Quadrivium: A Journal of Multidisciplinary Scholarship

Volume 4
Issue 1 *Issue 4, Spring 2012*

Article 6

4-27-2012

America's Idol? How the Contestant Most Voted for Doesn't Always Win

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QUADRIVIUM
A JOURNAL OF MULTIDISCIPLINARY SCHOLARSHIP

About the Author

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America's Idol? How the Contestant Most Voted for Doesn't Always Win

by Jason Gershman

Abstract

The reality television show *American Idol* has some biases which display themselves in data charts and curves of contestants' telephone voting patterns. Some of the biases examined include issues of geography and performance order. This paper shows that the format of the show leads to biases in favor of contestants who are from, and have large fan bases in, certain parts of the country. Another major flaw is a bias in favor of contestants who sing later in the show. I show that the order the contestants sing in is not random chance but instead carefully chosen by the producers. Using freely available data, these biases are exposed and ways to correct for them are explored.

Introduction

In February of 2006, an old friend emailed me a link to a Web site, www.dialidol.com (Hellriegel, 2005) and asked if it was legitimate. That innocent email led to an exciting research topic. In short, the answer is "yes," it is legitimate, but only if you're looking at the data the right way. That Web site published running tallies of voting data for *American Idol* using a software product one could download from the Web site. Less than a month later, Freemantle Media, the company which produces *American Idol*, sent Dialidol a cease-and-desist letter threatening to shut them down for a variety of reasons including copyright infringement. Well, it didn't work. The threats gave Dialidol national media attention and fan traffic to Dialidol soon increased by over 2000% and the rest is history.

How the Voting Works

What is *American Idol*?

American Idol is a spinoff of the British Show *Pop Idol* brought to the United States by a production team including former lead judge Simon Cowell. The 10th season of *American Idol* aired on the Fox Network from January through May of 2011. The show has broken all U.S. television records for most consecutive seasons rated number one in prime time. Once voting begins, when 12 contestants remain, each week one contestant is eliminated until the winner is crowned.

Each week, singers sing one at a time and fans may vote for their favorite contestants during a two-hour time block after the conclusion of the show. Fans may vote an unlimited number of times by telephone number or by text message during that two-hour time period. This process is performed on Tuesday evening and the contestant who is eliminated is revealed the following evening.

One important note is that vote tallies are not revealed to the public viewing audience. Generally, only the contestant with the lowest number of votes is revealed. The telephone numbers to vote are toll free. Another note is that votes are not carried over from week to week. Also, fans can only vote for who they want to win, not who they want to lose. You cannot vote against a contestant. Therefore, contestants who are more controversial and polarizing often last longer than those whom fans are indifferent towards.

The Data Source

The Web site Dialidol was created in 2005 by computer programmer James Hellriegel to give fans of reality shows like *American Idol* and *Dancing with the Stars* an easier way to vote. This software works with a computer's modem as a modem dialer and allows fans to vote multiple times for a single contestant without the need to hit redial.

Shortly after its creation, the Web site also started publishing the running tallies of the vote results during the course of live voting. The goal was to allow fans to make predictions and alter their vote patterns to support their favorite contestant who appeared to need the most help. The sample data shown on the Web site is the number of votes and the number of busy signals received for each contestant as an aggregate of all of those who voted using this software.

The sample is biased. It's biased towards those who care enough to use the site to vote repeatedly as well as towards those who own a computer with a modem dialer (landline). It's biased against those who vote via cell phone, text message, or email address. Despite those biases, there is the ability to make unbiased population inferences assuming that votes are awarded in equal proportion along all voting media.

The key tool in the analysis is in understanding the role of a busy signal. A busy signal is "good" for that contestant. It means other people are voting for him or her. If you *can't* get through, everyone else is calling for that contestant. If you *can* get through every time, it means no other fans are voting for that contestant except you.

This result avoids bias in the sample. It measures the population results without dependence on the sample results. It doesn't matter who you vote for but helps determine by proxy how busy a contestant's phone line is.

As stated in the introduction, the show's producers attempted to shut down the Web site feeling that the Web site correctly predicting the eliminated contestant could ruin their ratings bonanza. This attempt backfired and Web traffic to Dialidol increased and the larger sample sizes led to more accurate predictions. The week of the final four contestants in season five was a great triumph for the validity of the data and the accuracy of using this data to make predictions.

Validation on the Accuracy of the Data

The final four contestants remaining on *American Idol* season five were Taylor Hicks, Katharine McPhee, Elliott Yamin, and Chris Daughtry. Of these four, many experts predicted Chris Daughtry to win the show that season and while he has been the most commercially successful of those four finalists after *American Idol* concluded, Daughtry was eliminated in fourth place. This result was considered shocking but it was not shocking to those who had analyzed the data from Dialidol.

