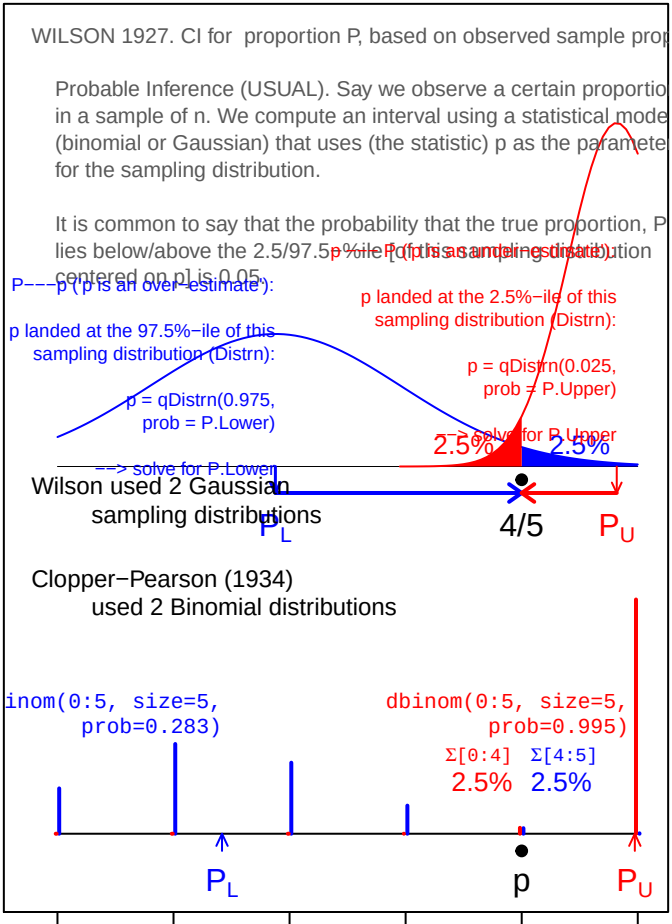
WILSON 1927. CI for proportion P, based on observed sample prop

Probable Inference (USUAL). Say we observe a certain proportio
in a sample of n. We compute an interval using a statistical mode
(binomial or Gaussian) that uses (the statistic) p as the paramete
for the sampling distribution.

It is common to say that the probability that the true proportion, P
lies below/above the 2.5/97.5%-ile p (of this sampling distribution)
centered on p] is 0.05.



WILSON 1927 (continued...)

Strictly speaking, this statement is elliptical. Really the chance tha
P lies outside a specified range is either 0 or 1. It is the observed
proportion p which has a greater or less chance of lying within a c
interval of P. If the observer was unlucky to have observed a rare
event and to have based his inference thereon, he may be fairly w
of the mark.

Probable Inference (IMPROVED). A better way is to reason:

There is some [true] P. Consider 2 scenarios: