Computational Musicology
Fall 2018
Assignment 3
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Questions on Bello Reading

What is the difference between an attack and an onset?
attack: "time interval during which the amplitude envelope increases"

onset: "single instant chosen to mark the temporally extended transient," assuming that "the human ear cannot distinguish between two transients less than 10 ms apart," often coinciding with "the start of the transient, or the earliest time at which the transient can be reliably detected."

Why is preprocessing typically done to the signal?
"In order to accentuate or attenuate various aspects of the signal according to their relevance to the task at hand." Optional, depends on the "process or processes to be subsequently performed."

What is the purpose of reduction?
Reduction transforms the audio signal into a "highly subsampled detection function," which is an "intermediate signal that reflects, in a simplified form, the local structure of the original." Detection functions are created via reduction as a way to simplify the complexity of a signal, allowing for a greater degree of precision in onset detection.

What is the role of peak picking?
Peak picking separates onsets from noise in the signal, "or other aspects of the signal not specifically to do with onsets, such as vibrato."