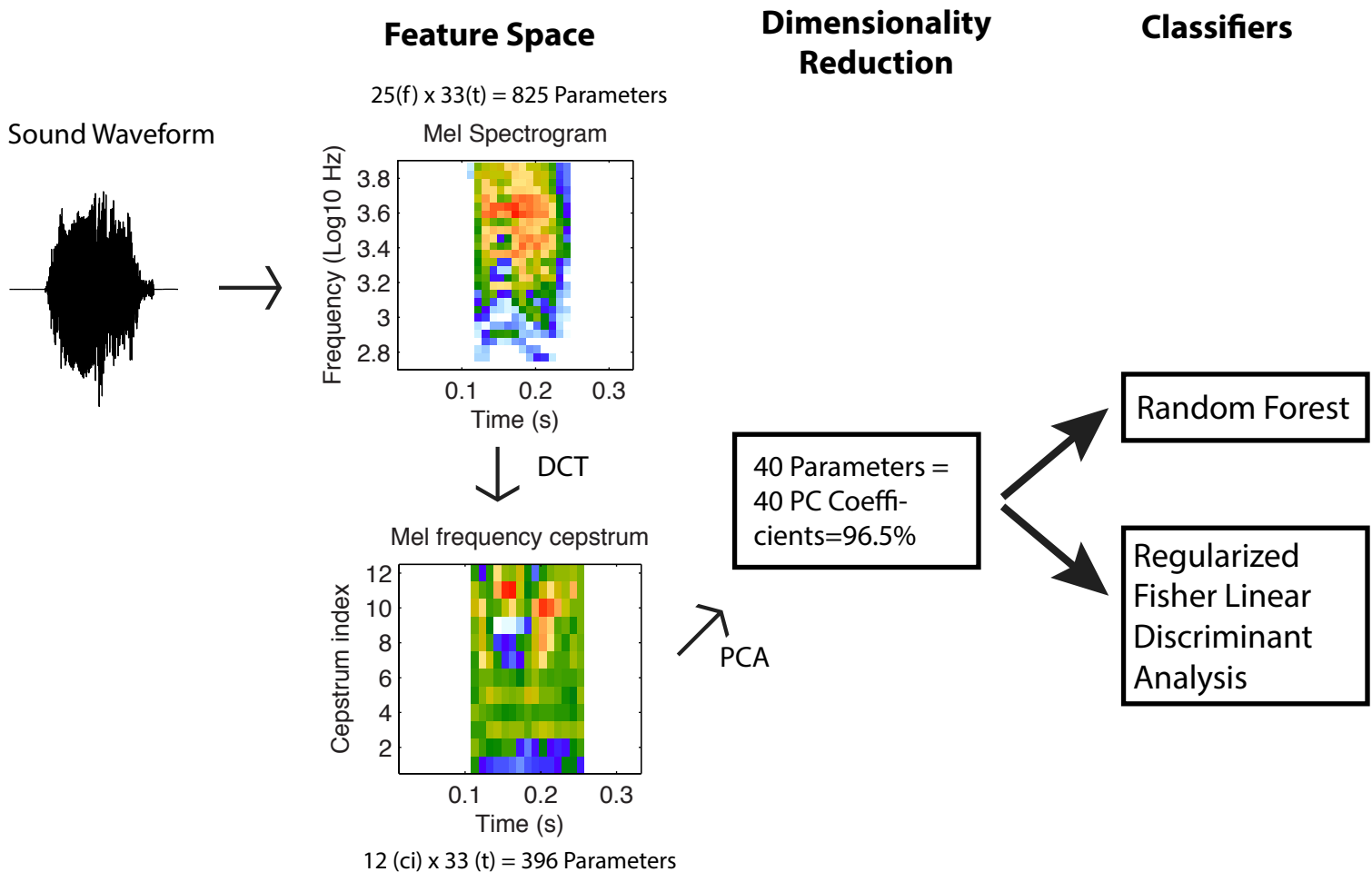
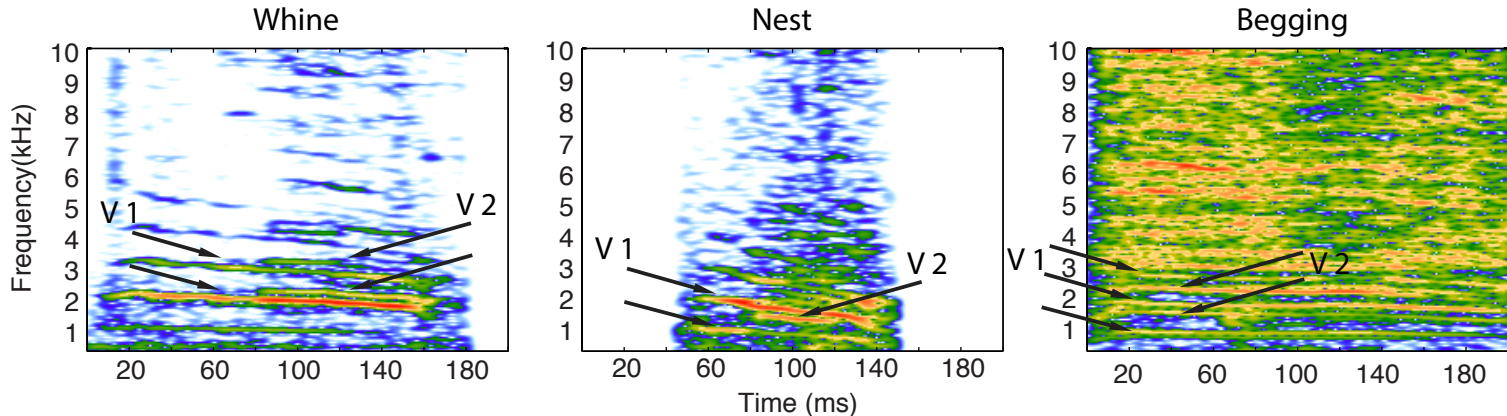


