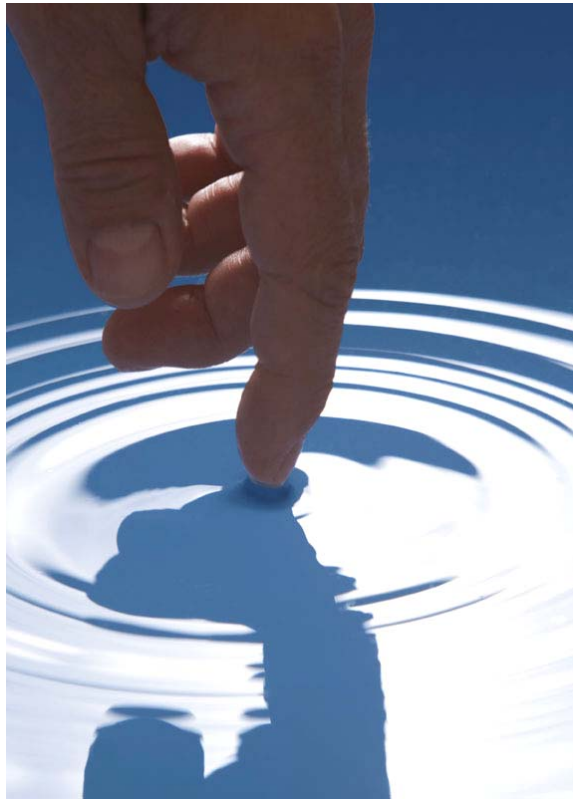
ParTeG – Integrating Model-Based Testing and Model Transformations

Stephan Weißleder
Fraunhofer FIRST

Dehla Sokenou
GEBIT Solutions



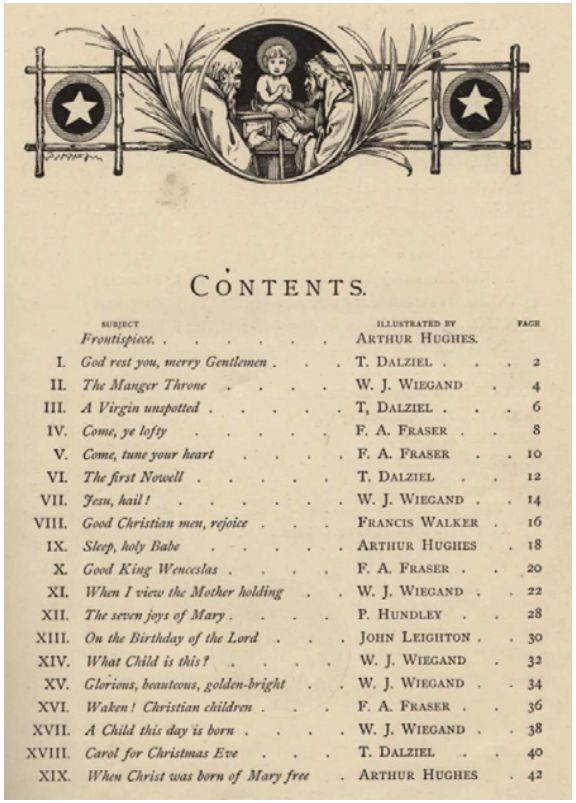
Industrietag SE2010

Table of Content

Model-based testing

Improving test quality with ParTeG
- Combination of coverage criteria
- Model transformations

Tool demo



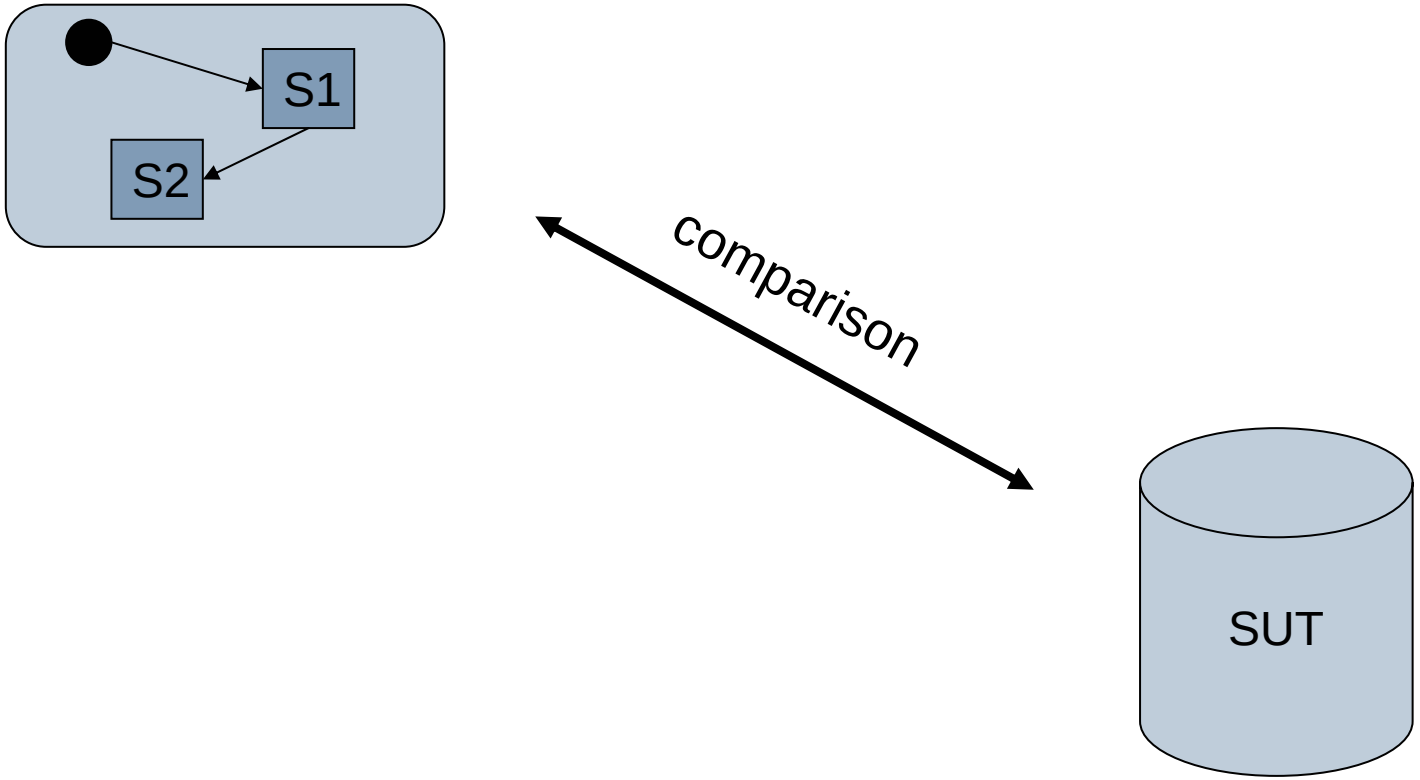
CONTENTS.

