

Test Transmutation

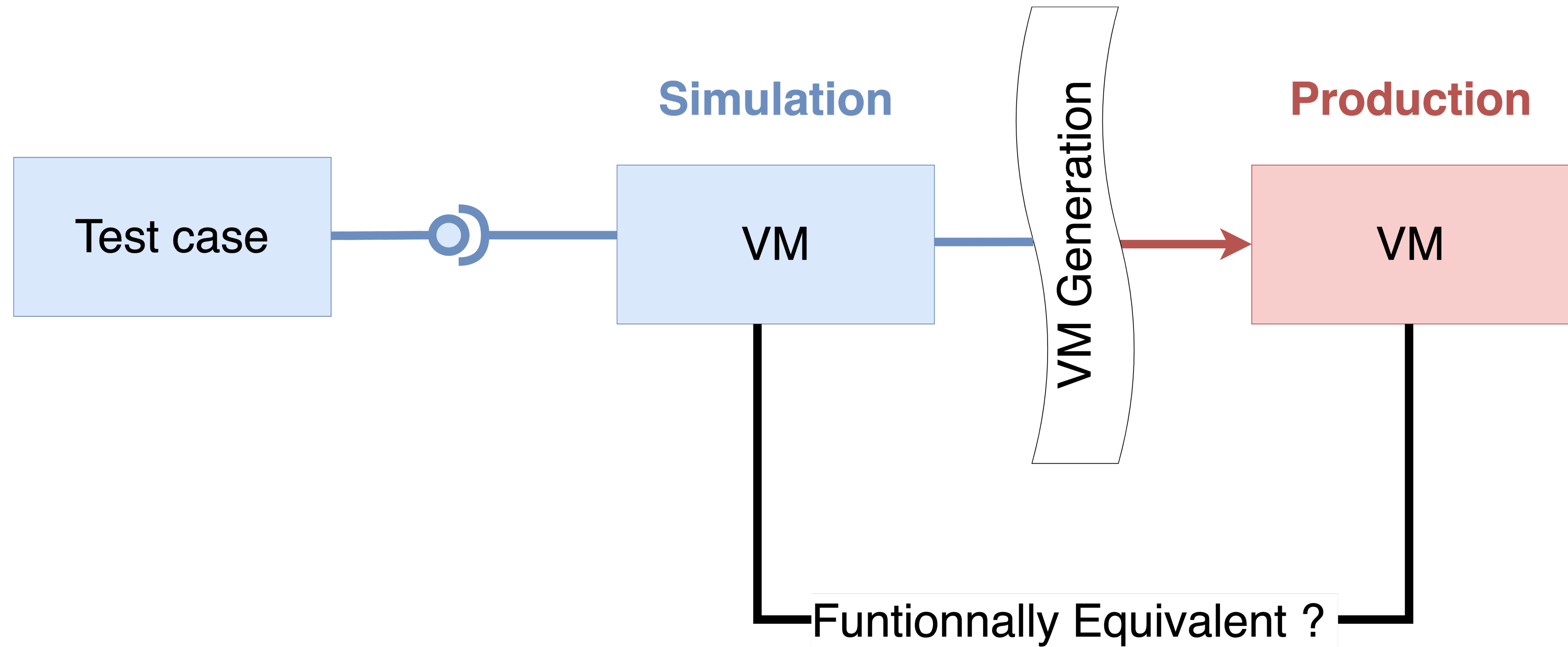
Differential Testing of Simulation-Based Virtual Machines Generators

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Simulation-based testing

Is it enough?



