Performance of the Wald Ratio for $z$-Proportion Tests

Illustration of the relationship between sample size and standard error for the proportion test for three proportions. Wald uses the obtained sample proportion, $p$, for calculating the standard error,

$$SE_{Wald} = \frac{p(1-p)}{n},$$

whereas the score test uses the population null proportion, $\pi$ (assumed .5 here), for computation of the standard error,

$$SE_{score} = \sqrt{\frac{\pi(1-\pi)}{n}}.$$

Note that the Wald and the score are the same thing when the obtained sample proportion is .5.
Figure 5. A Comparison of Coverage Probabilities for the Nominal 95% Wald, Score, and Exact intervals for a Poisson Mean.