	SUBJECT	ILLUSTRATED BY	PAGE
	Frontispiece.	ARTHUR HUGHES.	
I.	*God rest you, merry Gentlemen*	T. DALZIEL	2
II.	*The Manger Throne*	W. J. WIEGAND	4
III.	*A Virgin unspotted*	T, DALZIEL	6
IV.	*Come, ye lofty*	F. A. FRASER	8
V.	*Come, tune your heart*	F. A. FRASER	10
VI.	*The first Nowell*	T. DALZIEL	12
VII.	*Jesu, hail!*	W. J. WIEGAND	14
VIII.	*Good Christian men, rejoice*	FRANCIS WALKER	16
IX.	*Sleep, holy Babe*	ARTHUR HUGHES	18
X.	*Good King Wenceslas*	F. A. FRASER	20
XI.	*When I view the Mother holding*	W. J. WIEGAND	22
XII.	*The seven joys of Mary*	P. HUNDLEY	28
XIII.	*On the Birthday of the Lord*	JOHN LEIGHTON	30
XIV.	*What Child is this?*	W. J. WIEGAND	32
XV.	*Glorious, beauteous, golden-bright*	W. J. WIEGAND	34
XVI.	*Waken! Christian children*	F. A. FRASER	36
XVII.	*A Child this day is born*	W. J. WIEGAND	38
XVIII.	*Carol for Christmas Eve*	T. DALZIEL	40
XIX.	*When Christ was born of Mary free*	ARTHUR HUGHES	42