**Supplementary Figure 1. Flow-chart showing the calculation of the modulation power spectrum (MPS) and the use of this acoustical representation in the classification procedure.** In this feature space each sound is characterized by its MPS. The MPS is the amplitude square of the 2D Fourier Transform (2D FT) of the log spectrogram. The spectrogram was estimated with the same time-frequency scale as in Figure 2. The modulation power spectrum was sampled every 2.85 Hz between -40Hz and 40 Hz for temporal modulations (x-axis) and every 0.0826 cyc/kHz between 0 and 4 cyc/kHz for spectral modulations (y-axis) for a total of 1,500 parameters. As for the spectrographic representation, principal component analysis (PCA) was used to reduce the number of parameters to 40 before classification. The 40 parameters captured 34% of the variance in the modulation power spectrum across all vocalizations in our data set. The classifiers were trained to estimate the vocalization category.



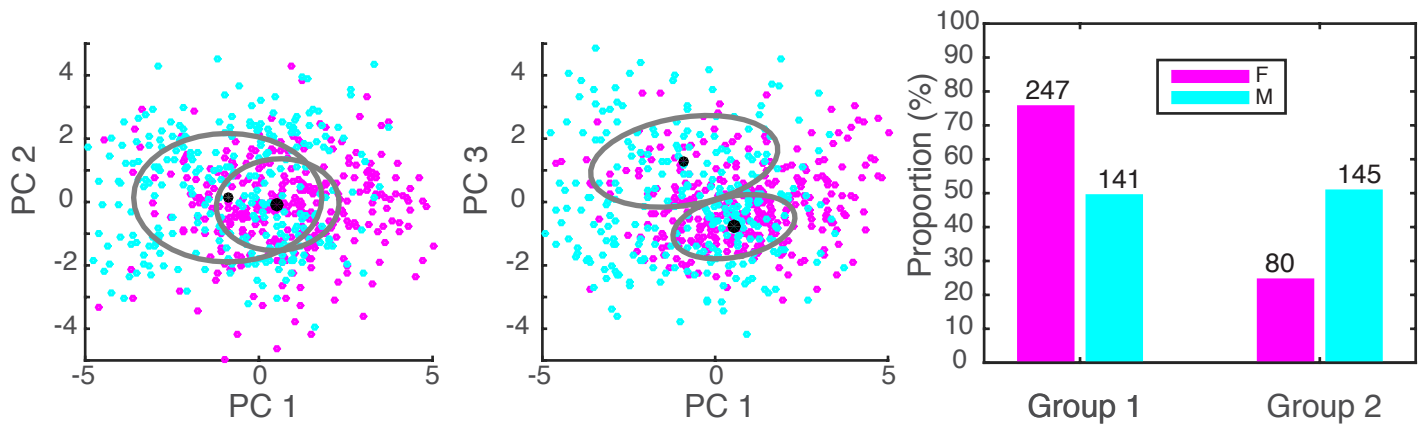
**Supplementary Figure 2. Flow-chart showing the calculation of the Mel frequency cepstral coefficients (MFCC) and the use of this acoustical representation in the classification procedure.** In this feature space each sound is characterized by a time sequence of cepstral coefficients. The cepstrum coefficients were obtained from the discrete cosine transform (DCT) of the log of the amplitude in one time slice of the spectrogram. For MFCC, the Mel spectrogram was obtained using 25 filterbank channels approximately logarithmically spaced (Mel spaced frequency bands) between 500 and 8000 Hz. The time windows were 25 ms long and spaced every 10 ms (15 ms overlap). Twelve cepstral indexes (ci) were extracted from each spectral envelope resulting in a 12 ci for 33 time points resulting in a total of 396 parameters. Similar to the spectrographic representation, principal component analysis (PCA) was used to reduce the number of parameters to 40 before classification. The 40 parameters captured 96% of the variance in the MFCC modulation power spectrum across all vocalizations in our dataset. The classifiers were trained to estimate the vocalization category.



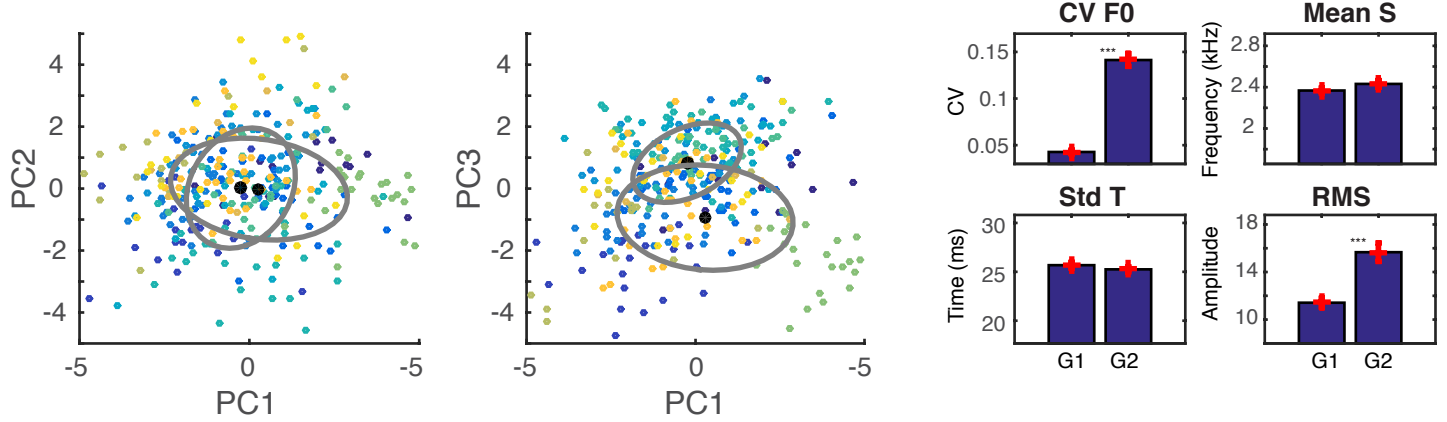
**Supplementary Figure 3. Spectrograms of three example calls exhibiting a double voice component.**

