

**Table A1** Ethogram of agonistic behaviours used in this study (for abnormal behaviours see Table 2)

## **AGONISM**

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**agonistic event** – record all behaviour(s) of both initiator/recipient (including directed bluffs) *and*

**bluff display** (not directed at any individual, enter XXX as recipient; if directed, score as an agonistic interaction)

**spontaneous submissive greeting** ( $\geq 2$  pant-grunts)

**non-spontaneous submissive greeting** (recipient approaches actor, or recipient or other group members involved in agonistic/bluff/excitement behaviour; score it even though already scored as an agonistic pattern)

**withdraw for other** (no agonism, no greeting)

In order to obtain the dominance rank for each individual, we used information from *ad libitum* agonistic interactions, combined with, given the paucity of agonistic interactions, submissive behaviours recorded during group and sampling protocols. The submission matrices obtained in MatMan were transposed to indicate the amount of submissive behaviours received rather than given. The resulting dominance matrix was sufficient to establish a significantly linear dominance hierarchy (directional index = 0.935,  $P < 0.001$ ). However, due to noteworthy inconsistencies in the resulting hierarchy (eg the putative alpha male was ranked second) along with an insufficient quantity of data points available for each dyad, knowledge of the keepers and observers in combination with additional *ad libitum* agonistic events were used to adjust the linear hierarchy.

**Table S1** Frequency of abnormal behaviour in global observations ( $\pm 119$  hours). BM = body-manipulation, CL = clap, CO = coprophagy, HS = head-shake, CA = crossed-arm walk, PL = pluck, RO = rock, UI = urine-interaction. #Abn indicates the number of different abnormal behaviours shown.

ID	BM	CL	CO	HS	CA	MF	PL	RO	UI	#Abn
Erika	0	0	10	6	0	12	0	0	3	4
Fons	0	0	62	6	0	40	2	16	0	5
Gaby	2	1	34	8	2	22	6	0	29	8
Geisha	0	3	9	2	0	3	10	0	0	5
Ghineau	0	0	2	1	0	3	6	0	0	4
Giambo	1	0	14	128	0	16	2	1	0	6
Jimmie	2	0	4	2	1	4	0	18	1	7
Jing	1	0	33	2	0	27	0	0	0	4
Moni	68	0	3	3	85	4	0	3	0	6
Moniek	18	47	23	68	56	6	0	16	0	7
Morami	0	0	45	3	132	8	1	1	0	6
Raimee	7	0	14	4	2	38	6	0	1	7
Roosje	1	0	31	0	11	45	9	0	1	6
Tesua	4	0	13	6	1	8	4	3	0	7
Tushi	9	1	17	9	16	5	11	9	0	8

**Table S2** MRQAP-DSP model results

Predictor	Estimate	p-value
Age	-0.03	0.086
Sex	0.12	0.409
Rank	-0.11	0.390
Kinship*	-0.89	0.016

$F(4, 206) = 7.18, P < 0.001. R^2 = 0.11$

**Table S3** Wilcoxon-rank test results.

<b>Individual</b>	<b><i>Rho</i></b>	<b>p-value (raw)</b>	<b>p-value (BH adjusted)</b>
Erika	-0.06	0.593	0.653
Fons	-0.03	0.808	0.808
Gaby	-0.12	0.297	0.466
<b>Geisha*</b>	0.28	0.011	0.062
Ghineau	NA	NA	NA
<b>Giambo**</b>	0.36	0.001	0.015
Jimmie	NA	NA	NA
Jing	-0.12	0.282	0.466
Moni	0.13	0.231	0.466
Moniek	-0.12	0.266	0.466
Morami	0.07	0.514	0.632
Raimée	0.08	0.517	0.632
Roosje	-0.15	0.202	0.466
Tesua	NA	NA	NA
Tushi	NA	NA	NA