Coverage Report for statechart

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Analysis Information

Coverage Data Information

Collected in version	(R2024b)

Model Information

Model version	1.10
Author	adetunji
Last saved	Sat Jun 07 05:38:58 2025

Simulation Optimization Options

Default parameter behavior	tunable
Block reduction	forced off
Conditional branch optimization	on

Coverage Options

Analyzed model	statechart
Logic block short circuiting	off

Tests

Test	Started execution	Ended execution
Run 1	07-Jun-2025 11:16:24	07-Jun-2025 11:16:32

Summary

Model Hierarchy/Complexity	Run 1			
		Decision		Execution
1. statechart	30	79%		100%

2. . . . Button Response Observer	9	54%		100%	
3. . . . . Chart	9	54%		NA	
4. . . . . SF: Button Response Observer/Chart	8	54%		NA	
5. . . . Car Green Time Observer	7	88%		100%	
6. . . . . Chart	7	88%		NA	
7. . . . . SF: Car Green Time Observer/Chart	6	88%		NA	
8. . . . Chart	6	100%		NA	
9. . . . . SF: Chart	5	100%		NA	
10. . . . Pedestrian Duration Observer	7	88%		100%	
11. . . . . Chart	7	88%		NA	
12. . . . . SF: Pedestrian Duration Observer/Chart	6	88%		NA	
13. . . . Safety Observer		NA		100%	
14. . . . . Compare To Constant		NA		100%	
15. . . . . Compare To Constant1		NA		100%	

Details

1. Model "statechart"

Child Systems: Button Response Observer, Car Green Time Observer, Chart, Pedestrian Duration Observer, Safety Observer

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	30
Decision	NA	79% (30/38) decision outcomes
Execution	NA	100% (8/8) objective outcomes

2. SubSystem block "Button Response Observer"

Justify or Exclude

Parent: /statechart
Child Systems: Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	9
Decision	NA	54% (7/13) decision outcomes
Execution	NA	100% (1/1) objective outcomes

Assertion block "Assertion"

Justify or Exclude

Parent: statechart/Button Response Observer

Metric	Coverage
Cyclomatic Complexity	0
Execution	100% (1/1) objective outcomes

Execution analyzed

Block executed	100%
	61/61

3. SubSystem block "Chart"

Justify or Exclude

Parent: statechart/Button Response Observer
Child Systems: Button Response Observer/Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	9
Decision	NA	54% (7/13) decision outcomes

4. Chart "Button Response Observer/Chart"

Justify or Exclude

Parent: statechart/Button Response Observer/Chart
Uncovered Links: 

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	2	8
Decision	67% (2/3) decision outcomes	54% (7/13) decision outcomes

Decisions analyzed

Substate executed	67%
State "CheckTiming"	0/60 
State "Idle"	45/60
State "WaitingForGreen"	15/60

State "CheckTiming"

Justify or Exclude

Parent: statechart/Button Response Observer/Chart
Uncovered Links: 

Metric	Coverage

Cyclomatic Complexity	1
Decision	0% (0/2) decision outcomes

```
1  CheckTiming
2  entry: ResponseOK = 1;
3  during: if PedestrianLight == 1; ResponseOK = 1; else; ResponseOK = 0; end
```

#3: during: if PedestrianLight == 1; ResponseOK = 1; else; ResponseOK = 0; end

Decisions analyzed

if PedestrianLight == 1	0%
false	--
true	--

Transition "[ButtonPress == 1]" from "Idle" to "WaitingForGreen"

Justify or Exclude

Parent: statechart/Button Response Observer/Chart

Metric	**Coverage**
Cyclomatic Complexity	1
Decision	100% (2/2) decision outcomes

```
1  [ButtonPress == 1]
```

#1: [ButtonPress == 1]

Decisions analyzed

ButtonPress == 1	100%
false	34/45
true	11/45

Transition "after(18,sec)" from "WaitingForGreen" to "CheckTiming"

Justify or Exclude

Parent: statechart/Button Response Observer/Chart

Uncovered Links:

Metric	**Coverage**
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes

```
1  after(18,sec)
```

#1: after(18,sec)

Decisions analyzed

after(18,sec)	50%
false	15/15
true	0/15

Transition "[PedestrianLight == 1]" from "WaitingForGreen" to "Idle"

Justify or Exclude

Parent: statechart/Button Response Observer/Chart

Metric	Coverage
Cyclomatic Complexity	1
Decision	100% (2/2) decision outcomes

```
1  [PedestrianLight == 1]
```

#1: [PedestrianLight == 1]

Decisions analyzed

PedestrianLight == 1	100%
false	4/15
true	11/15

Transition "[PedestrianLight == 1 || after(1,sec)]" from "CheckTiming" to "Idle"

Justify or Exclude

Parent: statechart/Button Response Observer/Chart

Uncovered Links:

Metric	Coverage
Cyclomatic Complexity	2
Decision	0% (0/2) decision outcomes

```
1  [PedestrianLight == 1 || after(1,sec)]
```

#1: [PedestrianLight == 1 || after(1,sec)]

Decisions analyzed

PedestrianLight == 1 || after(1,sec)	0%

false	--
true	--

5. SubSystem block "Car Green Time Observer"

Justify or Exclude

Parent: /statechart
Child Systems: Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	7
Decision	NA	88% (7/8) decision outcomes
Execution	NA	100% (1/1) objective outcomes

