Sound Properties Associated with Equiluminant Colours

Giles Hamilton-Fletcher^{1, 2}, Christoph Witzel³, David Reby¹ and Jamie Ward^{1,2}

¹School of Psychology, University of Sussex, Brighton, UK
²Sackler Centre for Consciousness Science, University of Sussex, Brighton, UK
³Allgemeine Psychologie, Justus-Liebig-Universität Gießen, Gießen, Germany

Supplemental Materials

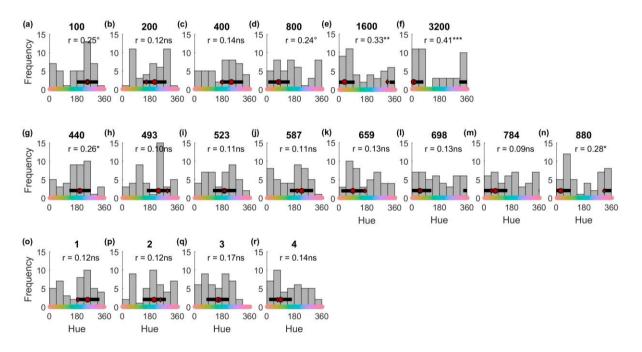


Figure S1. Distribution of hue adjustments for pure tones. The first row (panels a–f) show histograms of hue adjustments for the first set of six pure tones that varied in frequencies; the second row (g–n) displays the histograms for the second set of eight pure tones of varying frequencies; and the last row those for the set that varied in loudness. The bars of the histogram show the frequencies of adjusting a particular hue. For illustration purposes only, they are binned in 45 deg steps (i.e., all statistical analyses are based on the original 5 deg resolution of adjustments). The red disk and bar report the circular mean and standard deviation, the green diamond the circular median of the adjusted hues. Results of Rayleigh's test for uniformity are provided in the upper right corner, where r is the mean vector length and p the probability that the distribution is uniform. p < 0.1, p < 0.05, p < 0.01, where p < 0.01, where p < 0.01, is the first and second set (first and second row).

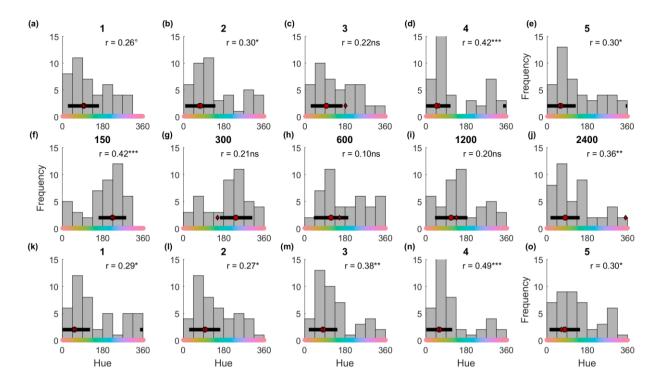


Figure S2. Distribution of hue adjustments for complex sine wave and vocal timbre sounds. Same format as Fig. S1. The first row (panels a–e) illustrates results for complex sine wave sounds varying in their 'centre of gravity' from 1 (lowest) to 5 (highest); the second row (f–j) for vocal frequency bands with their average frequency; and the third row (k–o) those for vocal sounds varying in 'centre of gravity' from 1 (lowest) to 5 (highest). Note that almost all centre-of-gravity-modulated sounds (first and third row) showed clear unimodal tendencies towards one particular hue, mostly in the yellowish region of the hue spectrum.

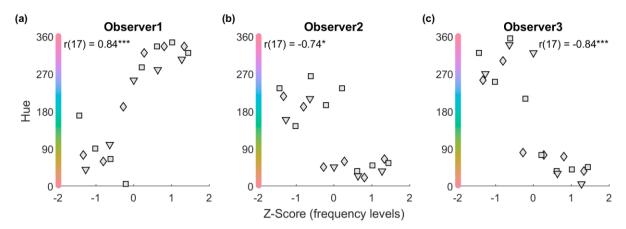


Figure S3. Illustration of individual differences. Format as in Fig. 3a of the main article.

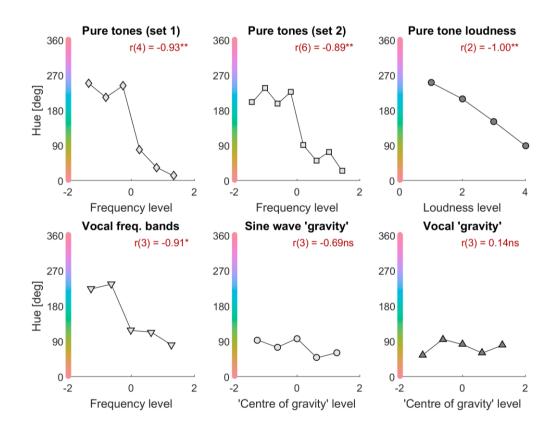


Figure S4. Hue per dataset. Format as in Fig. 3a of the main article.