GEBIT Solutions Fraunhofer FIRST

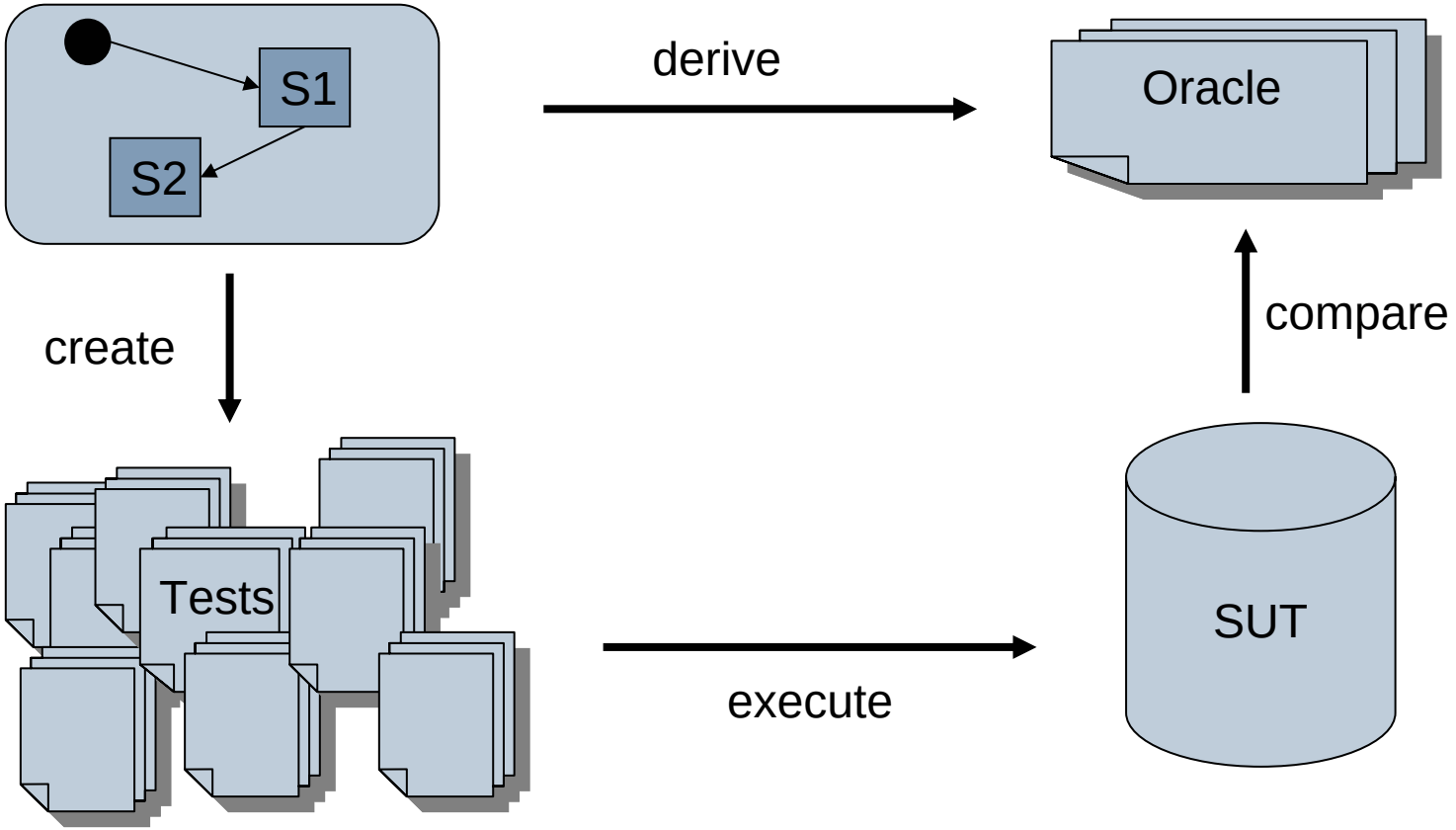
Model-Based Testing

Introduction to Model-Based Testing



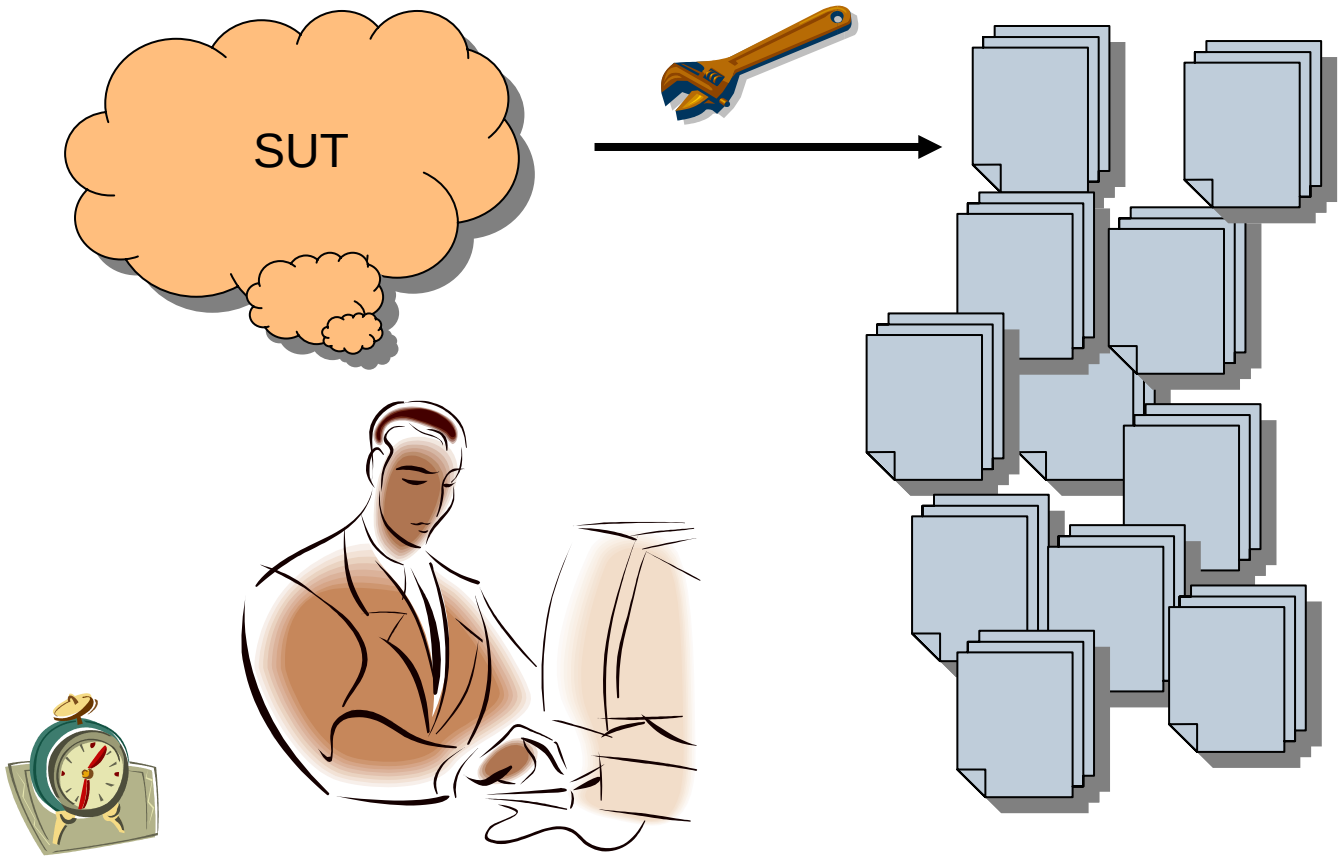
GEBIT Solutions Fraunhofer FIRST

