Sonic Multiplicities II: Logic

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Abstract

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1. Introduction

Sometimes, the most important thing to do when trying to solve a problem is to step back and forget all of your formal training. It was this exact practice that I engaged in heavily while writing the Sonic Multiplicities analysis and logic cores. What I set out to do was determine an appropriate means by which to both analyze and judge a performer's choices - in real time, and with a commitment to objectivity. It didn't take long for me to discover that I had vastly overestimated the complexity of this endeavor.

2. Nonsense

I began by asking myself, "what can we do right now?", and began examining what all sounds emitted from a solo instrumentalist shared. What I learned was that it was very easy to plot all musical decisions from a performer on a simple circumplex chart: x = -100...0...100 (Fluid...Pristine...Percussive); y = -1...1 (Contrasing...Complimenting).

The X axis is the result of analyzing each sound's timbral and pitch quality. A score of -100 (fluid) would suggest a sound that has no transient qualities. A score of 100 (percussive) suggests a sound that is mostly transient in nature, and has a very harshly-sloped release curve.

The Y axis assigns each sound its current "correctness" rating. This is essentially a measurement that determines how much each sound contrasts with, or compliments, the overall piece at a particular moment in time.

Each time the analysis engine polls the various outputs in the SM system, it prepares the results as an array and returns a comma-separated table to the Logic Engine:

Sound,X,Y Input,35,0.70 A,-22,0.62 B,10,0.84 C,32,1.0 D,-45,0.55

The "Input" in this example is a violinist. She is bowing with a bit less vibrato than normal, and therefore the sound has a more percussive quality. We know

she is bowing with a “less than normal” amount of vibrato because we’ve been examining every sound she’s made since her very first note was bowed.