



## Understanding the Samba Groove

by Pedro Batista

### Introduction

Samba's most basic rhythm is a rolling 16th-note pattern, with four 16ths per beat. In musical notation it can be represented by



Fig.1 Eight strokes (16ths) on a 2/4 bar

where we have two beats, with four strokes each, in 2/4 (arguably the samba's time signature). Now, suppose you have no notion as to how the samba rhythm goes about, and you come across this pattern. Chances are you won't get the slightest idea as to what samba feels like, just by this representation alone. Although many authors notate it like this, it can be easily seen that this series of even, perfectly quantized, 16th notes, is no more evocative of samba, than a metronome would be. In fact this representation neglects what makes up the samba essence in the first place: the swing!

Here is a tamborim sample I recorded for analysis : [tamborim\\_loop.wav](#) (63K). I just played the above pattern over two bars (and a beat). It has the loop region defined, so you can loop it in, for instance, CoolEdit. If we inspect the resulting waveform, we see that there isn't an even spacing among successive strokes of a beat:



Fig.2 Waveform representation of a four beat loop

What this means, is that we have to introduce some swing, into the succession, in order to achieve that rolling effect that instantly gets your body moving.

This samba swing ain't easily quantified, but we can try to nail it down, by taking a closer look at the tamborim sample. Here's a single beat:

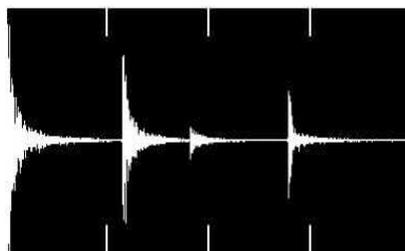


Fig.3 A single beat

In this example, we see that the first and last strokes seem to last longer, while the second and third are notoriously shorter. For the mathematically curious, I measured every stroke's duration, in the 4 beat loop, and here is a brief statistical analysis:

	Average	Minimum	Maximum
Stroke 1	28%	26%	29%
Stroke 2	17%	16%	17%
Stroke 3	23%	22%	24%
Stroke 4	32%	30%	34%

Table 1 Percentages of the beat per stroke

This confirms our first impressions. We see that the first, and specially the fourth strokes, last longer than what a 16th should be, that is 25% of the beat, while the opposite occurs with the 2nd and 3rd strokes. Notice that the fourth stroke is played ahead of time.

Ok, you say, but how is this gonna help me play samba the right way?

Well, I hope that by knowing the origins of this sound, and its mechanics, it will become apparent what it should sound like! The rest, well, the rest is practice, practice, practice...

When I first started to play samba rhythms (long before I was able to buy a real brazilian instrument), it took me a while to get this swing in me. It may be a little hard, for those not familiar with the samba sound, but once you get into it, it will be like second nature. It is interesting to note, that if you play the rhythm while swinging your body, this helps. Samba is meant to be danced, so there you have it.

Now, what has made the brazilian people come up with this swing in the first place? Where does it come from?

To answer that, lets focus on what I consider to be the two basic building blocks of samba.

## The Stick

Lets start by analyzing the particular way a drummer does a 'triple stroke' on the skin. When you hit the skin with the stick, it bounces up, due to the skin's elasticity. If you continue pressing the stick down against the skin, using your wrist, it will hit the skin again, and again it will bounce. Pressing still, gives similar strokes, increasing in speed and decreasing in loudness. With this technique, that I'm sure you're all familiar with, you can play a triple-stroke with the drum, where after the initial strike, there are two more following it, in a rapid succession.

This is more or less the same as having a ball bouncing up and down on the floor: the height it reaches gradually decreases, and the interval between successive bounces takes less and less time. Furthermore, each successive bounce has less energy than its predecessor, so it also makes less sound.

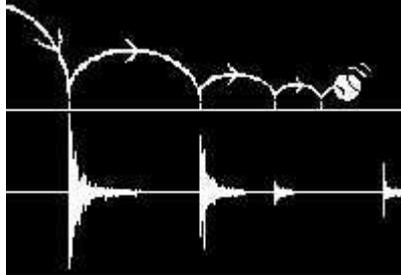


Fig.4 A ball bouncing over the first three strokes

As a final example, you have probably already used on of those discardable plastic pens to hit on the desk, making it rattle, using the elasticity of the plastic clip by the very same principles of the preceding examples.

So, back to our samba pattern, consider that the first three strokes of the beat are played in this manner with a stick (quite the same as you do with a repinique, or a tamborim). If we consider these to be the first three strokes of the beat, then this matches our expectancy that the duration of each stroke is decreasing, and that the sound is also getting softer (the 3rd stroke is actually shorter than the 2nd, but since we only let it bounce three times, you can't easily notice that).

All we are missing now is the 4th stroke, and that takes us to the second building block

## The Hand

The fourth 16th of the beat is when the hand plays. As any repinique player will tell you, the hand marks the most important stroke within the beat. It's this fourth stroke that gives samba its swinging nature, and its constant sensation of falling into the next beat. If you don't believe me, try playing merely the first and fourth strokes of each beat, and tell me if that alone isn't evocative of samba.

