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Abstracts

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Dissecting the “Plink“: From Guessing to Understanding the Gist of Very Short Musical Elements

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Background

Rapid musical recognition capacities have been investigated by several studies since the turn of the millennium. Many publications suggest high recognition rates for specific compositions and genres, mostly for stimuli extracted from popular songs (e.g., Krumhansl, 2010). Different authors report durational thresholds for title identification between 100 and 400 ms. For genre recognition, reported minimum durations vary between 125 and 400 ms. However, many previous studies suffer from unclear stimulus selection criteria, probably resulting in biases by lucky strokes of prominent passages. At the same time, none of the studies known by the authors use intramusical parameters (e. g. instrumentation, gender of voice, etc.) as target criteria. An extensive online study will investigate the role of these parameters in overall recognition processes.

Aims

Using a set of randomized excerpts from popular songs in a first online study (n = 517), we identified a realistic range of absolute recognition rates for different stimulus lengths. We then isolated a set of intramusical parameters which were highly agreed upon in a subsequent expert rating. These arrangement specific items will be used in a second online study, allowing for insights on the unfolding of partial recognition processes.

Methods

Using a strictly controlled and randomized process of stimulus extraction, we generated 330 short elements (50 ms to 800 ms). An expert rating (n = 6) on 17 items (voice, guitar, percussion, bass, etc.) was conducted for all stimuli, followed by an Intra-Class Correlation analysis. In an online study with n = 517 participants (f = 317, m = 185, n/a = 3; age M = 32.7, SD = 12.8), each participant was presented with randomized stimulus subsets. Participants indicated the presence of intramusical parameters as well as title-specific meta information.

Results

While genre specific agreement in the expert rating remained poor to fair for stimuli with a length from 50 to 400 ms ($\kappa_n = .15$ to $.34$), specific parameters such as the presence of a singer's voice ($\kappa_n = .46$ to $.48$) and gender ($\kappa_n = .66$ to $.69$) were highly agreed upon in a quite stable way. In the online study, we observed high dependencies of recognition rates from the source materials, ranging from 0 to 20% – even at 400 ms stimulus duration. Pearson χ^2 -analyses show statistically significant associations between song section (verse or chorus) and detection rates, $\chi^2(2, N = 517) = 85.1, p < .001$. An additional recursive partitioning revealed voice recognition and perceived sonic entropy as main predictors for title identification.

Conclusions

Rapid musical recognition processes seem to be dependent on complex interactions of a great variety of sonic parameters. Target criteria used in previous studies do not allow for more insights on the unfolding of these differentiated human capacities. For obtaining stimuli with objective arrangement parameters, we constructed a set of stimuli on the basis of multitrack recordings for an additional online study. This will allow us to observe what parameters could be suited best as predictors for overall recognition rates.

References

Krumhansl, C. (2010, June). Plink: “Thin slices” of music. *Music Perception: An Interdisciplinary Journal*, 27(5), 337-354.