Introduction to Model-Based Testing



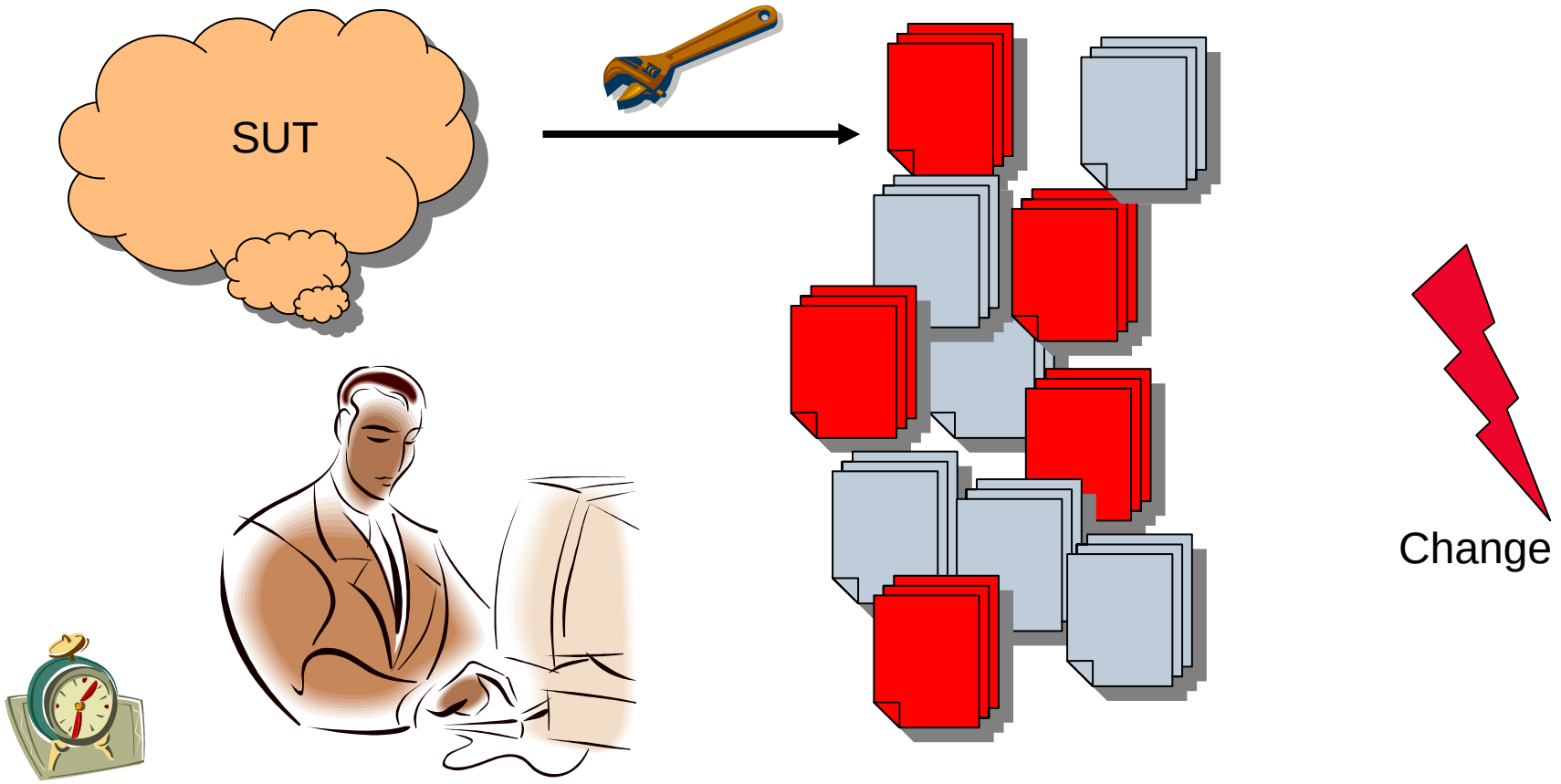
GEBIT Solutions Fraunhofer FIRST

Manual Test Creation



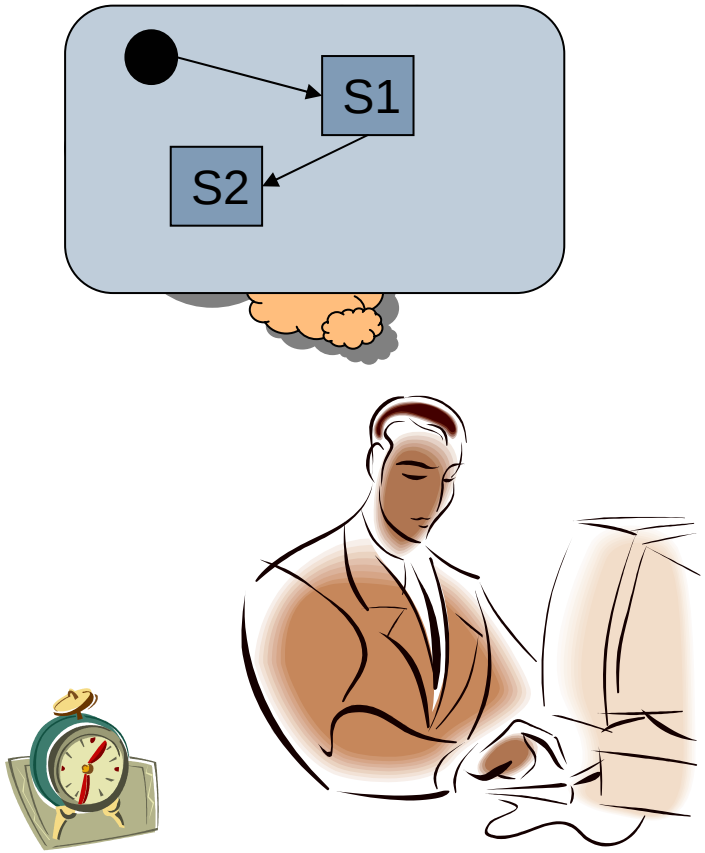
GEBIT Solutions Fraunhofer FIRST

Manual Test Creation



