

The Bonferroni approach to multiple comparisons

stats545.4 545.4 Multivariate confidence intervals

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The multiplicity issue

Consider testing k independent hypotheses, each at level α .

Then, since

$$P[\text{conclusion } i \text{ is incorrect}] = \alpha$$

we obtain

$$P[\text{conclusion } i \text{ is correct}] = 1 - \alpha,$$

and therefore

$$P[\text{an error occurs}] = 1 - P[\text{all correct}] = 1 - \prod_{i=1}^k P[\text{conclusion } i \text{ is correct}]$$

LSD

Consider just doing a whole bunch of t-tests

This amounts to saying "There is something significant going on if there is anything significant seen"

This is the method of **Least Significant Difference** and has a very large potential error rate

Bonferroni confidence intervals

Bonferroni intervals:

Simple

Always work

Conservative

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