

**Supporting Information**  
**S3 Cross-over design analysis results using Mann-Whitney.**

Behaviour	Episodes	Interaction	Test order effect	Episode order effect
<b>Proximity/contact seeking</b>				
Proximate owner/stranger	A2 vs A8 vs B6 vs B4(S)	X	X	X
	B2 vs B8 vs A6 vs A4(O)	X	X	X
	A2 vs B6 (S)	✓ Z = 108.5*	NA	NA
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	X	X
	A1 vs B5 (O)	X	X	X
	A1 vs B5 (S)	X	X	X
	B5 vs A1 (O)	X	✓ Z = 405.5*	X
	B5 vs A1 (S)	X	X	✓ Z = 419.0**
Physical contact	A2 vs A8 vs B6 vs B4(S)	X	✓ Z = 1496.5**	X
	B2 vs B8 vs A6 vs A4(O)	X	X	X
	A2 vs B6 (S)	X	X	X
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	✓ Z = 386.5**	X
	A1 vs B5 (O)	X	X	✓ Z = 266.0*
	A1 vs B5 (S)	X	X	X
	B5 vs A1 (O)	X	X	X
	B5 vs A1 (s)	X	X	X
Marking	A2 vs A8 vs B6 vs B4(S)	X	X	✓ Z = 1107.5**
	B2 vs B8 vs A6 vs A4(O)	X	X	X
	A2 vs B6 (S)	X	X	X
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	X	X
	A1 vs B5 (O)	X	X	✓ Z = 263.5*
	A1 vs B5 (S)	X	X	✓ Z = 251.0***
	B5 vs A1 (O)	X	X	X
	B5 vs A1 (S)	X	X	X
<b>Secure base effect</b>				
Exploration/ locomotion	A2 vs B6 (S)	X	X	X
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	X	X
	A2 vs A8 vs B6 vs B4(S)	X	X	X
Passive behaviours	B2 vs B8 vs A6 vs A4(O)	X	X	X
	A2 vs B6 (S)	X	X	✓ Z = 368.5*
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	X	X
Social play	A2 vs A8 vs B6 vs B4(S)	X	X	✓ Z = 1023.5****
	B2 vs B8 vs A6 vs A4(O)	X	X	X
	B2 vs B8 vs A6 vs A4(O)	X	X	X
	A2 vs A8 vs B6 vs B4(S)	X	X	X
	A2 vs A8 vs B6 vs B4(S)	X	X	X

	A2 vs B6 (S)	X	X	X
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	X	X
	A1 vs B5 (S)	X	X	X
	B1 vs A5 (O)	X	X	X
<b>Distress when separated</b>				
Vocalising	A2 vs A8 vs B6 vs A4 (S)	X	X	X
	B2 vs B8 vs A6 vs A4(O)	X	X	X
	A2 vs B6 (S)	X	X	X
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	X	X
Orientating/approaching door	A2 vs A8 vs B6 vs A4 (S)	X	✓ Z = 1118.5*	X
	B2 vs B8 vs A6 vs A4(O)	X	✓ Z = 1149.0*	X
	A2 vs B6 (S)	✓ Z = 88.0*	NA	NA
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	X	X
	A3 vs B7 (C)	X	X	X
	A7 vs B3 (C)	X	X	X
Vigilance	A2 vs A8 vs B6 vs A4 (S)	X	X	✓ Z = 1178.5*
	B2 vs B8 vs A6 vs A4(O)	X	✓ Z = 1463.0**	X
	A2 vs B6 (S)	X	X	X
	B2 vs A6 (O)	X	X	X
	A4 vs B8 (O)	X	X	X
	B4 vs A8 (S)	X	X	X
	A3 vs B7 (C)	X	X	X
	A7 vs B3 (C)	X	X	x
Contact with O/S empty chair	A2 vs B6 (S)			
	B2 vs A6 (O)			
	A4 vs B8 (O)			
	B4 vs A8 (S)			
	A3 vs B7 (C)			
	A7 vs B3 (C)			
			Insufficient data	

**Key:**

(S) = Stranger present, (O) = Owner present, (C) = Cat alone,

X = no significant difference, ✓ = significant difference, \* = p<0.05, \*\* = p<0.1, \*\*\* = p<0.001

Z = Mann-Whitney statistic test number