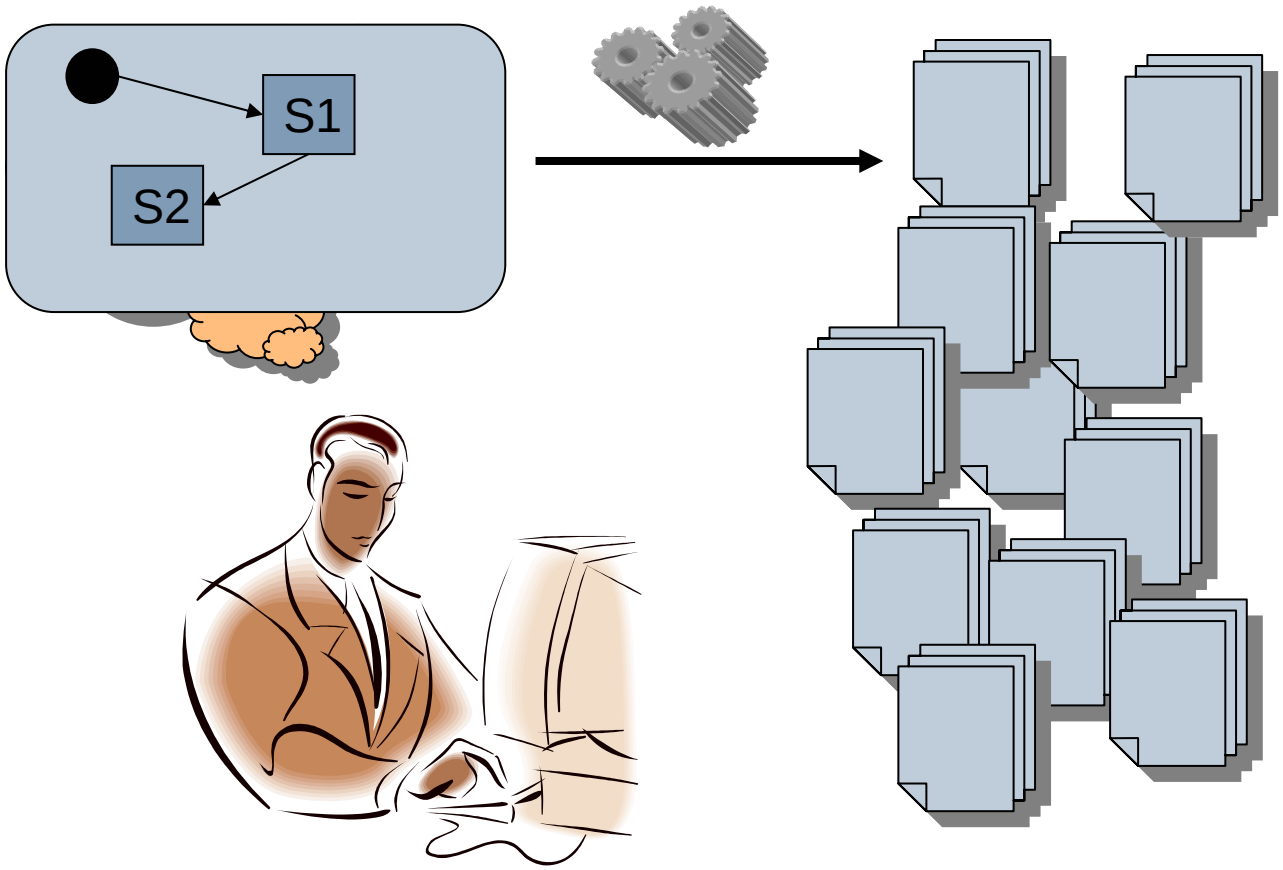
GEBIT Solutions Fraunhofer FIRST

Automatic Model-Based Test Generation



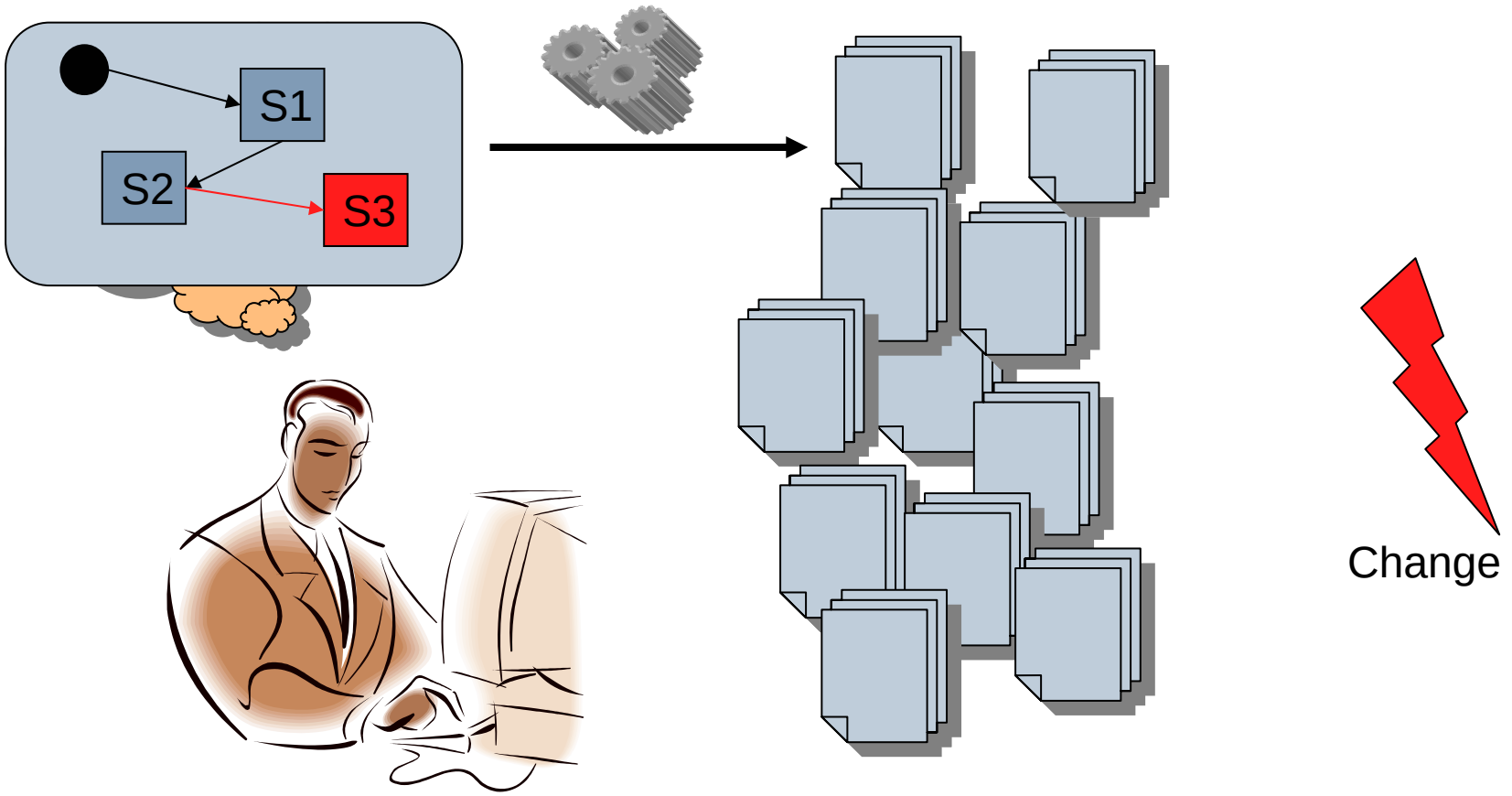
GEBIT Solutions Fraunhofer FIRST