Double voices or two pitches were regularly found in zebra finch vocalizations. Here are shown examples of a Whine, Nest and Begging call where the double voice can clearly be observed on the spectrogram. The arrows show the fundamental or harmonic corresponding to the two voices.

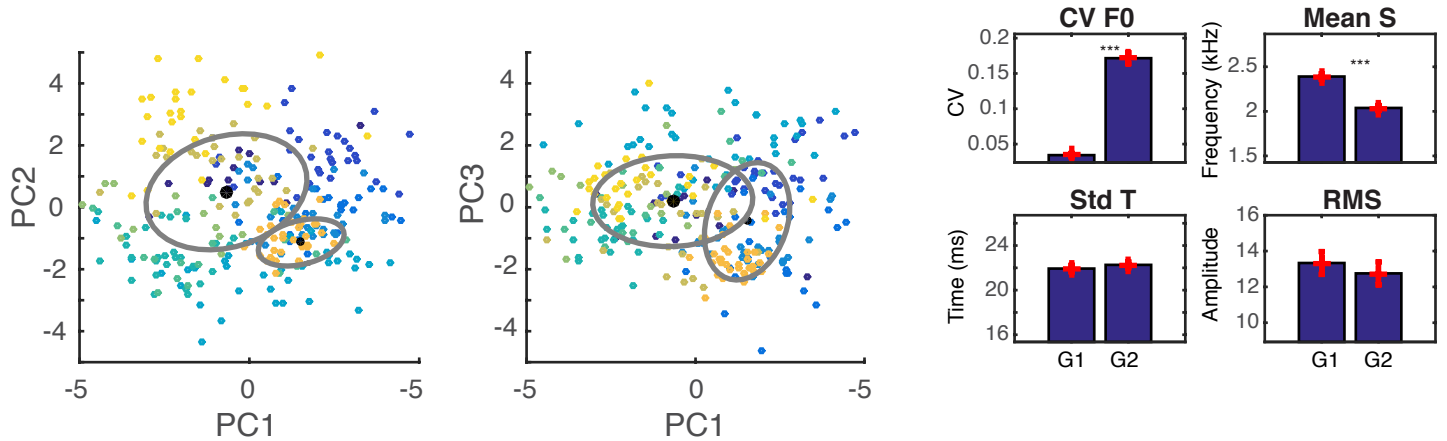
## A. All Tets



## B. Female Tet Calls



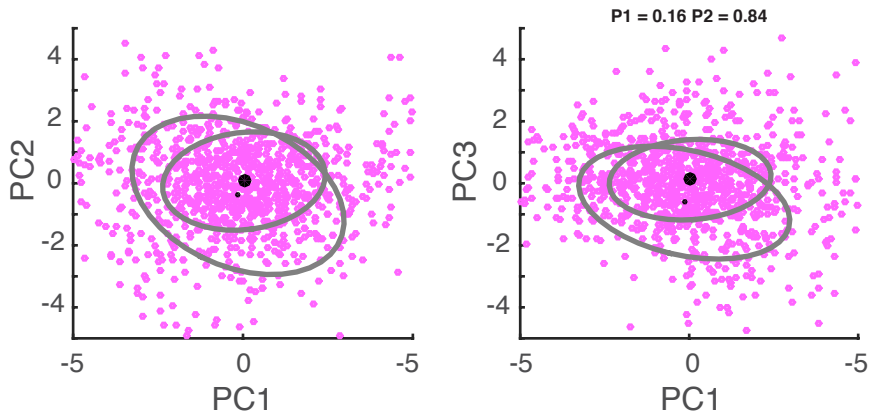
## C. Male Tet Calls



### Supplementary Figure 4. Unsupervised Clustering of Tet calls: Sexual dimorphism and two types of calls.

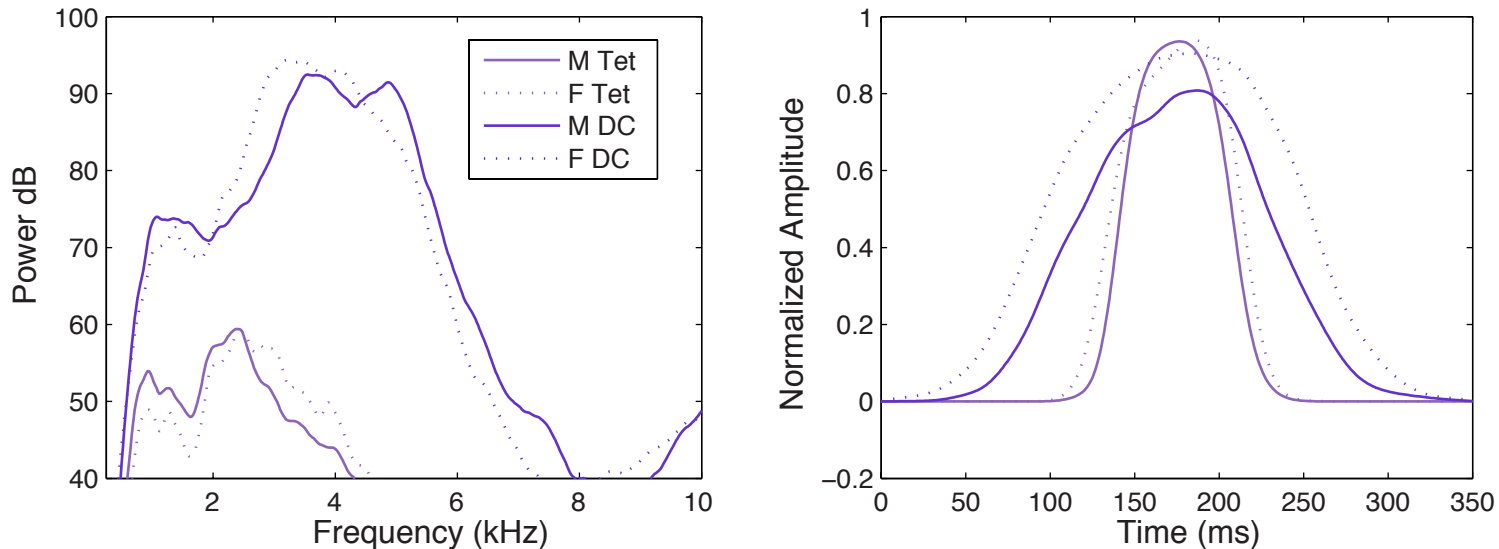
A “mixture-of-Gaussians” model was used to perform unsupervised clustering of groups of calls as described in the legend of Figure 9 and methods. A. Unsupervised clustering of all *Tet* calls produced by male and female birds resulted in a distribution well fitted by two Gaussians of approximately equal weight ( $w_1=0.38$ ,  $w_2 = 0.62$ ). Assignment to one of the two clusters resulted in significantly different proportions of male and female calls in each group ( $z=6.72$ ,  $P<10^{-4}$ ) as illustrated on the bar plot on the right column. B and C. Unsupervised clustering of female (B) and male (C) *Tet* calls only. These distributions were also well fitted by two Gaussians of approximately equal weight (Female:  $w_1=0.53$ ,  $w_2 = 0.47$ ; Male:  $w_1=0.31$ ,  $w_2 = 0.69$ ). The color code on the scatter plots indicates vocalizers’ identity and show that individuals produce calls in each group although some produce mostly one “type”. Note that the mixture-of-Gaussians algorithm is blind to the vocalizer’s identity. We estimated mean values of each acoustical parameter for Tet calls assigned to each group and show the results for the CV of the fundamental ( $CVF_0$ ), the