This fourth stroke is responsible for most of the samba drive, and not only it is accented, but it is played ahead of time, slightly earlier than it should be (check out Fig.3). This poses a problem for many right-handed persons, cause this stroke is played with the left, the weaker hand. In order to develop technique, it is important to focus on developing additional strength and responsiveness from that hand. Only by playing this fourth stroke very snappy and with a good push, can you make it sound good.

But where does this fourth stroke emphasis come from? From an uneducated perspective, and without any fundamented evidence, I would say it was inspired by the african rhythm (well, this is not much of a claim, what kind of dance music wasn't influenced by african rhythms?).

If we look at the african clave

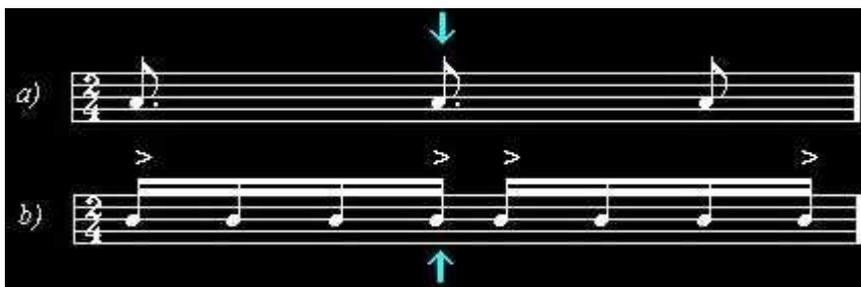


Fig.5 Comparison between a) african clave and b) samba rhythm

we see that the most important stroke is placed on the fourth 16th of the first beat. Furthermore, this stroke alone gives a distinctive african off-beat feel. Can this be where the brazilian musicians got this influence? Well, I don't have an answer for that, apart from my feeling that it is so.

Before proceeding, and getting back to our plastic pen example, you may want to try playing the three strokes with the pen clip, and the fourth stroke with your left fingers, in succession. If you get the hang of it, you'll start to hear the samba rhythm.

## Conclusion

So, we see that the 'samba swing' is easily obtained by playing a drum with a stick, in the manner described previously, and adding the 4th 'hand' stroke.

This is most certainly obvious for someone who plays, for instance, the repinique, or the tamborim, but the point is, this particular swing also applies to other brazilian instruments, that are not played the same way. And for someone who plays exclusively, say, the pandeiro, it might not be apparent, where this groove came from.

From this, we can extract some general properties of the groove:

- The first stroke ends up being accented, not because it needs to be, but because it's the first and strongest hit of the stick against the skin.
- The fourth stroke is the accented one, and this accent is amplified by playing this stroke ahead of time.
- During the first initial strokes of the beat, the rhythm seems to slow down, like if it was coming to a gradual stop, but the fourth stroke, by playing ahead of time, brings the tempo back up, pushing up the drive. That's what gives that constant stop-now-go feel.
- It doesn't matter if the first stroke is dead on time (in fact during a performance, the first beat seldom plays exactly on time, rather a bit earlier or late), neither it will make significant difference if the three initial strokes are slightly faster or slower (subtle variations on arm velocity and wrist strength don't matter much).

**As long as the first three strokes have that 'bouncing' feel, and the fourth stroke is played around the last 16th of the beat (accented, and a little ahead of time), it will sound like samba.**

In my opinion, this samba groove was taken from this simple way of playing, in the first place. I assume that the Brazilian ex-slaves of 1888, were, at the rise of the 20th century, playing with the instruments the Portuguese have introduced (like the frame drum, the tambourine and the conga), incorporating them into their own culture and ancient African tradition, and maybe (just maybe), moved by a taste for these syncopated beats (who can blame 'em), they started playing with a stick/hand combination (there are African drums played like that), and that's how it all started! Then, all the other instruments that were not played with a stick and the hand, just followed the groove, imitating this natural rhythm.

Ramiro Musotto [ramirose@ism.com.br], from the Sambistas list [sambistas@tardis.ed.ac.uk] has corrected me on this. I find his comments very interesting:

(...) I disagree. The micro-rhythms Pedro describes perfectly are typical from the rhythms that originated the "today called samba" rhythm. This is an African micro-rhythm that you find all the time in the samba de Angola rhythm from the Candomblé de Angola (also known as Cabula, cabula, or samba de caboclo). This is the rhythm, the "toque", which is considered (by me and my friends at least) to be the grandfather of samba.

Is pretty similar to Samba de Roda, which is the father. In other states you find EXACTLY the same micro rhythm in the maracatu from Recife and in the Boi de Zabumba (someone from Maranhão out there?)."

So, to wrap it all up, here's how I describe the flawless samba groove technique:

- First stroke doesn't have to be strong. It's already the strongest moment. Just make it as strong as the push you want to give the music.
- On the second and third strokes, let it die smoothly, slowing down but still rolling.
- The fourth stroke make it strong, rising the drive back up, and keep it ahead of time (so don't wait for just the 'right' time).

Finally, the single most important advice: **just let it roll!**, or in the words of the poet: Deixa o samba rolar...

That's all there is to it :)

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