On Microrhythmic Composition

by Karl Ronneburg

WHAT THIS IS:

I'm investigating the possibilities of composing with microrhythmic inflections, studying how subtle changes of tempo and note placement can open up new realms of rhythmic creation and perception. This can come in the form of rhythmic frameworks, like inventing a new kind of Viennese Waltz or a new system of swing, or can be used as a more flexible compositional tool, adding varying amounts of rhythmic warping and nuance throughout a particular piece.

HOW IT WORKS:

Rhythm, as I see it, is a tool we use to create the illusion known as "the beat": a reference frequency based on the lowest common denominator of the various whole-number ratios of note lengths in time. The ear hears these Pythagorean relationships between rhythmic impulses, be they binary in nature (whole, half, quarter, eighth, sixteenth), ternary (triplets, nonuplets), combinations of the two (sextuplets, 3/4 time), or further down the line (quintuplets, septuplets)—and our brains seek that universal denominator: the beat. Conversely, "free rhythm" can be used to destroy the illusion of the beat by playing rhythms with no discernable common denominator, creating instead a sense of chaos, freedom, or lack-of-time. Meter, then, is another illusion built on top of the first one: more culturally defined than mathematically, meter has to do with the lengths of rhythmic patterns in relation to the beat, and which parts of those patterns are considered "strong" or "weak" at a particular moment.

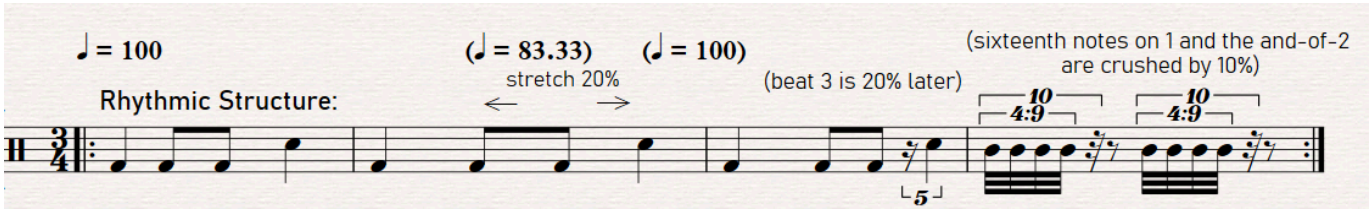
The performance practices of live musicians around the world, however, often rely on rhythms much smaller and more subtle than this concept (or the Western notation system) would encourage: what is known to musicologists as "microrhythm" is a catch-all term for inflections given to what would otherwise be mathematically strict rhythms: occurring principally in dance music, microrhythm is the basis of what we know as "swing" or "groove": it's the crushed-middle-sixteenth note grid of samba baterías, the specific swing of a hip-hop beat, or the uneven steps of the Norwegian *telespringar*. Microrhythms are also found in Western concert music: implied more than expressly written, most are seen in concepts of rubato, phrasing, and beat placement. Microrhythms rely on *referencing* their mathematical counterparts, and can give musical phrases a sense of life, energy, and emotion.

As I see it, there are 3 ways of adding microrhythmic inflection to rhythm:

1) One can play slightly earlier or later than what notated rhythm would prescribe: playing behind the beat, laying back; or, driving the rhythm, crushing sixteenth notes, anticipating.
2) One can stretch or shrink the timeline of tempo: for example, adding a ritardando, accelerando, or momentary tempo change.
3) One can add holds on or pauses between particular notes (fermatas, caesuras, breath marks) that suspend the sense of time without destroying it.

These are the elements that I hope to analyze and use in the process of developing an explicitly microrhythmic composition system--there are so many ways to augment and play with rhythms that have yet to be explored! I want to invent new kinds of microrhythmic grooves and systems of swing, to take the illusion of tempo and stretch it, shrink it, distort it—a kind of Surrealism in musical time.

To that effect, I programmed a sequencer interface using Supercollider which lets me create incredibly precise rhythms on and around the timeline of tempo, while also shifting the timeline in any way I want. For example, I created the following four-measure pattern in 3/4 (transcribed into Sibelius):



Measure 1 establishes the tempo and the meter, while measure 2 stretches beat 2 by 20%--not enough to warrant a time signature change (though beat 2 could be written as a separate measure with a time signature of 6/20, I think using a tempo change here is better because the auditory effect is one of the previously established rhythm slowing down). Measure 3 takes the pattern a different direction, by placing the quarter note on beat 3 20% behind the beat—notated here by placing the quarter note inside a quintuplet frame (though the auditory effect is one of late-ness, not quintuplets). Finally, the fourth measure takes a syncopated rhythm—sixteenth notes on 1 and the and-of-2—and crushes each set to 90% of their original length, while keeping the overall length of the measure the same. This sustains the illusion of the beat throughout the final measure, while giving the sixteenth notes more energy and drive.

I sent the above pattern using MIDI to the music production software Ableton, and then used it as the skeleton for the electronic track *iso+micro*, which I produced with Elliot Cole (I chose the rhythms, he chose the pitches using an isorhythmic scheme, and we collaborated on the structure and orchestration): https://soundcloud.com/karl-allmusic/isomicro

An important note: the purpose of this project is not only to create electronic music—one of my main goals is to use these software tools to compose and explore microrhythmic spaces and then to transcribe and teach the rhythms to live musicians. To that extent, the tasks of developing conceptual frameworks and notation systems are very important to me. I've found, for example, that I can teach myself what it feels like to stretch and shrink individual beats in increments of about 5%. Though this results in fractional bpms when written out as tempo markings, I've found writing tempo shifts in this proportional way to be very useful in creating microrhythmic patterns.

I've included a live performance and score for the open-instrumentation piece *BDA-GOON-KA*, as well as recordings and transcriptions of other microrhythmic patterns I created and performed. Though many of these initial projects are groove-oriented, my next steps involve creating longer-form works in more lyrical and abstract styles which incorporate microrhythmic tempo shifts, pauses, and inflections that change and warp throughout each piece. These projects include an opera, percussion trio piece, and a string quartet work that I'm currently developing.

I hope that these ideas seem just as promising to you as they do to me!

Thanks so much,

Karl Ronneburg