spectral mean ( $mean S$ ), the duration ( $std T$ ) and the intensity (RMS) with bar plots on the right panels. Error bars correspond to one sem. The most distinguishing acoustical feature is the CV of the fundamental (Female:  $t(325)=-14.71$   $P<10^{-4}$ ; Male:  $t(284)=-11.93$   $P<10^{-4}$ ) that for both sexes is much lower in one of the groups (group 1 for both). This group of calls with very low modulation of their fundamental has been described as Stacks (Ter Maat et al., 2014). Note that we re-estimated principal components for male and female calls only and therefore the PC axes correspond to different combination of acoustical features in all three rows.

## Nest Calls



**Supplementary Figure 5. Unsupervised Clustering of Nest calls: a unimodal distribution.** A “mixture-of-Gaussians” model was used to perform unsupervised clustering of Nest calls as described in the legend of Figure 9 and methods. Although the BIC values suggest that this distribution is better fitted with two Gaussians than one Gaussian, the weights of these two Gaussians is greatly biased towards one group ( $w_1=0.16$ ,  $w_2 = 0.84$ ) demonstrating that the distribution is clearly unimodal, albeit not perfectly Gaussian.

## Sex Differences



**Supplementary Figure 6. Power Spectrum and Temporal Envelope for Tet and Distance calls.** Tet (light purple) and Distance calls (dark purple) are the two calls that show sexual differences (solid male, dotted female). The left panel (A) shows the non-normalized frequency spectra and the right panel (B) the normalized temporal amplitude envelope (right) for these two calls and for male and female birds. In the power spectrum, one can also appreciate the shifts in the formant frequencies between Tet and Distance calls.

