



Specification Based Testing – Part 2

Combinatorial Coverage as an Aspect
of Test Quality

Objective



Objective

Apply
combinatorial test
coverage to
assess test
quality

Assessing Test Quality



| Numerous approaches exist for assessing test quality including:

- Combinatorial coverage
- Mutation testing

| Combinatorial coverage looks at how combinations of parameter values are tested together

| Various studies show that most failures can be detected with combinations of a small number of parameters

https://ws680.nist.gov/publication/get_pdf.cfm?pub_id=917352

Total t-way Coverage

| For a given test set of “n” variables and values, proportion of t-way variable-value combinations that are executed

| E.g. Assume we are testing a function with 3 variables:

- Variable a: has values 0 and 1
- Variable b: has value 0 and 1
- Variable c: has values 0 and 1

| What is the total 2-way variable-value configuration coverage achieved by the following tests:

a=0; b=0; c=0

a=1; b=1; c=1

a=1; b=0; c=0

Summary

