Estimating the Probability of Winning the Best Actor/Actress Award Conditional on the Best Picture Nomination with Bayesian Hierarchical Models

Authors : Svetlana K. Eden

Abstract : Movies and TV shows have long become part of modern culture. We all have our preferred genre, story, actors, and actresses. However, can we objectively discern good acting from the bad? As laymen, we are probably not objective, but what about the Oscar academy members? Are their votes based on objective measures? Oscar academy members are probably also biased due to many factors, including their professional affiliations or advertisement exposure. Heavily advertised films bring more publicity to their cast and are likely to have bigger budgets. Because a bigger budget may also help earn a Best Picture (BP) nomination, we hypothesize that best actor/actress (BA) nominees from BP-nominated movies would have higher chances of winning the award than those BA nominees from non-BP-nominated films. To test this hypothesis, three Bayesian hierarchical models are proposed, and their performance is evaluated. The results from all three models largely support our hypothesis. Depending on the proportion of BP nominations among BA nominees, the odds ratios (estimated over expected) of winning the BA award conditional on BP nomination vary from 2.8 [0.8-7.0] to 4.3 [2.0, 15.8] for actors and from 1.5 [0.0, 12.2] to 5.4 [2.7, 14.2] for actresses.

Keywords : Oscar, best picture, best actor/actress, bias
Conference Title : ICABS 2021 : International Conference on Applied Bayesian Statistics
Conference Location : London, United Kingdom
Conference Dates : March 15-16, 2021