

# Putting the Math in Math Rock

## Matt Chiu

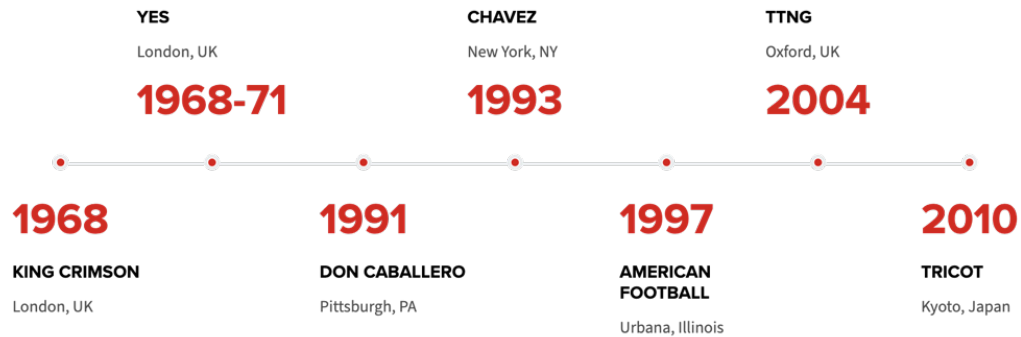


Fig. 1 Math Rock Timeline

Math Rock Playlist:  
<https://open.spotify.com/playlist/oYMehqtnDK9X1pBsVcoftN>

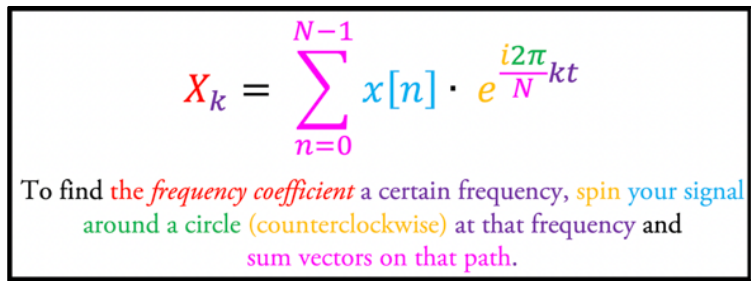


Fig. 2 DFT Mathematics Explained

Tresillo Timeline:  
[1, 0, 0, 1, 0, 0, 1, 0]

