

An Applicable Family of Data Flow Testing Criteria

- Assumptions about the program
 - No
 - goto statements
 - with
 - variant records

Simple Statements

Repetitive Statements

Repetitive Statements

Repetitive Statements

Conditional Statements

Conditional Statements

Entry and exit nodes

- Entry node
 - Has the definition of

Arrays

- It is impossible to determine the particular array element which is being used or defined in an occurrence of an array variable
 - $A[2]$
 - $A[i+j]$
- Definition of $a[\text{expr}]$
 - $A \text{ c-.9(each vari t)12(riab in)-6}$
 -

Records & Files

- Records

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Explanation

- If $x \in \text{def}(i)$ and $j \in$

Yet more definitions

All-DU-paths criterion

- If variable x has a global definition in node i , the all-DU-paths criterion requires the test data to exercise all paths which go from i to each node and edge at which the value assigned to x in node i is used

Other DF testing criteria

- All-p-uses
- All-c-uses
- All-p-uses/some-c-uses
- All-c-uses/some-p-uses

Definitions of DF criteria

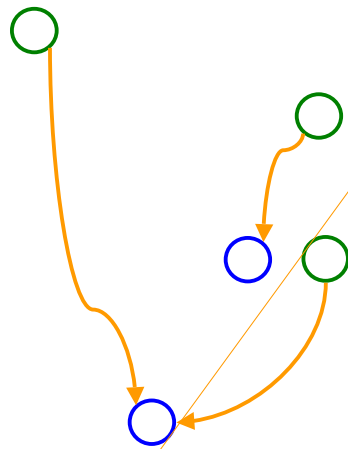
Executable/Feasible Paths

- Recall
 - Complete path
 - Path from the entry node to the exit node
- Executable/feasible complete path
 - A complete path that is executed on some assignment of values to input variables
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Interprocedural DF Testing

- Most DF testing methodologies deal with dependencies that exist within a procedure (i.e., intraprocedural)

The Def-uses



Any missed
def-uses?

```
module Main
  declare
  begin
    for i in 1..10 loop
      ...
    end loop
  end
end;
```