How To Calculate Euclidean Rhythms By Hand

Jocko Homomorphism

Set Up

First, choose the number of beats and the number of notes to place in your rhythm.

For this example, I will make a rhythm of three notes spread across seven beats.

Step 1: List

Write out the numbers starting at −1 and ending just before the number of beats you want.

$$-1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6$$

Here I've got eight numbers. My beats will go *in between* what I've written.

Step 2: Multiply

Multiply what you've written by the number of notes you want.

$$
\begin{array}{cccccccc}
-1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 \\
-3 & 0 & 3 & 6 & 9 & 12 & 15 & 18
\end{array}
$$

Now take these numbers and calculate residues modulo your number of beats.

$$-3 \quad 0 \quad 3 \quad 6 \quad 9 \quad 12 \quad 15 \quad 18$$
$$4 \quad 0 \quad 3 \quad 6 \quad 2 \quad 5 \quad 1 \quad 4$$

If you have never calculated residues before, it's just math/CS jargon for dividing and finding remainders. You've done it right if the first and last residues are the same number.

Step 4: Compare and Convert

Write in $>$ and $<$ signs between the residues.

$$4 > 0 < 3 < 6 > 2 < 5 > 1 < 4$$

Write a ♩ for each time you see a $>$. Write a 𝄽 for each time you see a $<$.

♩ 𝄽 𝄽 ♩ 𝄽 ♩ 𝄽

You're done!