

Supplementary Materials for

Couples showing off: Audience promotes both male and female multimodal courtship display in a songbird

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Legend for movie S1

Other Supplementary Material for this manuscript includes the following:

(available at advances.sciencemag.org/cgi/content/full/4/10/eaat4779/DC1)

Movie S1 (.mp4 format). Male blue-capped cordon-bleu courtship display directed to its partner in the presence of a female audience.

Supplementary Materials

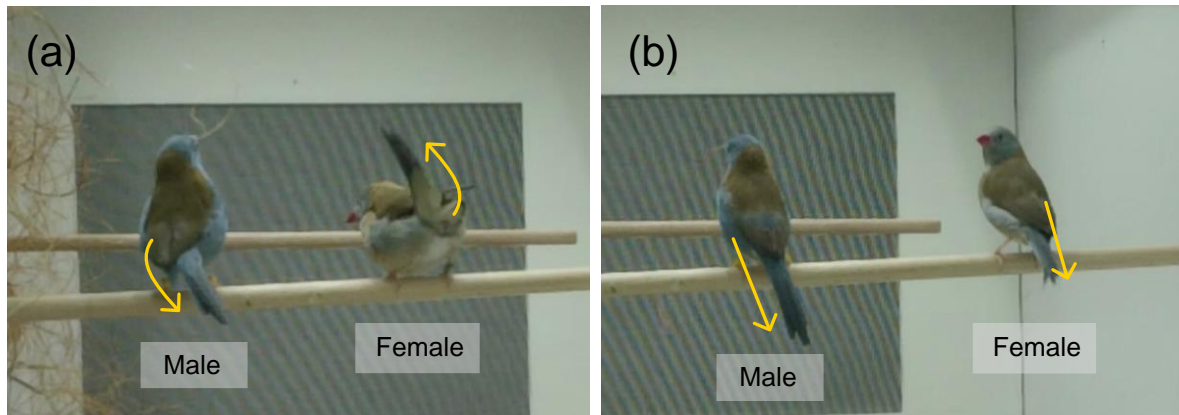


Fig. S1. Examples of tail direction during a courtship display in which a male is courting a female. (a) Both male and female cordon-bleus usually angle their tail towards their paired partner when they are sexually motivated. (b) It can be easily distinguished from the usual tail posture, which is along the longitudinal axis of the body. Photo Credit: Nao Ota, Max Planck Institute for Ornithology.

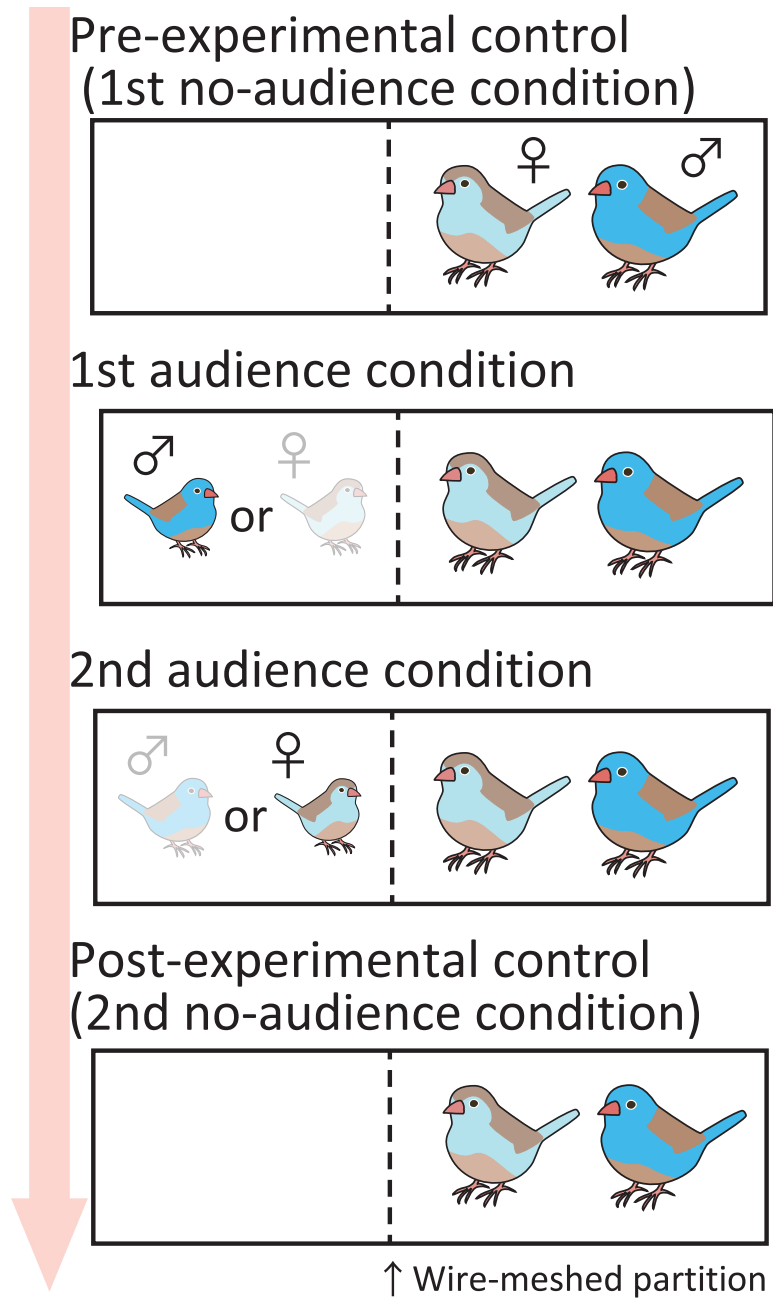


Fig. S2. Protocol design and schematic views of the apparatus used in this experiment.