Idol	Busy Signals	Votes	Totals	Busy Percentage
Elliott Yamin	63406	22960	86366	73.4
Katharine McPhee	53325	32300	85625	62.3
Taylor Hicks	52752	14866	67618	78.0
Chris Daughtry	49501	30915	80416	61.6

Table 1: Raw Data from Final Four; Season Five. It shows actual busy signal and vote counts from Dialidol for the final four contestant week in *American Idol* season five.

As can be seen in Table 1 above, Chris Daughtry has the lowest percentage of all phone votes attempted which resulted in busy signals. Again, the busier a phone line, the more traffic there is and therefore more people are attempting to vote for that contestant. Indeed, it was announced that Katharine and Chris were the lowest two in terms of vote totals and that Chris was eliminated. This shocking result verified the accuracy of the data being published by Dialidol.

This data has not only been used to make predictions but to also analyze voting patterns in looking for biases in the voting system for *American Idol*.

Unfairness and Bias in *American Idol* Voting

Comparing *American Idol* to Other Voting Systems

The second most popular reality competition show in the United States is *Dancing with the Stars* (*DWTS*). *DWTS* utilizes a contrasting voting structure which results in different voting patterns than *American Idol*.

American Idol is purely based on fan votes. While the judges give commentary, criticism, and advice, they do not award a score. The contestant with the lowest fan vote on *American Idol* gets eliminated each week. Fan vote makes up only 50% of results on *DWTS* and therefore the judges have more direct input on the outcome in that format.

On *American Idol*, fans may vote for their favorite contestant by telephone and text messaging only, while *DWTS* allows for internet voting. This results in many more fans utilizing the telephone voting method on *American Idol*.

On *American Idol*, fans may vote without an upper limit on how many texts or phone calls they can attempt within the voting period. This results in huge vote totals for *American Idol* which may less accurately represent how the American public felt about the contestants and may bias the results in favor of contestants who appeal to young audiences (those who can send 1000 or more texts per hour.) *DWTS* limits fans to 5 or 10 texts per contestant per week.

On *American Idol*, fans may vote starting when the show ends for up to two hours after the show has ended. On *DWTS*, fans may vote anytime during the show or up to 30 minutes after the show has ended. This results in bias based on performance order on *American Idol*. If you perform early in that show, your fans have to wait until the end of the show (it might be two hours) in order to vote for you leading to a voting bias in favor of contestants who sing late in the show.

On *American Idol*, the contestants' phone numbers change each week depending on what order they sing on that week's show. On *DWTS*, a contestant's phone number is the same for the entire season. This better allows the contestants on *DWTS* to build a fan base around their phone number (fans can program it into their cell phone.)

While *American Idol* brags about how many votes they receive each week, *DWTS* likely yields more accurate outcomes based on its voting structure. Overall, while many interesting voting pattern emerge, there are two key biases in *American Idol*. One is performance order which is introduced above and the other is geography.

Geographical Bias

One of the main biases in *American Idol* voting is that fans voting in different parts of the country have different voting power. The audience has two hours to vote at the conclusion of the show when it has aired in their time zone. A typical performance show airs from 8:00–10:00 p.m. Eastern Time. The show airs live in the Eastern and Central time zones. The show airs on a one hour tape-delay in the Mountain time zone and airs on a three hour tape-delay in the Pacific time zone.

To summarize (with reference times given in Eastern Standard Time):
From 10:00–11:00 p.m. (EST), the Eastern and Central Time Zones (78% of the country) can vote
From 11:00 p.m.–12:00 a.m. (EST), the Eastern, Central, and Mountain Time Zones (84% of the country) can vote
From 12:00–1:00 a.m. (EST), the Mountain Time Zone (6% of the country) can vote
From 1:00–3:00 a.m. (EST), the Pacific and Alaskan Time Zones (15.5% of the country) can

vote
From 3:00–5:00 a.m. (EST), the Hawaiian Time Zone (less than 0.5% of the country) can vote

Note: Puerto Rico and the U.S. Virgin Islands watch the show live and vote with the Eastern and Central Time Zones.

The answer to why this is important comes from the issue of busy signals. *American Idol*, being so popular, cannot handle all of the calls which come in to vote, especially in the time period just after the show has aired. Being well past the saturation point, sometimes only 10–25% of all calls are recorded as votes and the rest are busy signals. The toll-free phone lines for contestants could be busy at either the regional or the national level.