	F0	Sal	Pk 2	2 <sup>nd</sup> V	Max F0	Min F0	CV F0	Mean S	Std S	Skew S	Kurt S	Ent S	Q1	Q2	Q3	Mean T	Std T	Skew T	Kurt T	Ent T
F0	1	-0.02	0.03	0.37	0.5	0.32	0.08	0.28	-0.06	-0.41	0.23	-0.04	0.3	0.26	0.22	0.06	0.05	0.04	0.05	-0.1
Sal	-0.02	1	0.16	-0.29	-0.19	0.24	-0.47	-0.24	-0.5	-0.02	0.16	-0.72	-0.08	-0.2	-0.33	0.03	0.04	0.01	-0.13	0.14
Pk 2	0.03	0.16	1	-0.05	-0.07	0.11	-0.13	0.08	-0.12	-0.18	0.15	-0.17	0.13	0.08	0.04	0	0	0.05	0.03	-0.03
2 <sup>nd</sup> V	0.37	-0.29	-0.05	1	0.26	-0.02	0.2	0.39	0.08	-0.29	0.07	0.19	0.36	0.36	0.35	0	0	-0.05	-0.02	-0.08
Max F0	0.5	-0.19	-0.07	0.26	1	-0.18	0.72	-0.04	0.06	-0.01	0.1	0.11	-0.07	-0.06	-0.03	0	0.15	0.01	-0.04	0.1
Min F0	0.32	0.24	0.11	-0.02	-0.18	1	-0.54	0.14	-0.2	-0.36	0.24	-0.27	0.22	0.14	0.07	0.07	-0.16	0.05	0.09	-0.22
CV F0	0.08	-0.47	-0.13	0.2	0.72	-0.54	1	-0.12	0.25	0.22	-0.04	0.32	-0.21	-0.13	-0.05	-0.03	0.11	-0.01	-0.01	0.11
Mean S	0.28	-0.24	0.08	0.39	-0.04	0.14	-0.12	1	0.34	-0.69	0	0.38	0.92	0.97	0.93	0.03	0.08	0	0.08	-0.16
Std S	-0.06	-0.5	-0.12	0.08	0.06	-0.2	0.25	0.34	1	-0.01	-0.3	0.7	0	0.31	0.57	-0.03	0.06	-0.02	0.06	0.01
Skew S	-0.41	-0.02	-0.18	-0.29	-0.01	-0.36	0.22	-0.69	-0.01	1	-0.43	-0.03	-0.68	-0.66	-0.6	-0.05	0.03	-0.05	-0.06	0.2
Kurt S	0.23	0.16	0.15	0.07	0.1	0.24	-0.04	0	-0.3	-0.43	1	-0.34	0.1	-0.01	-0.08	0.01	-0.09	0.02	0.05	-0.16
Ent S	-0.04	-0.72	-0.17	0.19	0.11	-0.27	0.32	0.38	0.7	-0.03	-0.34	1	0.13	0.34	0.51	-0.04	0.11	-0.05	0.03	0.03
Q1	0.3	-0.08	0.13	0.36	-0.07	0.22	-0.21	0.92	0	-0.68	0.1	0.13	1	0.89	0.75	0.05	0.07	0.01	0.07	-0.16
Q2	0.26	-0.2	0.08	0.36	-0.06	0.14	-0.13	0.97	0.31	-0.66	-0.01	0.34	0.89	1	0.91	0.03	0.07	0	0.08	-0.16
Q3	0.22	-0.33	0.04	0.35	-0.03	0.07	-0.05	0.93	0.57	-0.6	-0.08	0.51	0.75	0.91	1	0.02	0.07	-0.01	0.09	-0.14
Mean T	0.06	0.03	0	0	0	0.07	-0.03	0.03	-0.03	-0.05	0.01	-0.04	0.05	0.03	0.02	1	0.01	-0.29	0.02	-0.04
Std T	0.05	0.04	0	0	0.15	-0.16	0.11	0.08	0.06	0.03	-0.09	0.11	0.07	0.07	0.07	0.01	1	-0.06	-0.24	0.72
Skew T	0.04	0.01	0.05	-0.05	0.01	0.05	-0.01	0	-0.02	-0.05	0.02	-0.05	0.01	0	-0.01	-0.29	-0.06	1	0.2	-0.13
Kurt T	0.05	-0.13	0.03	-0.02	-0.04	0.09	-0.01	0.08	0.06	-0.06	0.05	0.03	0.07	0.08	0.09	0.02	-0.24	0.2	1	-0.66
Ent T	-0.1	0.14	-0.03	-0.08	0.1	-0.22	0.11	-0.16	0.01	0.2	-0.16	0.03	-0.16	-0.16	-0.14	-0.04	0.72	-0.13	-0.66	1

**Supplemental Table 1. Correlation Coefficient between 20 Predefined Acoustical Features (PAFs).**

The red cells emphasize bi-variate correlations that are above 0.5 or below -0.5. The correlation table is symmetric along the diagonal. The table does not include RMS and max Amp. These features are highly correlated between themselves and uncorrelated with these 20 features that capture the shape of the temporal and spectral envelopes and properties of the fundamental frequency.

## Supplemental Tables 2.

Statistical results of the linear mixed effect (lme) models with vocalization type as a fixed effect and the bird is as a random effect. The first line shows the p-value and adjusted R<sup>2</sup> as well as the overall mean. The following lines have the predicted mean values for each call type obtained from the coefficients of the lme model, the 95% confidence interval and the probability that this predicted mean value is different from the overall mean as assessed by a Wald Test.