Automatic Model-Based Test Generation



GEBIT Solutions Fraunhofer FIRST

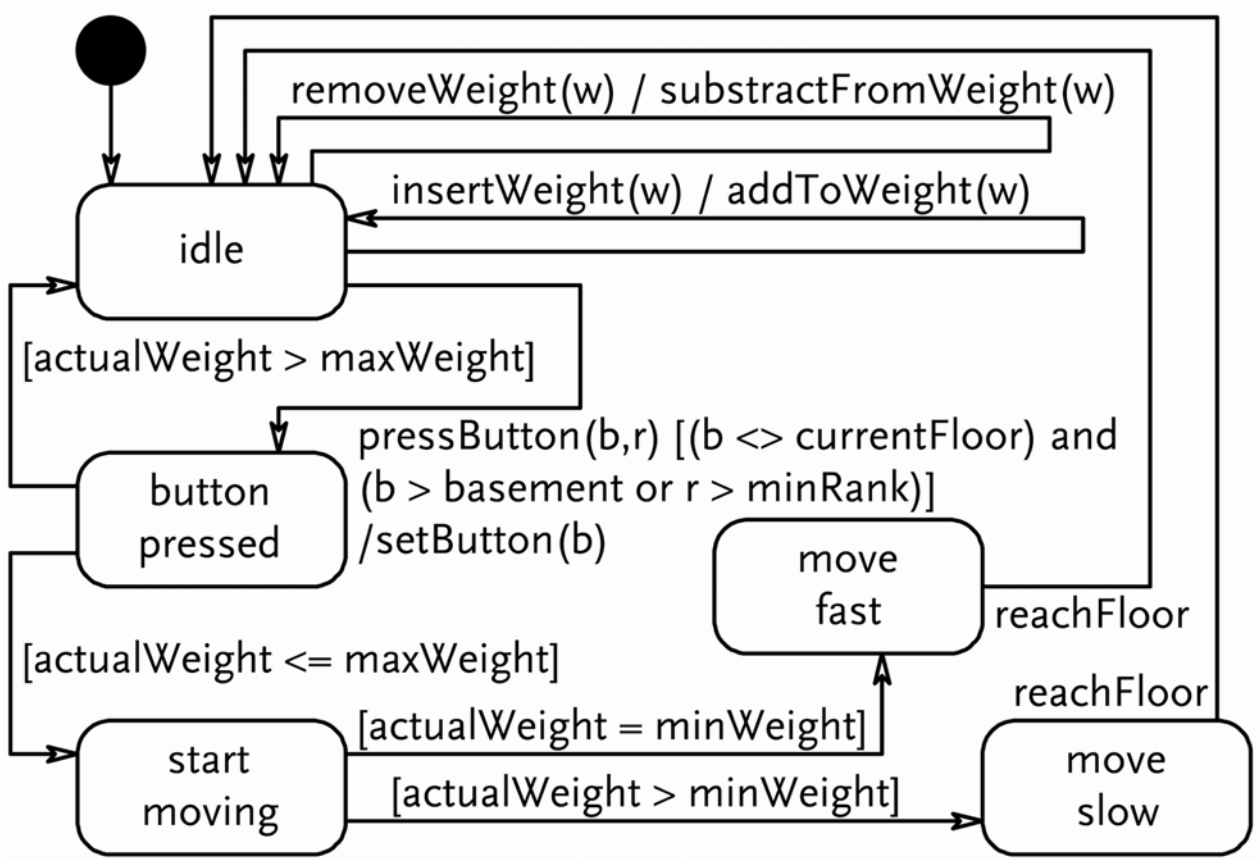
Automatic Model-Based Test Generation



GEBIT Solutions Fraunhofer FIRST

Combination of Coverage Criteria

