No disillusions in auditory extinction: perceiving a melody comprised of unperceived notes

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Abstract:

The formation of coherent percepts requires grouping together spatio-temporally disparate sensory inputs. Two major questions arise: (1) is awareness necessary for this process; and (2) can non-conscious elements of the sensory input be grouped into a conscious percept? To address this question, we tested two patients suffering from severe left auditory extinction following right hemisphere damage. In extinction, patients are unaware of the presence of left side stimuli when they are presented simultaneously with right side stimuli. We used the 'scale illusion' to test whether extinguished tones on the left can be incorporated into the content of conscious awareness. In the scale illusion, healthy listeners obtain the illusion of distinct melodies, which are the result of grouping of information from both ears into illusory auditory streams. We show that the two patients were susceptible to the scale illusion while being consciously unaware of the stimuli presented on their left. This suggests that awareness is not necessary for auditory grouping and non-conscious elements can be incorporated into a conscious percept.

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