

## Voice identity processing under challenging conditions: responding to singers and impersonators

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Effective vocal identity processing requires that we can tell together different instances from a single speaker, and can tell apart similar instances from two different speakers. Here, two experiments tested the limits of these capabilities by introducing extreme natural challenges. Experiment 1 challenged listeners by *maximising variability within a target voice* - listeners were asked to match speaking with singing clips. Performance significantly declined in this challenging condition, relative to the baseline condition when matching two speaking clips. Moreover, a lack of target familiarity magnified the impact of this challenge. However, performance remained above chance even in the hardest experimental condition. Taking a different approach, Experiment 2 challenged listeners by *minimising the variability across different target voices* - listeners were asked to distinguish celebrity targets from impersonators. Across three tasks, performance declined when telling apart a target from an impersonator, relative to the baseline condition when telling apart two quite different speakers. Again, however, performance remained above chance even in the hardest conditions. Taken together, these results indicated the resilience of vocal identity processing even under challenging natural listening conditions, and suggested a level of sensitivity to vocal cues that had not previously been demonstrated.

