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The guitar as an extension of the voice - Phonetic gestures
underlying guitar timbre perception and description

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The guitar is an instrument that gives the player great control over timbre. Different plucking techniques involve varying the finger position along the string and the inclination between the finger and the string. Guitarists perceive subtle variations of these parameters and have developed a rich vocabulary to describe the tones they produce on their instrument. Vocal imitations - onomatopoeias - is another way to intuitively describe instrumental tones. The data that we collected showed that guitar tones can be consistently associated with different types of vowels depending on instrumental gesture parameters, suggesting that guitar tones can evoke "phonetic gestures" as defined in the motor theory of speech perception. In addition, these phonetic gestures seem to be at the origin of a large subset of commonly used verbal descriptors: open, oval, round, thin, closed, nasal, hollow, etc. These analogies can be explained by the comb-filter shaped spectral envelope of plucked-string instruments which emphasizes energy in the region of vocal formants. We conclude that, when technical difficulties have been surmounted, performers can use their musical instrument as an extension of their voice, the musical instruments allowing a virtuosic control of sound parameters similar to those involved in the paralinguistic elements of speech.