

- One possibility could be that we do multiple t-tests – but there's a problem with that.
- With one t-test, at  $p < 0.05$  level of significance there is a 5% chance of falsely rejecting our null hypothesis (type I error).
- If we have three conditions, then we have three pairs of means to compare (condition 1 vs condition 2, condition 2 vs condition 3 and condition 1 vs condition 3).

- For each test, there is 0.95 probability of not having a type I error.
- But when we do three tests the probability is  $0.95 \times 0.95 \times 0.95$  which equals 0.857.
- So that means there is a 14.3% chance of us falsely rejecting the null hypothesis  $(1 - 0.857) \times 100 = 14.3$