Simulation-Based Testing

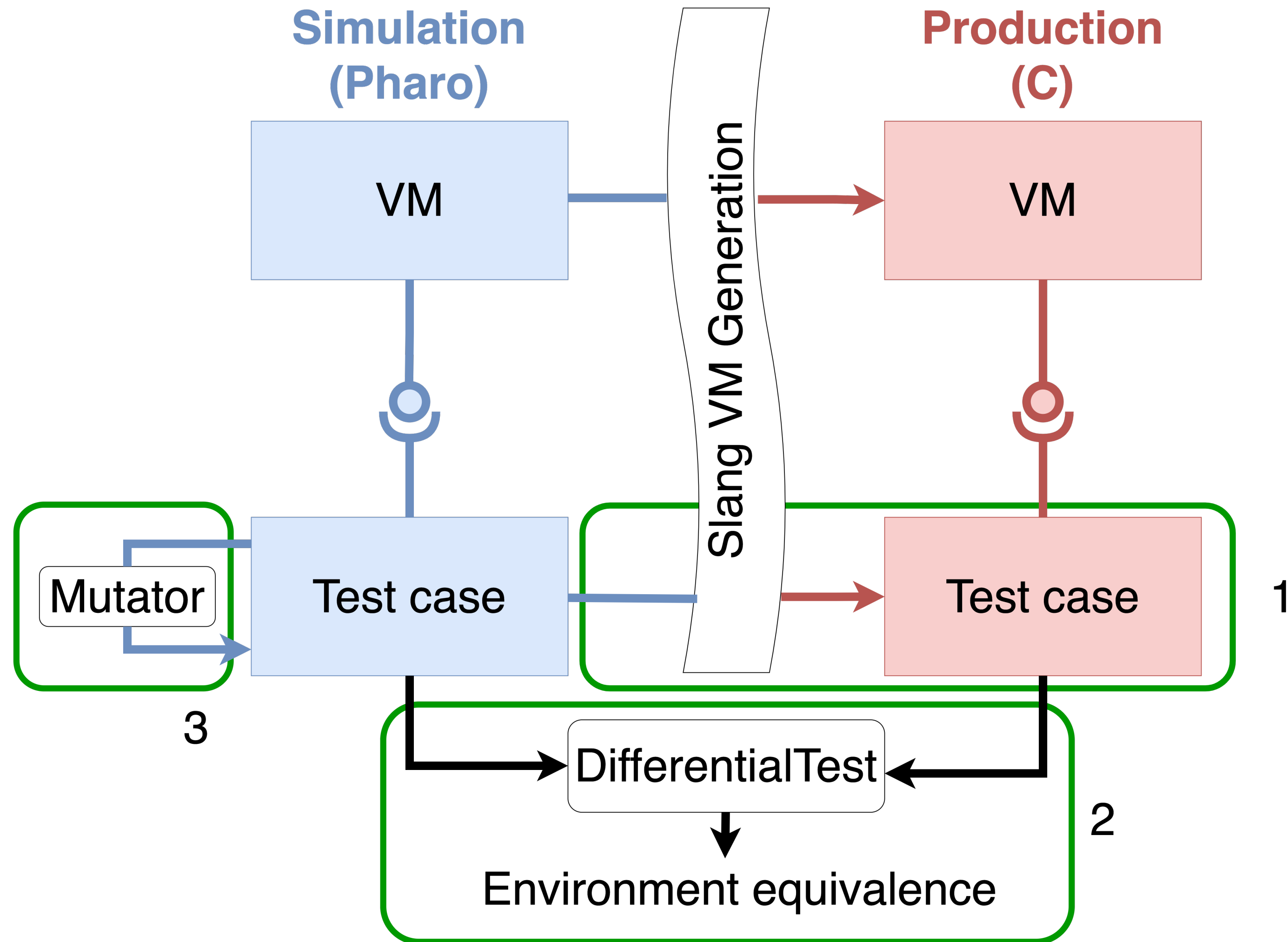
A method and its production version

```
primitiveNaturalLogarithm
  <var: receiver type: #double>
  | receiver |
  receiver := self stackFloatValue: 0.
  ^ self
  productionCode: [ receiver log ]
  simulationCode: [ receiver ln ]
```

```
double primitiveNaturalLogarithm() {
  double receiver;
  receiver = stackFloatValue(0);
  return log(receiver);
}
```