Suppose that John Smith in Boston calls for his favorite contestant, contestant A, 1000 times but the phone line is at 50% busy signal because he is competing with all of those in the Eastern and Central time zone. Then, only 500 votes get recorded for contestant A.
Suppose Sally Johnson in Salt Lake City calls for her favorite contestant, contestant B, 1000 times but the phone line is at 5% busy signal because the Mountain time zone votes by itself for one hour. Then, 950 votes get recorded for contestant B.

American Idol counts votes received not intended votes. In this case, 1000 votes were attempted for each contestant but the votes received see a marked 950 to 500 advantage for contestant B.

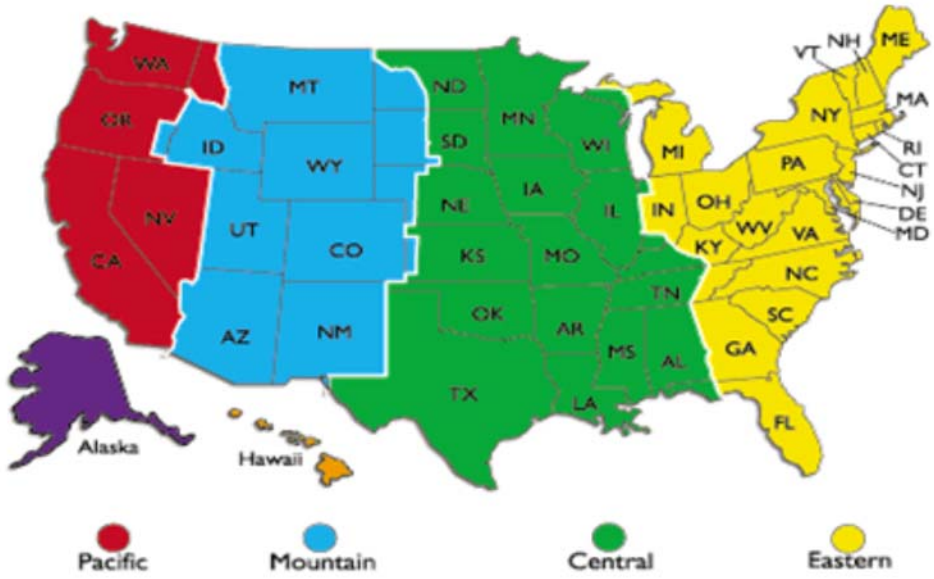

Figure 1: United States Time Zones

Contestants tend to have large fan bases near their hometowns. In *American Idol* season three, one of the contestants, Jasmine Trias, was from Hawaii. Despite mediocre performances, she finished third that season, ahead of future Grammy and Oscar winner Jennifer Hudson. The Hawaiian vote was enormous and unlike the rest of the country where less than half of the votes

may go through, Hawaii rarely has any busy signals and thus a Hawaiian vote could be worth 2–5 times each mainland vote. Since that season, *American Idol* has not returned to Hawaii for contestant tryouts.

In season six, the final three contestants were: Melinda Doolittle from Nashville (29 years old), Jordin Sparks from Phoenix (17 years old), and Blake Lewis from Seattle (25 years old.) The voting was very close and Dialidol showed similar overall busy percentages for each contestant but Melinda had a slight overall lead. But, Melinda was eliminated that week with the lowest vote total. It can be argued that Dialidol was wrong because of the impact of texting (based on Melinda's age and style of music, her fans were likely older and less likely to vote via text message which Dialidol cannot account for.)

But, a closer analysis of voting patterns broken down by geography reveals an alternative explanation. Jordin Sparks had a large voting advantage in Arizona, Blake Lewis had a large voting advantage in Washington, and Melinda Doolittle had a large voting advantage in Tennessee. This popularity in a contestant's home state is not surprising. But, like the example of John Smith and Sally Johnson, Jordin and Blake had bigger actual advantages because their large home fan bases had less phone line competition. They may have had fewer votes attempted but more votes received and that is based on the geographical bias of the structure of the voting.

The best solution to the issue of geographical voting bias is not easily apparent. The approach which would seem most fair is to limit each caller to a fixed number, such as five, of votes per phone line per contestant as *Dancing with the Stars* does. This way, while it may take 25 attempts in the east coast versus 5 attempts in Hawaii, every phone number gets the same number of maximum votes received.

Another possible solution would be to weight the final vote by time zone. This can be done by adjusting the number of votes received per minute as a function of geography (to try to get similar curves of busy signals in each time zone.) The last and probably least successful alternative would be to allow everyone to vote from 10:00 p.m.–5:00 a.m. EST whether the show has aired yet in their time zone or not.

