ADA SOURCE CODE ANALYSIS FOR AUTOMATIC TEST CASE GENERATION

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ABSTRACT

A multi-purpose semantic analyzer. front-end for Ada has been developed by Boeing to meet a variety of Ada source code analysis needs which arise from time to time. One of those needs is the automatic generation of glass-box test cases. Glass-box test case generation requires control and data flow information in conjunction with semantic information on subprogram. interfaces and local declarations. Control flow analysis will be needed to address statement and path coverage issues. Data flow analysis can be used to force execution through potentially anomalous paths. Semantic analysis provides prerequisite information for generating acceptable test cases in these cases, as well as for boundary condition testing. This paper presents a design of a back-end for the multi-purpose front-end which will compute control and data flow information required for automatic test case generation.