### Mean Fundamental Frequency (Mean F0). Units Hz.

p=4.8e-11 R2A=0.37 Overall Mean 643.838  
Te 557.536 (529.217-595.270) 0.0000  
Tu 574.355 (539.364-627.609) 0.0076  
Th 585.686 (532.992-624.668) 0.0057  
Ne 611.115 (570.425-642.464) 0.0420  
Di 646.162 (637.019-737.076) 0.0900  
Wh 651.241 (601.424-683.844) 0.9541  
LT 654.763 (603.902-693.604) 0.8290  
Ws 675.612 (627.025-695.892) 0.3139  
DC 679.847 (633.276-698.071) 0.1852  
Be 685.130 (632.637-716.252) 0.1503  
So 760.770 (712.938-801.178) 0.0000

### Saliency.

p=7.4e-43 R2A=0.70 Overall Mean 0.615  
Ws 0.413 (0.390-0.460) 0.0000  
Di 0.468 (0.410-0.513) 0.0000  
Be 0.477 (0.436-0.520) 0.0000  
Ne 0.542 (0.508-0.581) 0.0002  
Th 0.632 (0.590-0.685) 0.3409  
So 0.633 (0.579-0.670) 0.6569  
Tu 0.635 (0.583-0.674) 0.5533  
Wh 0.658 (0.620-0.704) 0.0286  
LT 0.742 (0.700-0.791) 0.0000  
DC 0.773 (0.752-0.818) 0.0000  
Te 0.788 (0.757-0.824) 0.0000

### Second Fundamental. Units Hz.

p=0.0063 R2A=0.13 Overall Mean 2259.703  
Ne 2013.471 (1872.919-2290.112) 0.0936  
Be 2080.040 (1865.952-2349.278) 0.2158  
So 2150.749 (1868.934-2381.843) 0.3026  
Ws 2196.648 (1807.137-2224.188) 0.0221  
Tu 2243.388 (1892.763-2405.781) 0.3966  
Wh 2266.034 (1956.976-2435.594) 0.6015  
Th 2313.228 (2214.028-2747.217) 0.1037



DC 2323.431 (2171.449-2545.922) 0.2981  
Di 2361.862 (2061.890-2711.338) 0.4414  
Te 2365.280 (2205.286-2587.164) 0.1599  
LT 2542.597 (2310.249-2828.997) 0.0195

**2<sup>nd</sup> Voice occurrence.** Units percent

p=1.9e-11 R2A=0.30 Overall Mean 12.635

Te 3.005 (-0.675-6.568) 0.0000  
Th 8.683 (1.263-11.494) 0.0168  
Tu 9.139 (3.896-13.727) 0.1266  
Ne 9.554 (5.868-13.801) 0.1653  
DC 9.603 (5.470-12.568) 0.0459  
Ws 11.904 (7.498-15.063) 0.4807  
Di 12.641 (10.424-21.628) 0.2337  
Wh 12.671 (9.761-18.915) 0.4636  
LT 13.247 (9.645-19.488) 0.4395  
So 19.825 (13.258-23.089) 0.0274  
Be 28.709 (22.561-31.725) 0.0000

**Max F0.** Units Hz.

p=2.7e-31 R2A=0.61 Overall Mean 997.437

Th 751.163 (676.712-836.110) 0.0000  
Te 784.654 (737.973-851.223) 0.0000  
Tu 810.990 (756.817-910.038) 0.0000  
LT 916.134 (789.388-943.264) 0.0009  
DC 916.851 (833.463-944.458) 0.0002  
Be 967.898 (903.967-1047.253) 0.5484  
Di 1118.775 (1073.333-1247.777) 0.0003  
Ne 1125.368 (1071.325-1195.259) 0.0000  
So 1153.113 (1074.574-1227.787) 0.0001  
Ws 1169.020 (1136.806-1255.047) 0.0000  
Wh 1257.840 (1171.912-1314.668) 0.0000

**Min F0.** Units Hz.

p=4e-25 R2A=0.53 Overall Mean 412.480

Wh 324.541 (294.003-346.974) 0.0000  
Ws 348.550 (320.802-364.649) 0.0000  
Ne 355.480 (331.126-377.090) 0.0000  
LT 394.127 (378.907-435.964) 0.7275  
Di 398.755 (359.988-424.747) 0.2219  
Be 403.323 (372.169-425.296) 0.3084  
So 442.044 (419.618-476.479) 0.0145  
Te 449.259 (427.531-469.524) 0.0009  
Tu 455.440 (418.204-475.067) 0.0188  
DC 480.889 (465.362-506.516) 0.0000  
Th 484.872 (437.897-497.060) 0.0003

**CV F0.** Unitless (0 to 1)

p=5.3e-45 R2A=0.71 Overall Mean 0.230

Th 0.105 (0.073-0.152) 0.0000  
Te 0.107 (0.080-0.136) 0.0000  
DC 0.132 (0.097-0.152) 0.0000  
Tu 0.133 (0.104-0.181) 0.0000  
LT 0.147 (0.087-0.163) 0.0000  
Be 0.233 (0.208-0.279) 0.4696  
So 0.249 (0.209-0.285) 0.3799  
Di 0.324 (0.268-0.355) 0.0003  
Ne 0.336 (0.318-0.380) 0.0000  
Wh 0.370 (0.324-0.395) 0.0000  
Ws 0.397 (0.383-0.442) 0.0000

**Spectral Mean.** Units Hz.

p=6.6e-53 R2A=0.80 Overall Mean 2971.180

Wh 1835.356 (1565.880-2056.439) 0.0000  
Ne 2013.352 (1744.977-2171.167) 0.0000  
Te 2280.881 (2065.321-2454.901) 0.0000  
Di 2517.078 (2453.903-3052.934) 0.1531  
Th 2548.220 (2460.114-3007.637) 0.0889  
Ws 2666.920 (2362.195-2768.889) 0.0001  
Tu 2762.768 (2599.361-3125.741) 0.4164  
So 3443.299 (3074.686-3601.037) 0.0066  
DC 3582.560 (3375.423-3757.280) 0.0000  
LT 3597.701 (3414.933-3944.251) 0.0000  
Be 5434.842 (5048.868-5541.805) 0.0000