Example of a Freight Elevator



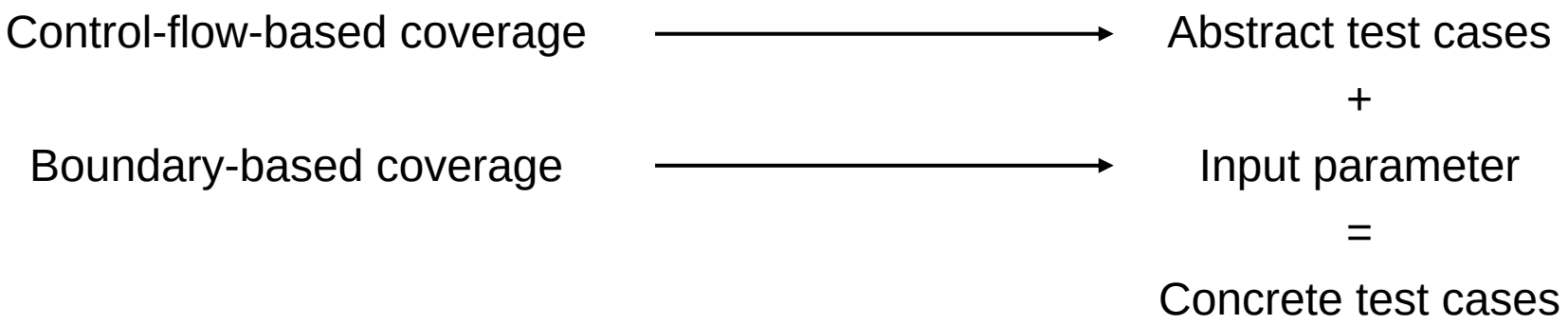
GEBIT Solutions Fraunhofer FIRST

Combination of Coverage Criteria

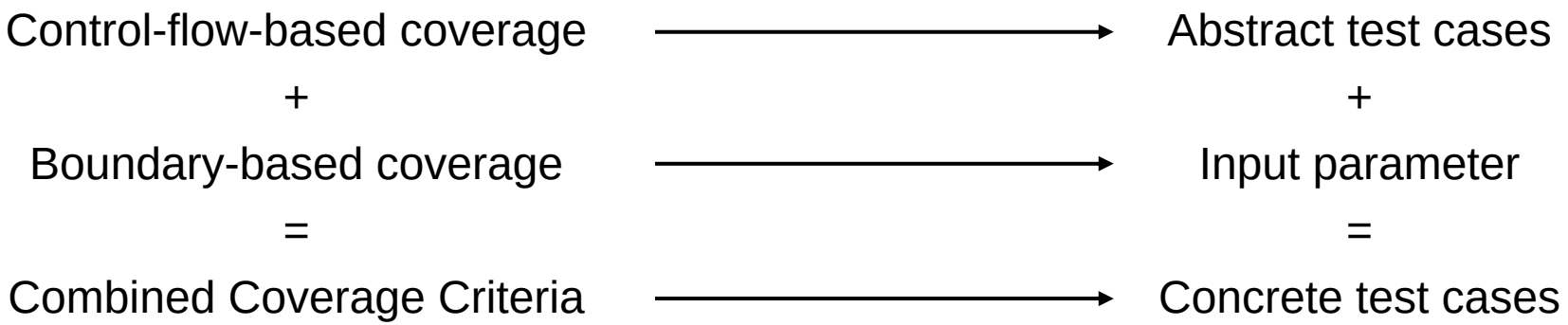
Control-flow-based coverage → Abstract test cases

