

Ray Charles really did have that swing

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Ray Charles was really good at snapping, said musical acoustician Kenneth Lindsay of Southern Oregon University in Ashland. Charles's snaps that open "It Don't Mean a Thing (If It Ain't Got That Swing)" are timed so well that he is never more than 5 milliseconds off the tight beat.

Lindsay studies the physics of the sound of swing music such as Ray Charles' hits, and in a talk last week at the Acoustical Society of America's joint meeting in Honolulu with the Acoustical Society of Japan, he explained how he created a visual analysis of the bouncy, energetic, even lopsided musical style of swing.

"If you're tapping your feet, that's swing," he said. To study swing, he looked at the popular dance music in all cultures -- a loose rhythmic style that's different from syncopation, in which a note is played when a pause is expected or an expected note isn't played. Swing, he said, relies on drama and emotion, and a micro-timing of pulses and meter that aren't found in other styles. Swing uses a lot of triplets, irregular notes that are $\frac{2}{3}$ the length of a regular note. Swing is found in American jazz, Caribbean beats, Brazilian swing, reggae, samba and many other musical styles around the world.

To really see what this universal but mysterious music looked like, Lindsay broke down famous swing songs like "Fever" and "Graceland" in various ways. He measured the song's notes and pulses very finely, to within 3-10 milliseconds per musical event, sometimes even fine-tuning the differences between the sounds to a half a millisecond. This way he could separate out instruments, voices and drums by their pitch and note.

He created graphs that separated out the instruments. That's how he noticed Ray Charles' incredibly tight snapping.

Source: American Institute of Physics

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