**Spectral Std.** Units Hz.

p=5.5e-32 R2A=0.65 Overall Mean 1384.375

DC 1006.800 (866.027-1104.634) 0.0000  
Th 1034.848 (972.133-1307.284) 0.0045  
Te 1107.477 (998.263-1241.387) 0.0000  
Wh 1219.573 (1036.494-1338.372) 0.0109  
Tu 1317.035 (1299.776-1622.602) 0.3489  
LT 1350.504 (1081.426-1411.450) 0.1008  
So 1351.565 (1148.478-1471.286) 0.3636  
Ne 1386.902 (1237.081-1501.772) 0.8238  
Di 1496.060 (1371.728-1737.046) 0.0679  
Be 1894.897 (1848.964-2156.784) 0.0000  
Ws 2062.460 (1911.287-2164.577) 0.0000

**Spectral skewness.** Unit less.

p=9e-38 R2A=0.65 Overall Mean 1.342

Be -0.107 (-0.408-0.322) 0.0000

DC 0.115 (-0.095-0.470) 0.0000  
So 0.232 (0.103-0.887) 0.0000  
LT 0.636 (0.258-1.042) 0.0006  
Th 1.131 (0.638-1.454) 0.1535  
Te 1.559 (1.278-1.855) 0.1264  
Tu 1.596 (1.143-1.927) 0.3327  
Ws 1.763 (1.552-2.154) 0.0010  
Di 1.890 (1.046-1.940) 0.5063  
Ne 2.662 (2.430-3.062) 0.0000  
Wh 3.284 (3.047-3.777) 0.0000

**Spectral Kurtosis.** Unitless.

p=3.8e-16 R2A=0.37 Overall Mean 10.108

Be 3.210 (0.012-6.255) 0.0000  
LT 5.421 (2.958-9.664) 0.0267  
DC 6.977 (4.989-9.825) 0.0288  
Ws 7.001 (4.882-10.037) 0.0441  
Th 7.163 (3.283-10.263) 0.0609  
Tu 9.244 (5.488-12.194) 0.4566  
Te 9.658 (7.083-12.019) 0.6566  
So 12.643 (7.504-14.210) 0.6598  
Di 12.996 (6.275-13.921) 0.9959  
Ne 15.038 (13.260-18.667) 0.0000  
Wh 21.839 (20.094-26.337) 0.0000

**Spectral Entropy.** Unitless (0-1)

p=1.2e-24 R2A=0.52 Overall Mean 0.715

Te 0.624 (0.599-0.647) 0.0000  
DC 0.667 (0.636-0.683) 0.0000  
Wh 0.669 (0.641-0.702) 0.0056  
Th 0.680 (0.664-0.732) 0.3209  
LT 0.684 (0.649-0.714) 0.0429  
Tu 0.704 (0.692-0.757) 0.5442  
So 0.721 (0.684-0.749) 0.9186  
Di 0.733 (0.721-0.795) 0.0240  
Ne 0.744 (0.710-0.763) 0.1016  
Ws 0.811 (0.777-0.827) 0.0000  
Be 0.827 (0.796-0.857) 0.0000

**Spectral Q1.** Units Hz.

p=2.1e-50 R2A=0.77 Overall Mean 2111.610

Ne 1172.097 (926.677-1353.683) 0.0000  
Wh 1199.835 (932.866-1425.129) 0.0000  
Ws 1319.383 (1047.945-1455.245) 0.0000  
Di 1563.249 (1399.591-2001.581) 0.0077  
Te 1581.298 (1342.665-1732.721) 0.0000

Th 1881.280 (1682.160-2232.051) 0.2689  
Tu 1969.829 (1698.550-2227.040) 0.2678  
So 2559.898 (2218.647-2747.118) 0.0062  
LT 2726.974 (2654.597-3184.582) 0.0000  
DC 3070.847 (2854.728-3236.977) 0.0000  
Be 4183.020 (3699.035-4192.502) 0.0000

**Spectral Q2.** Units Hz.

p=1e-59 R2A=0.81 Overall Mean 2820.740

Wh 1549.112 (1250.919-1785.010) 0.0000  
Ne 1711.289 (1410.392-1872.928) 0.0000  
Ws 2079.762 (1757.132-2198.143) 0.0000  
Te 2153.502 (1917.867-2340.103) 0.0000  
Di 2313.299 (2285.800-2939.925) 0.2113  
Th 2430.240 (2350.905-2948.037) 0.2591  
Tu 2562.993 (2315.736-2889.441) 0.1352  
So 3390.489 (2968.105-3541.811) 0.0032  
LT 3517.379 (3299.648-3873.354) 0.0000  
DC 3632.933 (3411.099-3824.804) 0.0000  
Be 5687.144 (5339.376-5873.467) 0.0000

**Spectral Q3.** Units Hz.

p=1.9e-43 R2A=0.73 Overall Mean 3713.479

Wh 2168.635 (1753.746-2530.631) 0.0000  
Ne 2479.162 (2078.996-2753.475) 0.0000  
Te 2769.654 (2450.510-3066.857) 0.0000  
Th 3089.008 (2958.437-3825.863) 0.1455  
Tu 3338.249 (3162.225-3996.038) 0.5256  
Di 3340.429 (3240.842-4190.130) 0.9933  
Ws 3762.297 (3301.216-3944.718) 0.5794  
DC 4167.138 (3828.588-4432.663) 0.0071  
So 4244.787 (3672.238-4506.011) 0.0771  
LT 4411.721 (3990.198-4827.640) 0.0013  
Be 7077.184 (6693.666-7473.482) 0.0000