Performance Order Bias

The order that you sing on the show is very important. The phone lines do not open until the end of the show. If you sing from 9:52–9:57 p.m., you are fresh in the mind of the voters as you "close the show." If you sing from 8:05–8:10 p.m. and the phone lines don't open until 10:00 p.m., your fans may have forgotten you or gone to sleep or watched something else and by the time voting begins, you're a distant memory.

Voting patterns in Dialidol repeatedly show that contestants who sing at the end of the show get higher vote totals, especially in the first 20 minutes of telephone voting when the largest call volume is received.

For a majority of the season, a contestant is assigned their order in the performance by the producers. While not stated in the rules, producers claim that performance order is assigned based on gender (trying to alternate boy/girl) or by commonalities in set design for a live show

(if two contestants use a piano, they will be put back-to-back to make set changes easier) and that it's not intended to favor one contestant more than others. Only in the final week is the order determined by a public coin flip and by this point the order is meaningless.

According to media reports and interviews with contestants who were voted off, Adam Lambert was given preferential treatment on *American Idol* season 8 by the producers. The rumors were that:

He was allowed to get the first choice of song
He got to monopolize the time of the band to perfect his arrangement
He was allowed to practice after-hours with vocal coaches
He got to sing at the end of each show

While we cannot test the other three rumors, we can test the claim that Adam Lambert was given prime positions in the singing order in the 10 weeks leading up to the finals.

Week	Adam's Spot	Number of Singers
1	11	13
2	5	11
3	8	10
4	8	9
5	8	8
6	3	7
7	5	7
8	5	5
9	3 and 4	4
10	3	3

Table 2: Adam Lambert's Singing Position. Note that in week nine, Adam sang in a duet which closed the show which is why he was in spots 3 and 4.

Adam Lambert sang last to close the show 3 out of 9 times (4 out of 10 including the duet). He sang among the final 1/3 of contestants 8 out of 10 times. He never sang in the opening 1/3 of all contestants.

In testing the claim that Adam Lambert sang in the final half of contestants more often than he should have by chance, we have the data that he sang in the final half 8 out of 10 times. Testing this hypothesis yields a p-value of 0.029. At a 0.05 significance level, we reject the null in favor of the alternative hypothesis. Indeed, Adam Lambert sang in the final half more often than he should have by chance.

The choice of final half was conservative and in fact final third would have been more aggressive and just as accurate. There is little doubt that the order that Adam sang on the show was not random but indeed was based on manipulation by producers to try to have the most marketable singer perform in a prime spot for ratings and record sales.

One solution to make performance order fair is to have all contestants each week randomly choose their position in a fair and open way (like the Kentucky Derby pill draw.)

Another solution would be to open the phone lines when the show begins rather than waiting until after the show. In conjunction, give every contestant a static phone number that does not change from week to week. *Dancing with the Stars* utilizes these voting techniques.

Another solution is to apply a fair order like that used in fair lane assignments in BMX racing and Drag Racing (Tapia, 1999.) Here, assign the entire singing order for all weeks before the start of week one as an ordered *n*-tuplet for each singer. Each week delete a new row but everyone else sings as assigned. This can works for 10 weeks (week of 12 singers through week of 3 singers) on *American Idol*.

Singer	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
A	1	12	6	7	2	11	5	8	3	10
B	2	11	4	9	5	8	3	10	6	7
C	3	10	5	8	4	9	6	7	1	12
D	4	9	1	12	6	7	8	5	10	3
E	5	8	9	4	11	2	12	1	7	6
F	6	7	11	2	3	10	1	12	9	4
G	7	6	12	1	8	5	10	3	11	2
H	8	5	10	3	7	6	2	11	4	9
I	9	4	2	11	1	12	7	6	8	5
J	10	3	8	5	9	4	11	2	12	1
K	11	2	3	10	12	1	4	9	5	8
L	12	1	7	6	10	3	9	4	2	11

Table 3: Sample *n*-tuplet for 12 Singers and Performance Order for 10 Weeks

Concluding Remarks

American Idol has a very interesting and flawed voting system. There are numerous ways to make *American Idol* fairer than it is today. But, as long as the ratings are high, producers really couldn't care less about fairness. Notice that despite the producer's best efforts, Adam Lambert did not win this season; Kris Allen did.

Each year the role of text messaging gets greater and greater (and cannot be tracked by Dialidol or any other method) making predicting harder to do. But, overall the data from Dialidol, if analyzed correctly, can be used for making accurate predictions.

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