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### On the binding of successive tones: Implicit versus explicit pitch comparisons

Laurent Demany<sup>a</sup>, Daniel Pressnitzer<sup>b</sup> and Catherine Semal<sup>a</sup>

<sup>a</sup>CNRS UMR 5227 ; Univ. Victor Segalen, 146 rue Léo Saignat, 33076 Bordeaux, France

<sup>b</sup>CNRS UMR 8158 ; Univ. Paris Descartes ; Ecole Normale Supérieure, 29 rue d'Ulm, 75005 Paris, France

Listeners were presented with sound sequences in which one pure tone (T) was followed by a set (S) of five synchronous or asynchronous pure tones 550 cents apart. In a “present/absent” condition, T was either identical to a randomly selected component of S or halfway in frequency between two components, and listeners had to indicate if T was present in S or not. In an “up/down” condition, T was 100 cents below or above a randomly selected component of S, and listeners had to identify the direction of the frequency shift. When the components of S were asynchronous, the present/absent task was easier than the up/down task. When the components of S were synchronous, the opposite trend was observed. In case of asynchrony, the components of S could be heard out individually, so listeners presumably compared explicit (conscious) pitch percepts to make their judgments. In case of synchrony, the components of S were difficult to hear out individually; apparently, pitch comparisons were then made implicitly by “frequency-shift detectors” (Demany and Ramos, 2005) which, we argue, participate in auditory scene analysis. It seems that such detectors relate automatically consecutive tones, and are generally less efficient for comparisons between nonconsecutive tones.