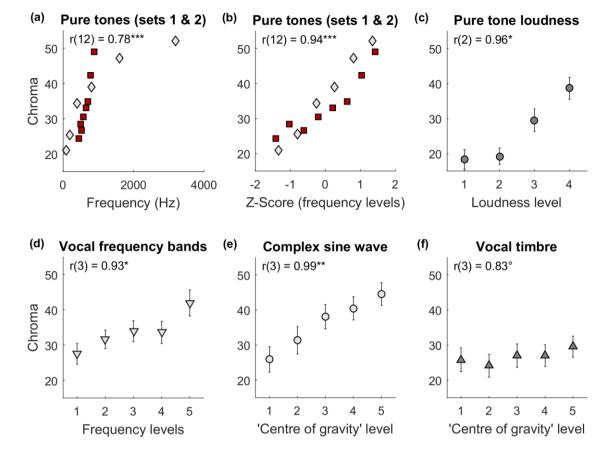


Figure S5. Chroma sound associations per stimulus set in women. Format as in Fig. 1 of the main article.

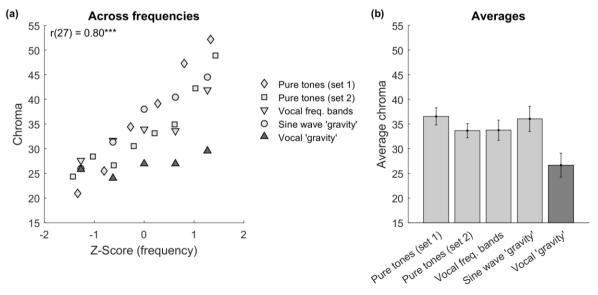


Figure S6. Chroma-sound associations across stimulus sets in women. Format as in Fig. 2 of the main article.

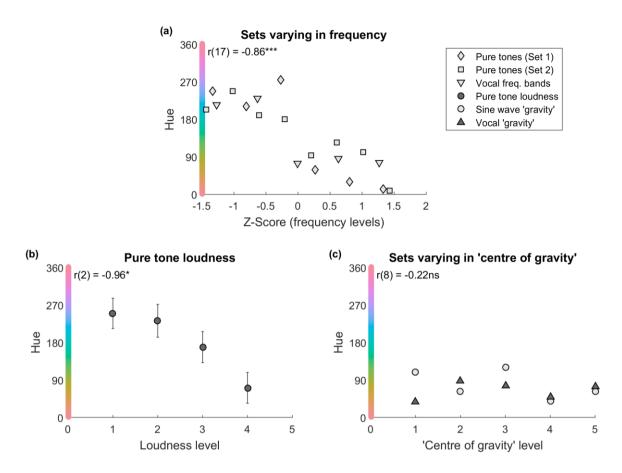


Figure S7. Hue sound associations in women. Format as in Fig. 3 of the main article.

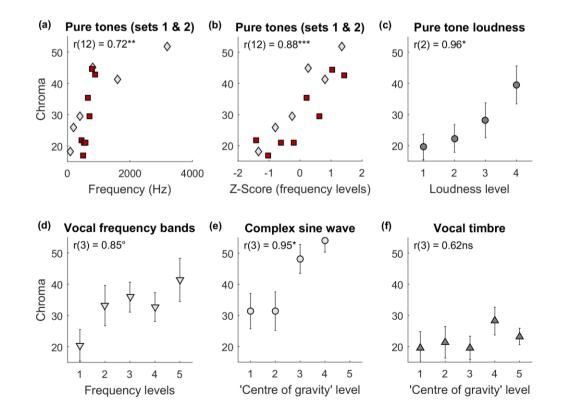


Figure S8. Chroma sound associations per stimulus set in men. Format as in Fig. 1 of the main article.

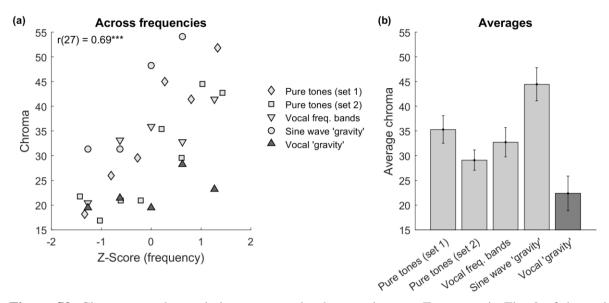


Figure S9. Chroma-sound associations across stimulus sets in men. Format as in Fig. 2 of the main article.

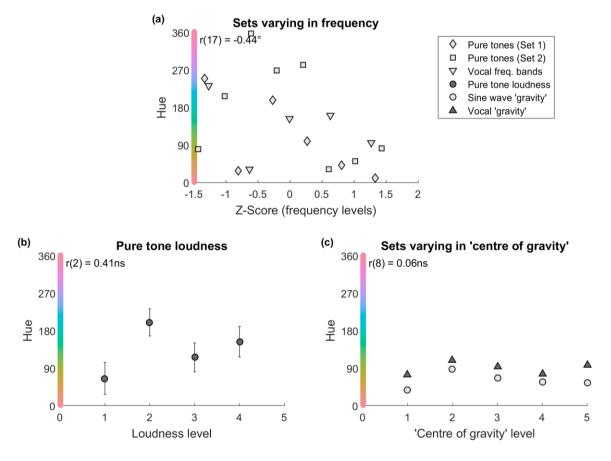


Figure S10. Hue sound associations in men. Format as in Fig. 3 of the main article.