



Supplementary Figure S3: Supplementary analyses of song learning in song-naïve juveniles. We categorized animals as “hits” if they had cannulae implanted $<500\ \mu\text{m}$ rostral of the caudal edge of the hippocampus. On average, animals in the “hits” group had cannulae $405 \pm 19\ \mu\text{m}$ rostral to this reference point while animals that were considered as “misses” had cannulae implanted $1040 \pm 65\ \mu\text{m}$ rostral to this reference point. Both animals considered misses were naïve juveniles administered NE. Here, we exclude these two birds from the “control” group and consider them as a separate category of “misses”. We continue to find a significant effect of NE on %similarity to the tutor (NE: $54.6 \pm 6.5\%$; Control: $26.7 \pm 9.9\%$; Misses: $24.5 \pm 8.0\%$; $\chi^2_1 = 12.67$, $p = 0.0017$; A) and the number of tutor syllables learned (NE: 3.4 ± 0.4 ; Control: 1.5 ± 0.9 ; Misses: 0.6 ± 0.6 ; $\chi^2_1 = 22.2$, $p < 0.0001$; B). NE pupils learned significantly better than control pupils ($p < 0.003$ for each feature) and birds classified as misses (%similarity: $p = 0.0612$; tutor syllables learned: $p = 0.0007$); however, the extent of learning was not significantly different between pupils categorized as controls or misses. “*” denotes $p < 0.05$, “~” denotes $p < 0.10$.