Boundary-based coverage → Input parameter

Combination of Coverage Criteria



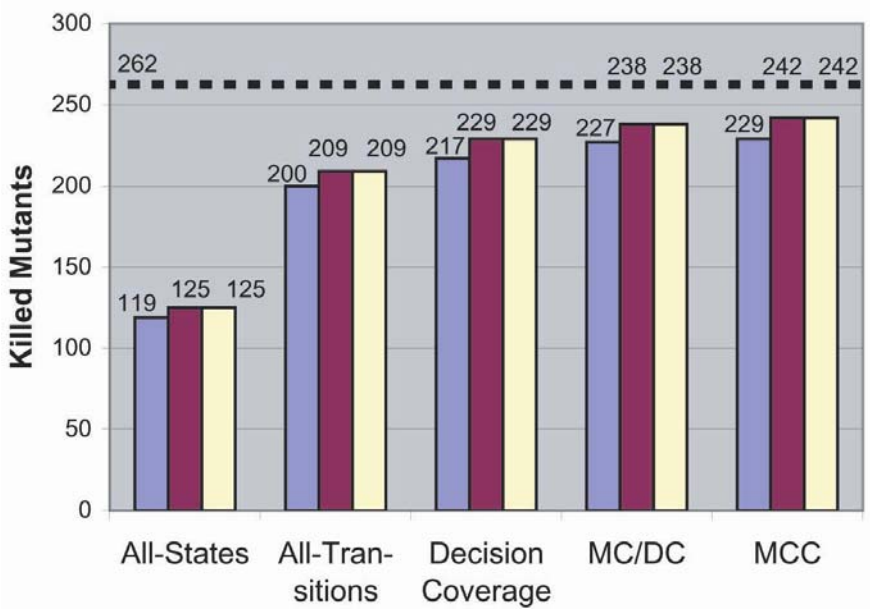
Combination of Coverage Criteria



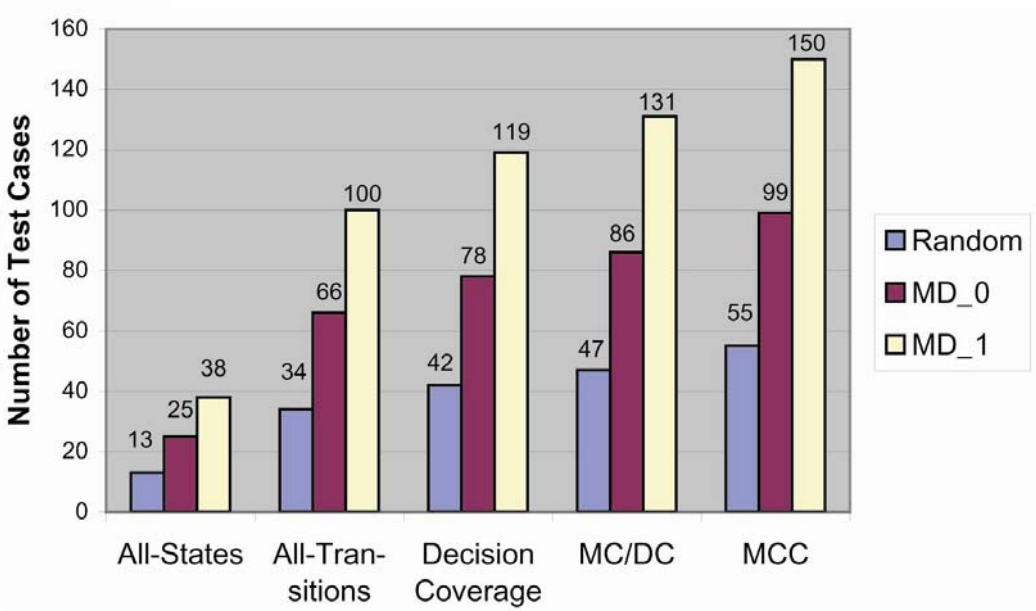
GEBIT Solutions Fraunhofer FIRST

Results of Application – Industrial Cooperation

Java Mutation Analysis



Test Costs



GEBIT Solutions Fraunhofer FIRST

Model Transformations

Test Model Transformations

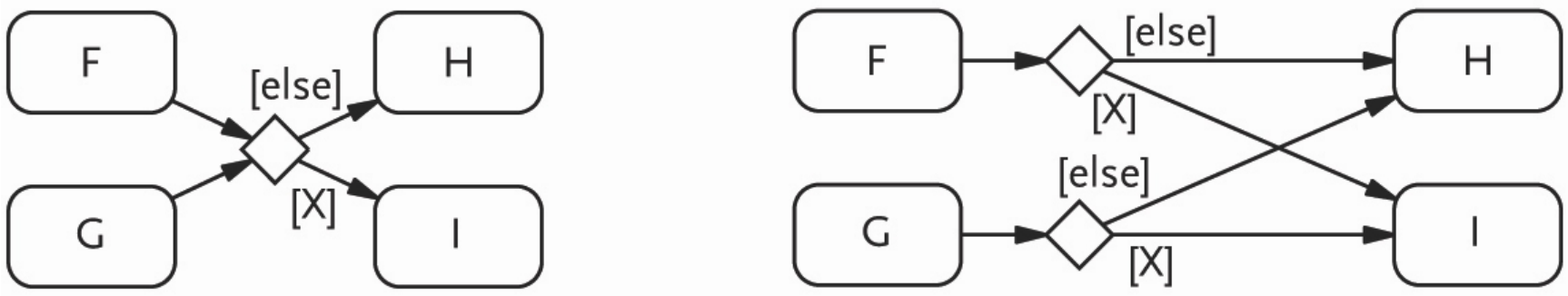
Scenario:

Coverage criteria are focussed on the structure of the test model

Test cases test the behavior of the SUT

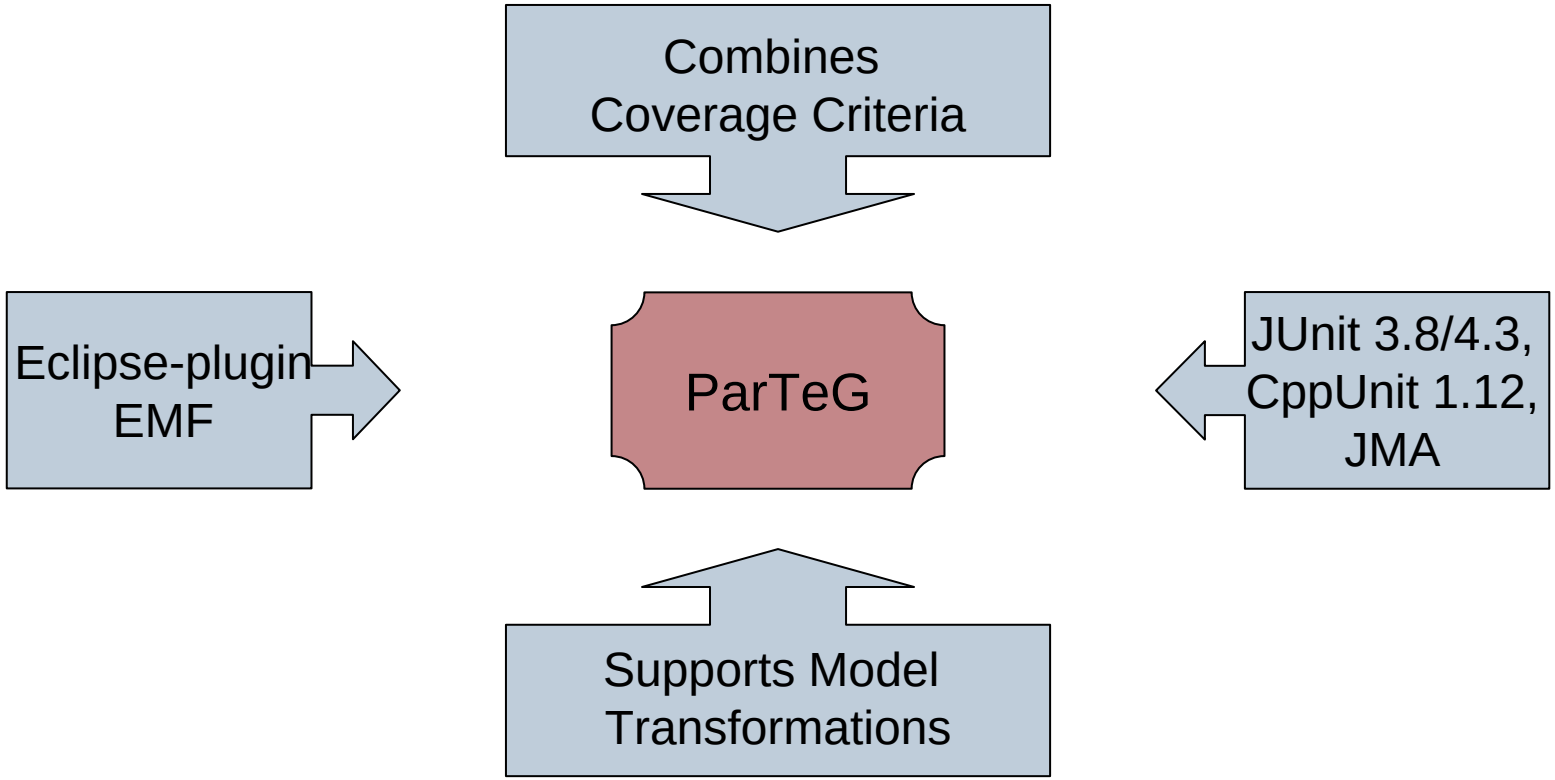
Idea:

Transform the test model in a semantic-preserving manner



GEBIT Solutions Fraunhofer FIRST

Partition Test Generator



GEBIT Solutions Fraunhofer FIRST

Tool Demo

GEBIT Solutions

Fraunhofer FIRST

Conclusion

Model-based testing

ParTeG – Partition Test Generator

Combination of coverage criteria

Support of model transformations

Advantages beyond the application of single coverage criteria

Contact:
stephan.weissleder@first.fraunhofer.de
+49 (0)30 6392 1876

Quality of Model-Based Testing
QuoMBaT @ ICST 2010 (April 6th)
www.model-based-testing.de/quombat10

GEBIT Solutions Fraunhofer FIRST