**Mean Time.** Units ms.

p=0.75 R2A=-0.02 Overall Mean 174.989

Di 174.618 (173.593-176.195) 0.8857  
Wh 174.740 (173.340-175.464) 0.2772  
Ne 174.858 (173.846-175.686) 0.6333  
Be 174.971 (173.935-176.060) 0.9866  
LT 175.007 (173.881-176.163) 0.9545  
Ws 175.038 (173.162-174.917) 0.0341  
DC 175.065 (174.246-175.892) 0.8474  
Te 175.089 (174.250-175.930) 0.8116  
Tu 175.095 (173.918-176.200) 0.9026

Th 175.146 (173.933-176.308) 0.8266  
So 175.247 (174.452-176.734) 0.2970

**Time Std (Duration).** Units ms.

p=7.6e-35 R2A=0.62 Overall Mean 34.690  
Th 13.641 (8.714-19.940) 0.0000  
Tu 15.014 (9.875-20.660) 0.0000  
Te 23.933 (20.015-27.953) 0.0000  
Ne 28.063 (24.923-33.618) 0.0149  
So 28.911 (28.675-39.460) 0.8201  
Be 35.361 (31.450-41.490) 0.4850  
Di 37.963 (33.648-45.944) 0.1030  
LT 43.838 (39.500-50.285) 0.0003  
DC 47.675 (43.599-51.376) 0.0000  
Ws 51.830 (48.314-56.604) 0.0000  
Wh 55.358 (50.771-60.811) 0.0000

**Time Skewness.** Unitless

p=0.057 R2A=0.04 Overall Mean 0.014  
Ws -0.069 (-0.119-0.034) 0.1493  
Tu -0.049 (-0.137-0.062) 0.3053  
DC -0.032 (-0.109-0.034) 0.1597  
Te -0.025 (-0.089-0.058) 0.4275  
Th -0.015 (-0.177-0.031) 0.0996  
Be -0.005 (-0.062-0.123) 0.7258  
Wh 0.003 (-0.115-0.070) 0.4358  
Di 0.028 (-0.234--0.007) 0.0208  
Ne 0.049 (-0.071-0.090) 0.9146  
So 0.099 (-0.012-0.187) 0.1441  
LT 0.169 (0.023-0.222) 0.0333

**Time Kurtosis.** Unitless.

p=4.2e-24 R2A=0.54 Overall Mean 2.598  
DC 2.131 (1.963-2.222) 0.0000  
LT 2.219 (1.960-2.318) 0.0000  
Te 2.242 (2.099-2.363) 0.0000  
Wh 2.248 (2.056-2.387) 0.0000  
Ws 2.369 (2.281-2.556) 0.0111  
Tu 2.678 (2.440-2.794) 0.8306  
So 2.887 (2.650-3.005) 0.0115  
Th 2.902 (2.656-3.025) 0.0101  
Be 2.944 (2.846-3.180) 0.0000  
Ne 2.963 (2.681-2.970) 0.0021  
Di 2.993 (2.688-3.091) 0.0048

**Time Entropy.** Unitless (0-1)

p=3.8e-42 R2A=0.69 Overall Mean 0.910

Th 0.859 (0.854-0.874) 0.0000  
Tu 0.875 (0.870-0.889) 0.0000  
So 0.892 (0.888-0.906) 0.0089  
Be 0.893 (0.886-0.903) 0.0009  
Ne 0.897 (0.893-0.909) 0.0271  
Di 0.906 (0.897-0.918) 0.7195  
Te 0.913 (0.906-0.920) 0.2890  
LT 0.933 (0.925-0.944) 0.0000  
DC 0.943 (0.937-0.951) 0.0000  
Ws 0.945 (0.939-0.953) 0.0000  
Wh 0.949 (0.942-0.960) 0.0000

**Root Mean Square.** Arbitrary Units of amplitude.

p=8.3e-35 R2A=0.62 Overall Mean 0.024

Wh 0.005 (-0.003-0.013) 0.0000  
Ne 0.007 (-0.000-0.013) 0.0000  
Te 0.013 (0.007-0.019) 0.0004  
LT 0.018 (0.017-0.033) 0.8448  
Tu 0.020 (0.011-0.027) 0.2292  
Ws 0.020 (0.011-0.023) 0.0349  
Di 0.022 (0.016-0.035) 0.7645  
Th 0.022 (0.013-0.030) 0.5749  
So 0.028 (0.021-0.038) 0.1740  
Be 0.033 (0.021-0.036) 0.2164  
DC 0.075 (0.066-0.078) 0.0000

**Max Amplitude.** Arbitrary units of amplitude.

p=2.6e-30 R2A=0.57 Overall Mean 0.031

Wh 0.007 (-0.003-0.017) 0.0000  
Ne 0.009 (-0.000-0.017) 0.0000  
Te 0.015 (0.006-0.022) 0.0001  
LT 0.022 (0.019-0.041) 0.8279  
Tu 0.024 (0.012-0.033) 0.1372  
Th 0.028 (0.016-0.038) 0.5176  
Ws 0.028 (0.016-0.032) 0.1069  
Di 0.032 (0.023-0.048) 0.4260  
So 0.040 (0.037-0.059) 0.0022  
Be 0.044 (0.027-0.048) 0.1886  
DC 0.091 (0.078-0.093) 0.0000