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Title: Let Freedom Ring Word(s): jazz, freedom Smoothing = 0
Word/span/interval: jazz/1915 to 1925/annual
Word/span/interval: freedom/1915 to 1935/annual

Introduction: The author explored Ngram patterns for jazz, blues, freedom, etc. The increase in jazz appeared to anticipate the increase in freedom, during the period from 1915 through 1965.

Method: Year, and frequency values were entered in excel. These are plotted in the first figure. Using excel, variables were created with lags of zero to 10 years. Correlations were computed using SAS Enterprise Guide, and plotted in Figure 2.

Results: The simultaneous correlation between jazz and freedom was -.58. As the lag increases the correlation starts increasing with a lag of 4 years, becomes positive with a lag of 6 years ($r = .19$) and becomes pronounced with a lag of 7 years ($r = .73$). The correlation continues to increase as the lag increases, topping out at .92 (85% shared variance) with a lag of 10 years.

Discussion: Early jazz musicians include Jelly Roll Morton, Duke Ellington, and Louis Armstrong. Louis Armstrong is notable for his song "What a wonderful world." More recent jazz musicians include Sarah Vaughn, Herbie Hancock, Wayne Shorter, Hiromi, and Pat Metheny. Results suggest that the increase in freedom (in millions of digitized books) is anticipated by the growth of jazz music. Freedom in turn anticipates the civil rights movement evidenced in Ngram viewer, which in turn anticipates women's rights (Figure S13A. Michel et al., 2011, supporting online material, www.sciencemag.org/cgi/content/full/science.1199644/DC1).

"The music of America's black people came to be called jazz in the South in the early 1900s; New Orleans, Louisiana, is often called the birthplace of jazz. Despite slavery's having ended in 1865, African Americans still didn't have the same rights as white Americans. But jazz was music that both black and white people could enjoy. By the 1920s, jazz was growing in popularity and included influences from Europe as well as Africa.

Jazz has all the elements that other music has: It has **melody**; that's the tune of the song, the part you're most likely to remember. It has **harmony**, the notes that make the melody sound fuller. It has **rhythm**, which is the heartbeat of the song. But what sets jazz apart is this cool thing called **improvisation**. That means making it up on the spot. No music in front of you. No long discussion with your bandmates. You just play.

"It's more free. It's more soulful," says Geoffrey Gallante, 11, a sixth-grader at Stratford Landing Elementary School in Alexandria. Geoffrey is such a good musician that he has appeared at the Kennedy Center and has been on television lots of times; he has even played with the band on "The Tonight Show With Jay Leno."

In jazz, Geoffrey says, "it's easy to express your emotions. In classical, . . . you get the sheet music and you read it top to bottom. You're more focused on technically making it perfect. . . . In jazz, your main focus is . . . being creative and using your imagination."

... It's not that jazz songs don't have recognizable melodies. They do, but that's just a small part of it. In jazz, a melody begins a song, but then each musician will take turns improvising, playing all kinds of crazy notes: high, low, long, short, gravelly and clear.

The performers who are not soloing are playing quietly in the background, or comping, short for accompanying. Then at the end of the song, the melody returns. Improvising is what makes a jazz song different every time you hear it, unlike any pop song you hear on the radio.

Another thing that sets jazz apart is its approach to rhythm. Think of "The Star-Spangled Banner." When you hear that song, it probably doesn't make you want to tap your foot. There are no rhythmic surprises, or what is called syncopation, in most presentations of "The Star-Spangled Banner." Jazz musicians, on the other hand, "swing" notes, which means they change the length of notes, holding some longer and making others shorter. ...

Geoffrey Gallante was 4 years old when he picked up the trumpet. Now he practices three hours a day, mostly classical pieces. But what he really loves playing is jazz. It's the spontaneity of jazz — that means there's no planning ahead of time — that he really loves. He can walk into a club that he has never visited, with guys he has never seen, and just play.

"The [band leader] says, 'What do you want to play, and what key?' [I] can get up there and have a blast. With classical, you have to plan everything. You need to practice. . . . It's a whole big production. With jazz, you just walk up and you say, 'Hey, I want to do this. . . . Let's go.' " " -musical freedom.

(https://www.washingtonpost.com/lifestyle/...jazz-a...music/.../gJQA4bswnU_story.html)

While these results do not *prove* that jazz music *caused* an increase in freedom, the results do support this contention. It appears that freedom was expressed musically in the less structured format of jazz, and that this in turn was associated with a subsequent increase in a general sentiment of freedom, and that this in turn may have contributed to the Civil Rights movement and the Women's Rights movement. A counter explanation is that all four phenomena were caused by some other cultural processes.

Figure 1. Frequency in Ngram Viewer

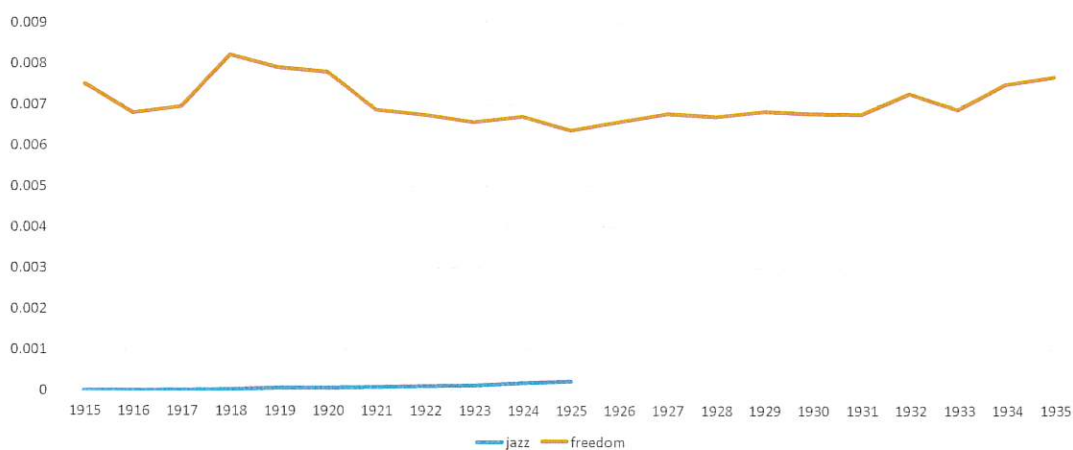


Figure 2. Correlation between “jazz” and “freedom” based on lag in years.

