	55
Handling (1)	0.79 (0.73, 0.86)	0.48 (0.41, 0.56)	58	91
Handling (2)	0.62 (0.48, 0.77)	0.37 (0.30, 0.45)	77	77
Eating food (1)	0.65 (0.54, 0.77)	0.43 (0.35, 0.51)	80	99
Eating food (2)	0.70 (0.59, 0.78)	0.43 (0.35, 0.52)	32	95
Interacting with toys (1)	0.96 (0.90, 1.00)	0.32 (0.22, 0.43)	97	99
Interacting with toys (2)	0.26 (0.18, 0.36)	0.37 (0.30, 0.45)	14	14
Interacting with dogs (1)	0.78 (0.68, 0.89)	0.43 (0.35, 0.52)	85	90
Interacting with dogs (2)	0.74 (0.63, 0.86)	0.38 (0.30, 0.45)	86	90

Table S2: The influence (mean and 95% highest density intervals) of dog-level predictor variables on personality, plasticity (linear and quadratic trends) and predictability.

Parameter	Mean (95% HDI)			
	Intercepts	Linear slopes	Quadratic slopes	Residual SDs
Number of observations	0.12 (0.03, 0.21)	-0.06 (-0.13, 0.00)	-0.03 (-0.07, 0.01)	0.06 (0.02, 0.1)
Total days (residual)	0.04 (-0.04, 0.12)	-0.01 (-0.06, 0.06)	0.00 (-0.05, 0.03)	0.03 (-0.01, 0.06)
Age	-0.61 (-0.70, -0.51)	-0.20 (-0.27, -0.13)	0.08 (0.03, 0.12)	0.05 (0.01, 0.09)
Weight	-0.04 (-0.11, 0.04)	0.04 (-0.03, 0.1)	-0.05 (-0.09, -0.01)	0.03 (0.00, 0.07)
Female .v. male	0.05 (-0.09, 0.20)	0.08 (-0.03, 0.19)	-0.03 (-0.10, 0.04)	-0.07 (-0.13, 0.01)
Source: Gift .v. returned	0.28 (0.04, 0.52)	-0.08 (-0.26, 0.11)	-0.01 (-0.13, 0.10)	-0.03 (-0.16, 0.10)
Source: Gift .v. stray	0.33 (0.15, 0.50)	-0.25 (-0.38, -0.13)	0.01 (-0.07, 0.10)	0.10 (0.02, 0.18)
Source: Returned .v. stray	0.04 (-0.23, 0.30)	-0.18 (-0.37, 0.03)	0.02 (-0.10, 0.16)	0.13 (-0.01, 0.27)
Centre: large .v. medium	-0.05 (-0.24, 0.13)	-0.70 (-0.84, -0.56)	0.35 (0.26, 0.45)	-0.04 (-0.12, 0.06)
Centre: large .v. small	-0.30 (-0.50, -0.09)	-0.22 (-0.38, -0.06)	0.01 (-0.09, 0.12)	0.01 (-0.10, 0.11)
Centre: Medium .v. small	-0.25 (-0.48, -0.01)	0.48 (0.30, 0.66)	-0.34 (-0.46, -0.22)	0.05 (-0.08, 0.16)
Neutered: before arrival .v. not	-0.54 (-1.07, -0.03)	-0.05 (-0.50, 0.38)	-0.01 (-0.36, 0.35)	-0.53 (-0.85, -0.22)
Neutered: before arrival .v. at shelter	0.20 (0.03, 0.37)	0.09 (-0.03, 0.23)	-0.03 (-0.11, 0.06)	0.10 (0.02, 0.19)
Neutered: not .v. at shelter	0.74 (0.20, 1.26)	0.15 (-0.29, 0.59)	-0.02 (-0.38, 0.32)	0.63 (0.30, 0.92)