Mining power laws in Top 40 data: One-hit wonders aren't all that wondrous

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Abstract

Most human behavior demonstrates power laws. Some well-known power law effects are "rich get richer" (for example, the tendency for startup companies to start up in the tech-heavy San Francisco Bay area rather than the industry-poor Midwest) and the "80-20 rule" (20 percent of beer buyers drink 80 percent of the beer, while 80 percent are social drinkers or cheap dates). In this work, we apply data mining techniques to analyze a data set of *Billboard Top 40* musical charts. I hypothesize that musical artists exhibit power law behavior: that a very few top-ranked artists produce a great deal of hits, while an overwhelming majority of artists have only one or two hits. This illegitimizes the phrase "one hit wonders", because such one-hit behavior is extremely common. This work thereby proposes adoption of the phrase "multi-hit wonders" to better describe mathematical characteristics of musicians.