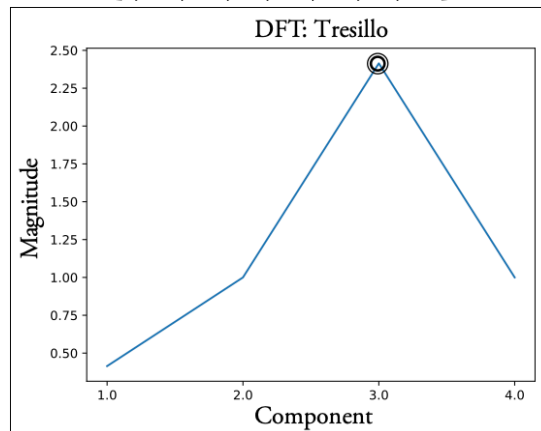


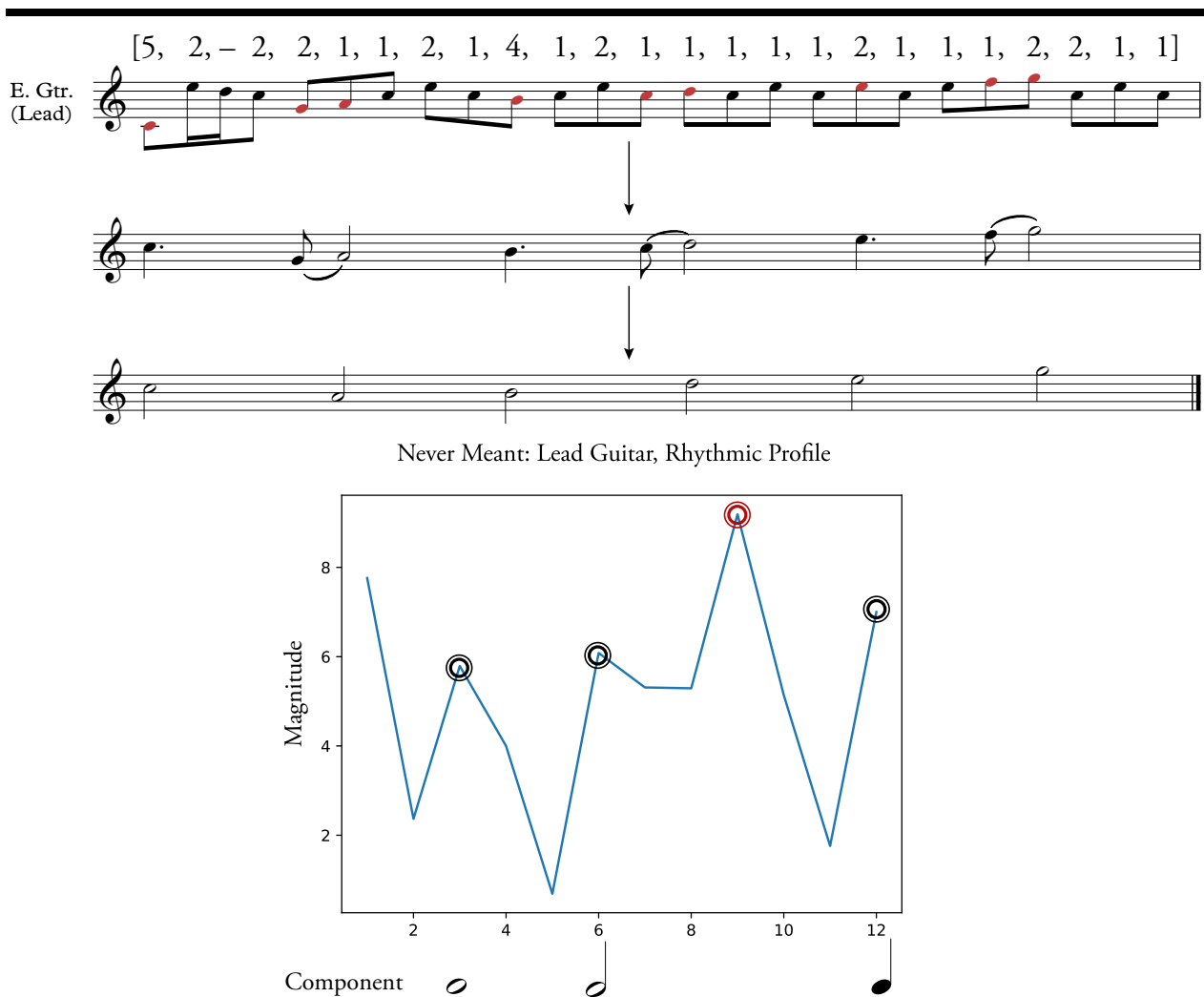
Fig. 3 DFT Calculation on the Tresillo

<b>ACCENT PROFILE RULES</b>	
MPR 3: Event	+1 wherever there is a note
MPR 6: Bass Note	+1 to lowest note of any 5 contiguous units
PEC: Second of Two	+1 to second to two adjacent notes
PEC: Initial and Final Tones	+1 to both ends of an adjacent string of notes
Large Leaps	+1 to any leap of 5 semitones or more
Continuous/Contour	+1 to all changes in the contour: contour is established after 2 moves in the same direction
MPR 1: Parallelism	+1 to parallelism projects

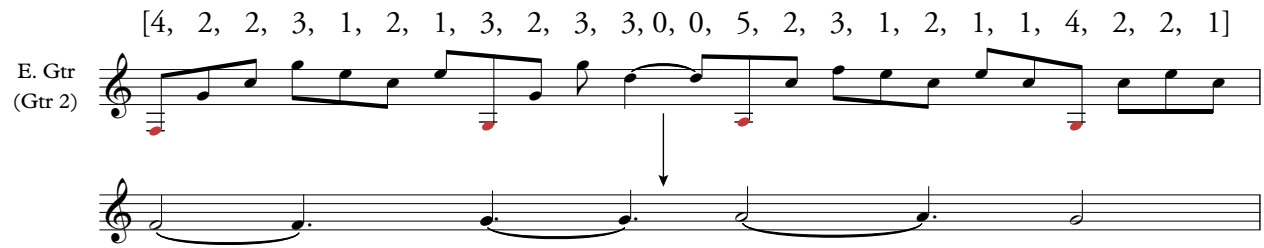
PEC = Povel/Essens Clock (Rules)

MPR = Metric Preference Rules (Lerdahl and Jackendoff)

