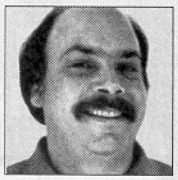
DRUM MACHINE PROGRAMMING



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IN SEARCH OF LENGTH, PART 1: FLAMS AND RUFFS

DRUM SOUNDS ARE SHORT. THIS should come as no surprise, as the physical characteristics of most drums dictate that they have a fast attack and a fast decay. So, without sustain, how do you create a long tone on a drum? Composers and performers rely upon a few slight-of-ear tricks to give the aural impression of a more sustained sound. Two of these little goodies are called "flams" and "ruffs."

Flams. The flam is an ancient drumming term for the figure of a grace note followed by a primary note (see Example 1). Flam is an onomatopoeic word, which means that this musical figure sounds like its name: The phoneme "f" is the grace note, followed quickly by "lam" as the primary note. The purpose of a flam is to give a note slightly more length and sustain than a single stroke. Flammed notes tend to sound stressed or accented in relation to normal notes.

Let's say that you're programming a drum machine and want to create a fill that culminates with a flam on the fourth beat, as in Example 2. Here are the basic steps to follow:

1) First, program the rhythm without the grace note. Since sixteenth-notes are the fastest rhythm used in this example, adjust your auto-correct setting to this value.
2) Call up the machine's highest auto-correct resolution (sometimes called "hi-res") and enter your machine's step-record mode.
3) Move up to the fourth beat (the one that contains the primary note of the flam), and then step backward one or two units.
4) Enter a much softer note at this location.

That's all there is to it. When drummers perform flams, they adjust the relative dynamics of each note and the amount of space between the grace note and the primary note. Here is a closer look at these and some additional flam variations you can try.

Dynamics. Normally, the grace note is much softer than the primary note, but altering this relationship can result in flams of differing intensities. As grace notes get louder, they produce flams that seem heavier and have more force. When drummers play grace notes on toms, they tend to be a little stronger than those played on the snare drum. However, if the grace note gets too strong, the characteristic flam sound will be lost.

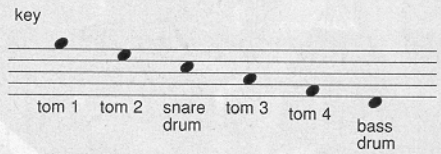
Spacing. All drum machines and software sequencers work with note-length resolutions that are tied to tempo. In other words, the "real-time resolution" of 32nd-notes at 120 bpm is twice as fast as 32nd-notes at a tempo of 60. To a large degree, then, the tempo of the song will determine the actual spacing between the grace note and the primary note.

Working with a tempo of 120 beats per minute, a grace note placed one 64th triplet before the primary note (a single clock at 24 ppq) will result in a tight flam. This is good for flams that occur in busier patterns. If you're looking for something a little thicker, try placing the grace note a 32nd triplet before the primary. Be careful of programming flams that are much fatter than this. If flams become too wide, there is a good chance that the grace note will be heard as a rhythmic value instead of a grace note.

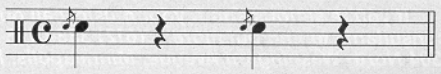
Tuning. Acoustic drums have different tonal qualities depending on their volume. Since the grace note is much softer than the primary note, giving it a slightly different color will enhance the effect of the flam. Changing the tuning by ten or twenty cents (up or down) will result in a very subtle difference. You can try altering the tuning by as much as a half-step. Since the grace and primary notes come so close together, the ear will pick up movement and change, but not melodic pitches.

Timbre. Some drum machines, such as the E-mu SP-1200 and Kawai XD-5, let you pass drum samples through an audio filter. If you're working with a drum machine that has this feature, try filtering out some of the high frequencies of the grace note. Again, this is a subtle yet effective change. If your drum machine offers lots of different drum samples but no filtering, try using a sample with less of a sharp attack for the grace note.

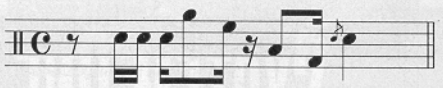
Flams sound good with any two drum samples. The most common flams are those performed on a snare drum or tom. A great effect can be created by placing the grace note on the snare drum and the primary note on a tom (low toms sound especially cool). Grace notes can be played with the bass drum (common



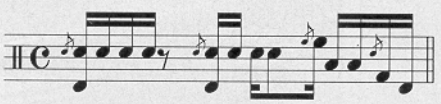
Ex. 1. Standard notation for a flam.



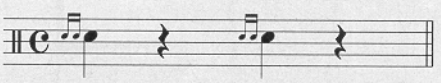
Ex. 2. A fill climaxing with a flam.



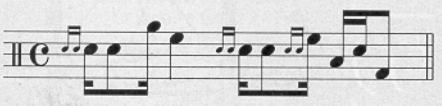
Ex. 3. Using flams to create a rhythm inside of a rhythm.



Ex. 4. Standard notation for a ruff.



Ex. 5. Since ruffs take time to perform, programmed ruffs will sound more natural if a little space is left before each one.



Ex. 6. Flams and ruffs add flavor to march-like rhythms.

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when the primary note is on the snare), but drummers rarely perform flams the other way around (with the primary note on the bass drum). Flams can be used to add thickness and weight to just about any rhythm. Drummers will often add flams to certain notes to give the effect of a rhythm inside a rhythm. If you program Example 3 into your drum machine, you'll notice how the notes with flams seem to stand out above the others, producing a rhythm all their own.

Ruffs. Primary notes that have two grace notes are called ruffs (see Example 4). Again, the name describes the sound that is created, especially if you roll the "r" slightly. Like flams, ruffs are called into play when thicker, longer sounds are desired.

When drummers play ruffs, one hand is responsible for playing the two grace notes with a quick little bounce, while the other hand plays the primary note. The ruff's double grace notes are most often played on the snare drum, because bounced strokes on acoustic toms tend to sound muddy and indistinct. The primary note can be placed on any drum, including the bass drum.

Programming ruffs is similar to programming flams. The easiest method is to step-record the grace notes at your machine's highest resolution. Ruffs are always performed with the grace notes very close to the primary note, but you can try adjusting the dynamics, tuning, or timbre of the grace notes for additional variations.

Flams can be added to any note within any rhythm, but ruffs require more time to perform. For this reason, ruffs will sound more natural if you leave a little space before them (see Example 5).

Flams and ruffs have a long history that dates back to military bands. If you add a few of these figures to march-like rhythms like those in Example 6, your programming can arouse a strong martial mood.

Next month, we'll talk about programming rolls—the drum's ultimate long tone. Until then, experiment with adding some flams and ruffs to your patterns and songs. ■