Does the Redundant Signals Effect Occur with Categorical Signals?

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The redundant signals effect (RSE) refers to a decrease in response time (RT) when multiple signals are present compared to when one signal is present. The RSE is widespread when responses are made to specific signals; for example, a participant who is asked to respond to the letter "N" will respond more quickly to two "Ns" than to one "N." The current research was conducted to determine whether or not the RSE generalizes to categorical signals. In Experiment 1, participants pressed a button when they saw any number on a computer screen. Each trial contained two stimuli subtending 1º visual angle and placed 3º above and below the center of the screen. Both stimuli were letters on 50% of trials (no-signal condition), one stimulus was a number on 25% of trials (single-signal condition), and both stimuli were numbers on 25% of trials (redundant-signal condition). RT was faster in the redundant-signal condition (461 ms) than in the single-signal condition (509 ms, $p < .001$), indicating that the RSE occurred. However, Experiment 1 contained noise (a letter) in the single-signal condition; when the noise letter was removed in Experiment 2, the RSE was nonsignificant (redundant-signal RT = 446, single-signal RT = 458 ms, $p = .167$). Nevertheless, the trend in Experiment 2 was towards a RSE, and the fast RTs may indicate a ceiling effect. For now, the evidence in favor of a categorical RSE is mixed; further research is expected to provide clarity on the issue.