Subjects were first recorded without an audience (pre-experimental control conditions). Then, we introduced male or female audience (1st audience condition), and then the opposite sex audience (2nd audience condition), which was followed by the post-experimental control condition. The order of audience sex was randomized for each pair. Subject birds and audiences were separated by a wire-mesh partition.

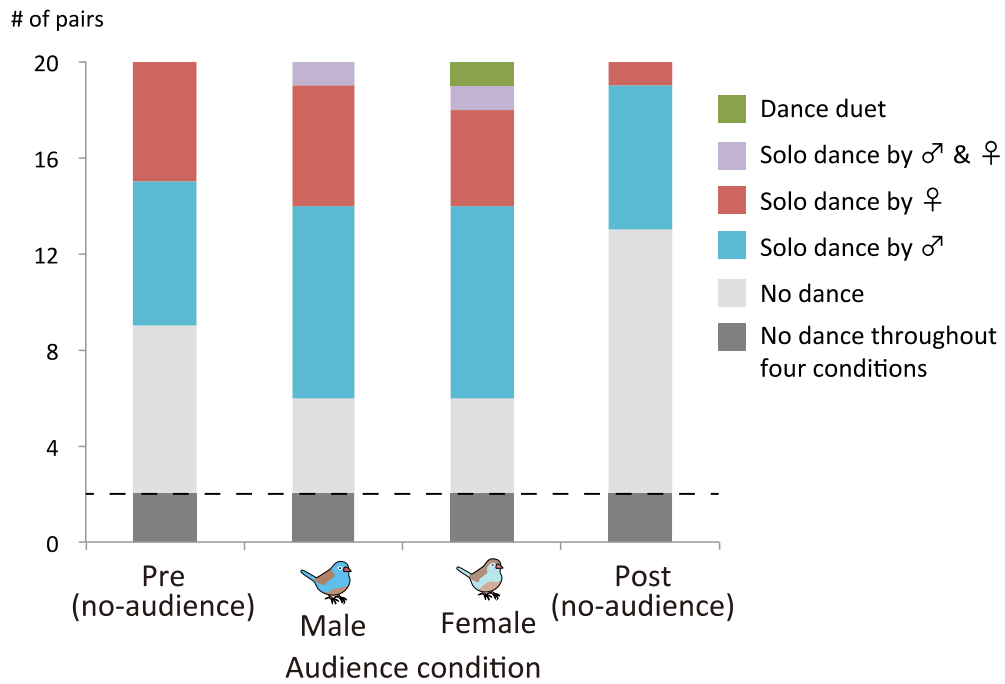


Fig. S3. Cumulative number of pairs that performed duet or solo multimodal displays in the four experimental conditions. The purple bar indicates that both sexes of the pair performed multimodal displays, but not simultaneously. Red and blue bars indicate that females or males performed unidirectional multimodal displays, respectively. Pairs in which neither sex danced are represented in grey. Two pairs of both sexes did not dance throughout any of the four conditions and are indicated in dark grey.

Table S1. The list of subject birds that performed multimodal displays when their partner stayed nearby and the percentage of the dance bouts with tail angling.

Bird ID	Sex	Total no. of dance bouts (when partner stayed nearby)	No. of dance bouts with tail angling	Probability (%)
F08	Female	3	3	100
F10	Female	17	16	94.12
F12	Female	1	1	100
M01	Male	1	1	100
M05	Male	15	13	86.67
M06	Male	4	4	100
M08	Male	7	1	14.29
M09	Male	1	0	0
M11	Male	12	10	83.33
M13	Male	5	4	80.00
M14	Male	7	7	100
M19	Male	1	1	100
			Average (%)	79.87

Table S2. Results of the same analysis as in Table 2 after eliminating the data from the five pairs whose two audience conditions were conducted on the same day.

Response variable	Independent variable	Coefficient	SE	z	p
The number of multimodal displays	Audience sex ^a	- 0.922	0.134	- 6.864	< 0.001
	The number of audience unimodal displays	- 0.010	0.002	- 4.734	< 0.001
	Present order of audience (first or second)	0.519	0.140	3.706	< 0.001
	Subject sex ^b	3.867	1.780	2.172	0.030
The number of unimodal displays	Audience sex ^a	0.023	0.197	0.117	0.907
	The number of audience unimodal displays	- 0.008	0.002	- 3.444	< 0.001
	Present order of audience (first or second)	- 1.223	0.186	- 6.585	< 0.001
	Subject sex ^b	1.528	2.683	0.570	0.569

Table S3. Results of the same analysis as in Table 2 after eliminating the data from two pairs in which male audience birds danced during the experiment.

Response variable	Independent variable	Coefficient	SE	z	p
The number of multimodal displays	Audience sex ^a	- 0.711	0.108	- 6.566	< 0.001
	The number of audience unimodal displays	- 0.006	0.002	- 3.395	< 0.001
	Present order of audience (first or second)	0.184	0.110	1.674	0.094
	Subject sex ^b	3.874	1.399	2.770	0.006
The number of unimodal displays	Audience sex ^a	- 0.177	0.158	- 1.118	0.263
	The number of audience unimodal displays	- 0.009	0.002	- 5.000	< 0.001
	Present order of audience (first or second)	- 0.767	0.166	- 4.630	< 0.001
	Subject sex ^b	1.198	1.787	0.670	0.503

Movie S1. Male blue-capped cordon-bleu courtship display directed to its partner in the presence of a female audience.