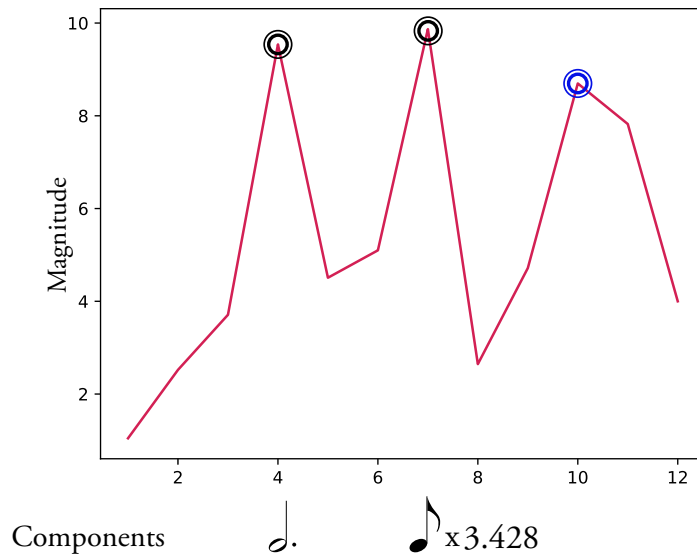
**Fig. 4** Accent Profile Rule



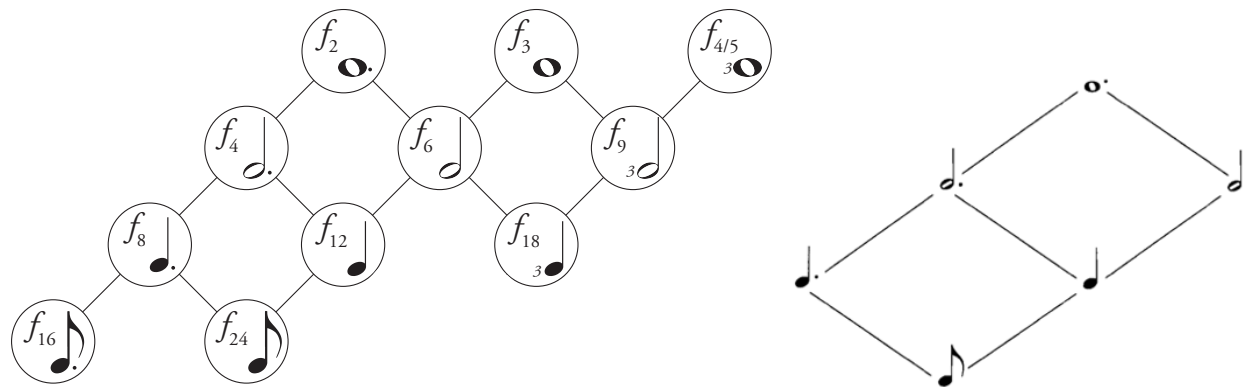
**Fig. 5** Never Meant: Guitar 1 (top); Rhythmic Profile (bottom)



Never Meant: Rhythm Guitar, Rhythmic Profile



**Fig. 6** Never Meant: Guitar 2 (top); Rhythmic Profile (bottom)



**Fig. 7** DFT Components (left); Metric Ski-Hill Graph (right)



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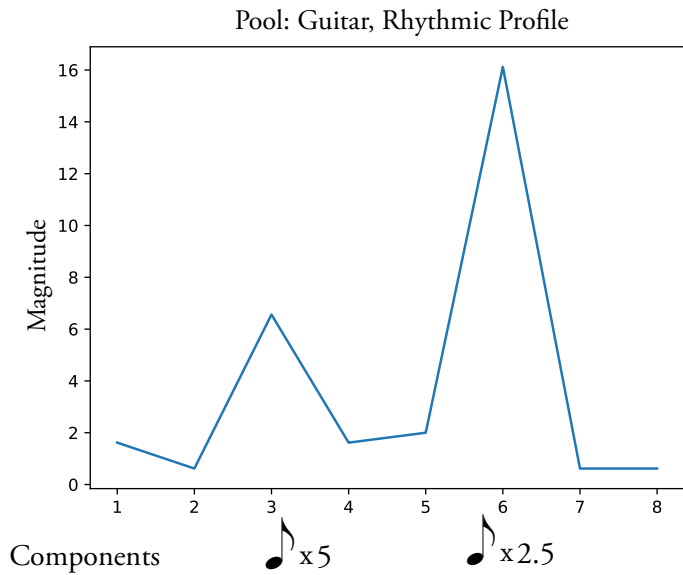
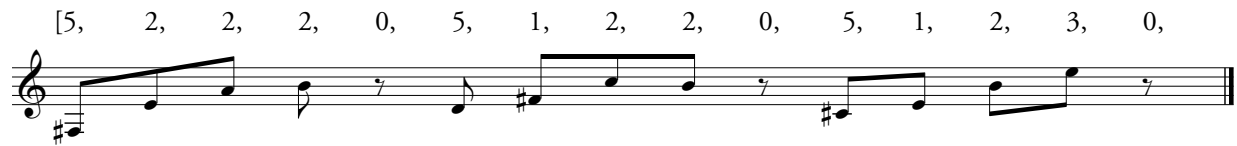


Fig. 8 Pool: Guitar (top); Rhythmic Profile (bottom)

