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The Formula

By Malcolm Gladwell

… In a small New York loft, just below Union Square, for example, there is a tech startup called Platinum Blue that consults for companies in the music business. Record executives have tended to be Humean: though they can tell you how they feel when they listen to a song, they don't believe anyone can know with confidence whether a song is going to be a hit, and, historically, fewer than twenty per cent of the songs picked as hits by music executives have fulfilled those expectations.

Platinum Blue thinks it can do better. It has a proprietary computer program that uses "spectral deconvolution software" to measure the mathematical relationships among all of a song's structural components: melody, harmony, beat, tempo, rhythm, octave, pitch, chord progression, cadence, sonic brilliance, frequency, and so on. On the basis of that analysis, the firm believes it can predict whether a song is likely to become a hit with eighty-percent accuracy. Platinum Blue is staunchly Kamesian, and, if you have a field dominated by those who say there are no rules, it is almost inevitable that someone will come along and say that there are. The head of Platinum Blue is a man named Mike McCready, and the service he is providing for the music business is an exact model of what Dick Copaken would like to do for the movie business.

McCready is in his thirties, baldish and laconic, with rectangular hipster glasses. His offices are in a large, open room, with a row of windows looking east, across the rooftops of downtown Manhattan. In the middle of the room is a conference table, and one morning recently McCready sat down and opened his laptop to demonstrate the Platinum Blue technology. On his screen was a cluster of thousands of white dots, resembling a cloud. This was a "map" of the songs his group had run through its software: each dot represented a single song, and each song was positioned in the cloud according to its particular mathematical signature. "You could have one piano sonata by Beethoven at this end and another one here," McCready said, pointing at the opposite end, "as long as they have completely different chord progressions and completely different melodic structures." McCready then hit a button on his computer, which had the effect of eliminating all the songs that had not made the Billboard Top 30 in the past five years.

The screen went from an undifferentiated cloud to sixty discrete clusters. This is what the universe of hit songs from the past five years looks like structurally; hits come out of a small, predictable, and highly conserved set of mathematical patterns. "We take a new CD far in advance of its release date," McCready said. "We analyze all twelve racks. Then we overlay them on top of the already existing hit clusters, and what we can tell a record company is which of those songs conform to the mathematical pattern of past hits. Now, that doesn't mean that they will be hits. But what we are saying is that, almost certainly, songs that fall outside these clusters will not be hits—regardless of how much they sound and feel like hit songs, and regardless of how positive your call-out research or focus-group research is." Four years ago, when McCready was working with a similar version of the program at a firm in Barcelona, he ran thirty just-released albums, chosen at random, through his system. One stood out. The computer said that nine of the fourteen songs on the album had clear hit potential—which was unheard of. Nobody in his group knew much about the artist or had even listened to the record before, but the numbers said the album was going to be big, and McCready and his crew were of the belief that numbers do not lie.

"Right around that time, a local newspaper came by and asked us what we were doing," McCready said. "We explained the hit-prediction thing, and that we were really turned on to a record by this artist called Norah Jones." The record was "Come Away with me." It went on to sell twenty million copies and win eight Grammy awards.

The strength of McCready's analysis is its precision. This past spring, for instance, he analyzed "Crazy," by Gnarls Barkley. The computer calculated, first of all, the song's Hit Grade—that is, how close it was to the center of any of those sixty hit clusters. Its hit Grade was 755, on a scale where anything above 700 is exceptional. The computer also found that "Crazy" belonged to the same hit cluster as Dido's "Thank You," James Blunt's "You're Beautiful," and Ashanti's "Baby," as well as older hits like "Let Me Be There," by Olivia Newton-John, and "One Sweet Day," by Mariah Carey, so that listeners who liked any of those songs would probably like "Crazy," too. Finally, the computer gave "Crazy" a Periodicity Grade—which refers to the fact that, at any given time, only twelve to fifteen hit clusters are "active," because from month to month the particular mathematical patterns that excite music listeners will shift around. "Crazy"'s periodicity score was 658—which suggested a very good fit with current tastes. The data said, in other words, that "Crazy" was almost certainly going to be huge—and, sure enough, it was.

If "Crazy" hadn't scored so high, though, the Platinum Blue people would have given the song's producers broad suggestions for fixing it. McCready said, "We can tell a producer, 'These are the elements that seem to be pushing your song into the hit cluster. These are the variables that are pulling your song away from the hit cluster. The problem seems to be in your bass line.' And the producer will make a bunch of mixes, where they do something different with the bass lines—increase the decibel level, or muddy it up. Then they come back to us. And we say, 'Whatever you were doing with mix No. 3, do a little bit more of that and you'll be back inside the hit cluster.' "

McCready stressed that his system didn't take the art out of hit-making. Someone still had to figure out what to do with mix No. 3, and it was entirely possible that whatever needed to be done to put the song in the hit cluster wouldn't work, because it would make the song sound wrong—and in order to be a hit a song had to sound right. Still, for the first time you wouldn't be guessing about what needed to be done. You would know.

And what you needed to know in order to fix the song was much simpler than anyone would have thought. McCready didn't care about who the artist was, or the cleverness of the lyrics. He didn't even have a way of feeding lyrics into his computer. He cared only about a song's underlying mathematical structure. "If you go back to the popular melodies written by Beethoven and Mozart three hundred years ago," he went on, "they conform to the same mathematical patterns that we are looking at today. What sounded like a beautiful melody to them sounds like a beautiful melody to us. What has changed is simply that we have come up with new styles and new instruments. Our brains are wired in a way—we assume—that keeps us coming back, again and again, to the same answers, the same pleasure centers." He had sales data and Top 30 lists and deconvolution software, and it seemed to him that if you put them together you had an objective way of measuring something like beauty. "We think we've figured out how the brain works regarding musical taste," McCready said. ;…

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… Those who believe in the power of broad patterns and rules, rather than the authority of individuals or institutions, are not intimidated by the boundaries and hierarchies of knowledge. They don't defer to the superior expertise of insiders; they set up shop in a small loft somewhere downtown and take on the whole music industry at once. …