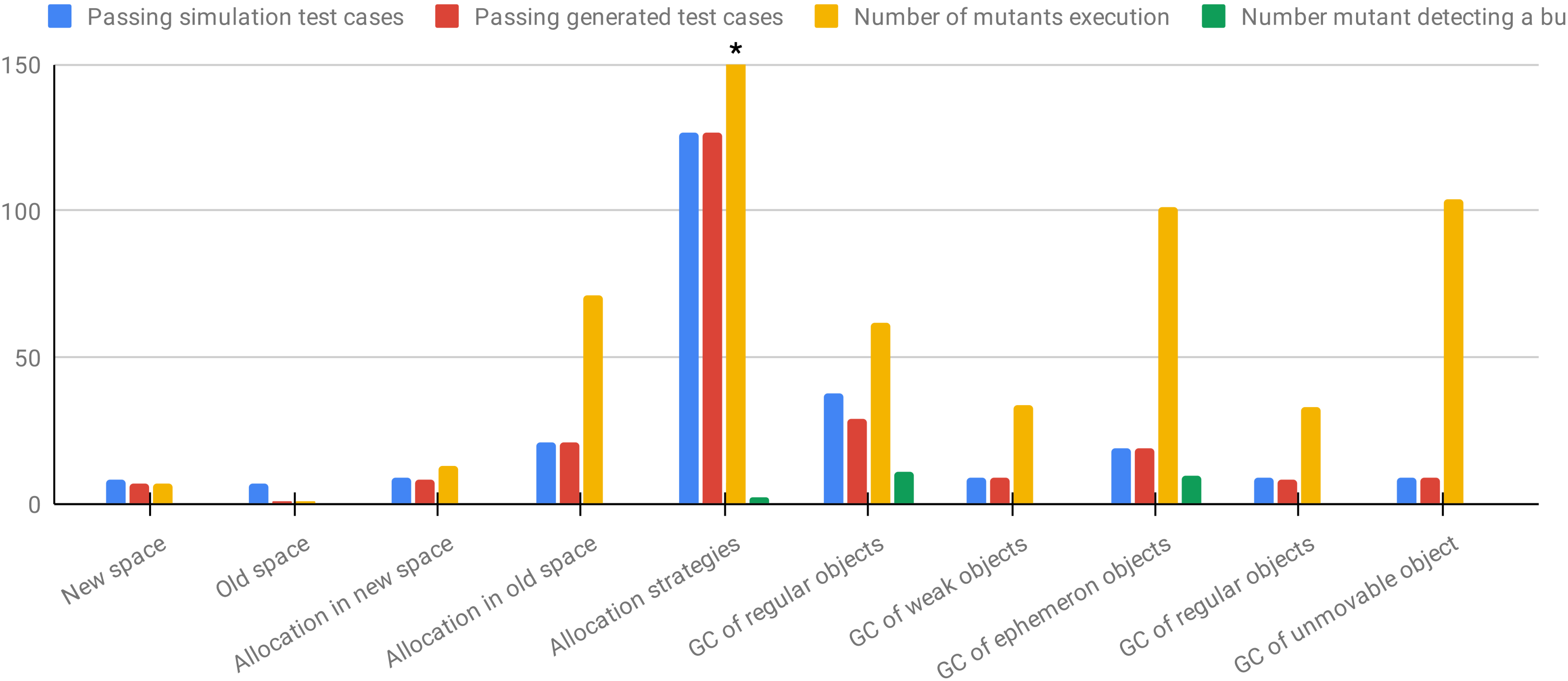
Test Transmutation

Overview



Preliminary Results

Statistics



Conclusion

- Test Transmutation : a new technique to test VM developed in Simulation based VM generators
- Key features
 - Test Case Generation
 - Test Result Differential Testing
 - Test Case Mutation