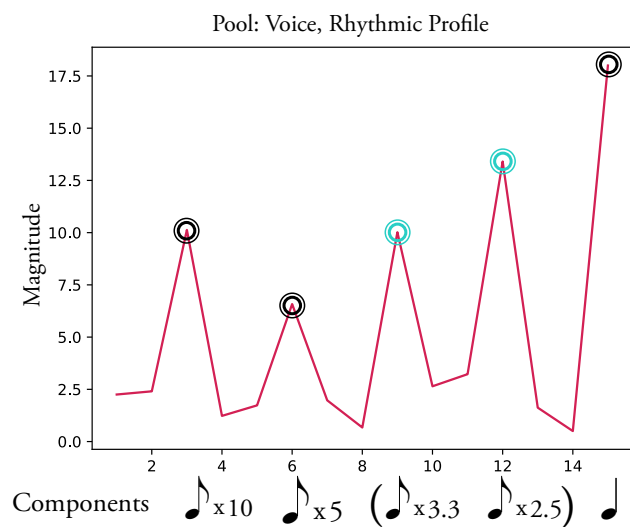


Fig. 9 Pool: Voice (top); Rhythmic Profile (bottom)

Electric Guitar/Voice

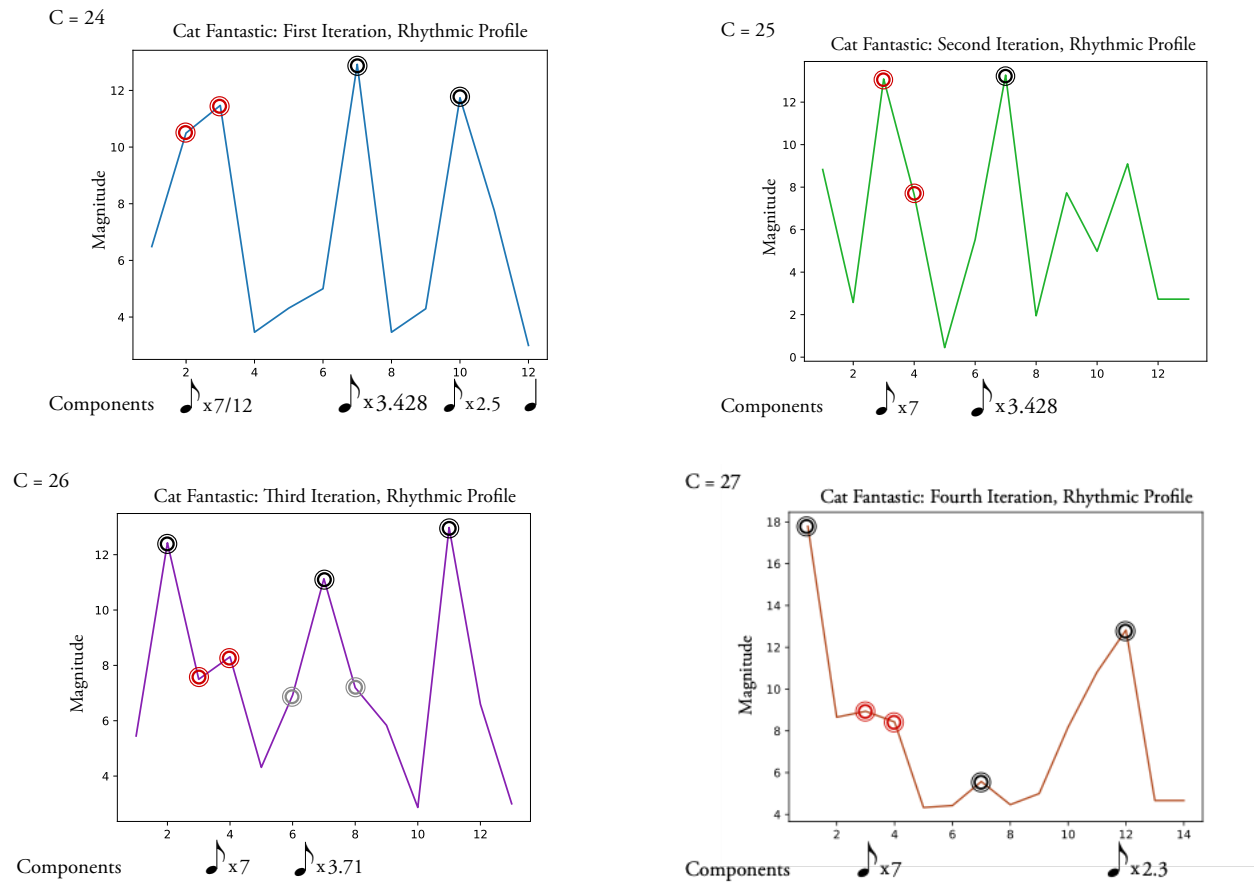
1) Bass Guitar

2)

3)

4)

**Fig. 10** Cat Fantastic: Milankovitch Cycle



**Fig. 11** Cat Fantastic: Rhythmic Profiles for Milankovitch Cycle

References

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