Assertion block "Assertion"

Justify or Exclude

Parent: statechart/Car Green Time Observer

Metric	Coverage
Cyclomatic Complexity	0
Execution	100% (1/1) objective outcomes

Execution analyzed

Block executed	100%
	61/61

6. SubSystem block "Chart"

Justify or Exclude

Parent: statechart/Car Green Time Observer
Child Systems: Car Green Time Observer/Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	7
Decision	NA	88% (7/8) decision outcomes

7. Chart "Car Green Time Observer/Chart"

Justify or Exclude

Parent: statechart/Car Green Time Observer/Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	6
Decision	100% (2/2) decision outcomes	88% (7/8) decision outcomes

Decisions analyzed

Substate executed	100%
State "GreenTiming"	32/60
State "NotGreen"	28/60

Transition "[VehicleLight == 3]" from "NotGreen" to "GreenTiming"

Justify or Exclude

Parent: statechart/Car Green Time Observer/Chart

Metric	Coverage
Cyclomatic Complexity	1
Decision	100% (2/2) decision outcomes

```
1  [VehicleLight == 3]
```

#1: [VehicleLight == 3]

Decisions analyzed

VehicleLight == 3	100%
false	26/28
true	2/28

Transition "[VehicleLight ~= 3 && after(10,sec)]" from "GreenTiming" to "NotGreen"

Justify or Exclude

Parent: statechart/Car Green Time Observer/Chart

Metric	Coverage
Cyclomatic Complexity	2
Decision	100% (2/2) decision outcomes

```
1  [VehicleLight ~= 3 && after(10,sec)]
```

#1: [VehicleLight ~= 3 && after(10,sec)]

Decisions analyzed

VehicleLight ~= 3 && after(10,sec)	100%
false	30/32
true	2/32

Transition "[VehicleLight ~= 3 && ~after(10,sec)] /{..." from "GreenTiming" to "NotGreen"

Justify or Exclude

Parent: statechart/Car Green Time Observer/Chart

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	2
Decision	50% (1/2) decision outcomes

```
1  [VehicleLight ~= 3 && ~after(10,sec)] /{ MinTimeOK = 0;}
```

#1: [VehicleLight ~= 3 && ~after(10,sec)] /{ MinTimeOK = 0;}

Decisions analyzed

VehicleLight ~= 3 && ~after(10,sec)	50%
false	30/30
true	0/30 

8. SubSystem block "Chart"

Justify or Exclude

Parent: /statechart

Child Systems: Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	6
Decision	NA	100% (9/9) decision outcomes

9. Chart "Chart"

Justify or Exclude

Parent: statechart/Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	2	5

Decision	100% (3/3) decision outcomes	100% (9/9) decision outcomes

Decisions analyzed

Substate executed	100%
State "Amber"	6/60
State "Crossing"	21/60
State "Idle"	33/60

Transition "[ButtonPress == 1]" from "Idle" to "Amber"

Justify or Exclude

Parent: statechart/Chart

Metric	Coverage
Cyclomatic Complexity	1
Decision	100% (2/2) decision outcomes

```
1  [ButtonPress == 1]
```

#1: [ButtonPress == 1]

Decisions analyzed

ButtonPress == 1	100%
false	31/33
true	2/33

Transition "after(3,sec)" from "Amber" to "Crossing"

Justify or Exclude

Parent: statechart/Chart

Metric	Coverage
Cyclomatic Complexity	1
Decision	100% (2/2) decision outcomes

```
1  after(3,sec)
```

#1: after(3,sec)

Decisions analyzed

after(3,sec)	100%
false	4/6
true	2/6

Transition "after(15,sec)" from "Crossing" to "Idle"

Justify or Exclude

Parent: statechart/Chart

Metric	Coverage
Cyclomatic Complexity	1
Decision	100% (2/2) decision outcomes

```
1  after(15,sec)
```

#1: after(15,sec)

Decisions analyzed

after(15,sec)	100%
false	20/21
true	1/21

10. SubSystem block "Pedestrian Duration Observer"

Justify or Exclude

Parent: /statechart

Child Systems: Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	7
Decision	NA	88% (7/8) decision outcomes
Execution	NA	100% (1/1) objective outcomes

Assertion block "Assertion"

Justify or Exclude

Parent: statechart/Pedestrian Duration Observer

Metric	Coverage
Cyclomatic Complexity	0
Execution	100% (1/1) objective outcomes

Execution analyzed

Block executed	100%

	61/61

11. SubSystem block "Chart"

Justify or Exclude

Parent: statechart/Pedestrian Duration Observer
Child Systems: Pedestrian Duration Observer/Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	7
Decision	NA	88% (7/8) decision outcomes

12. Chart "Pedestrian Duration Observer/Chart"

Justify or Exclude

Parent: statechart/Pedestrian Duration Observer/Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	6
Decision	100% (2/2) decision outcomes	88% (7/8) decision outcomes

Decisions analyzed

Substate executed	100%
State "NotGreen"	39/60
State "TimingGreen"	21/60

Transition "[PedestrianLight == 1]" from "NotGreen" to "TimingGreen"

Justify or Exclude

Parent: statechart/Pedestrian Duration Observer/Chart

Metric	Coverage
Cyclomatic Complexity	1
Decision	100% (2/2) decision outcomes

```
1  [PedestrianLight == 1]
```

#1: [PedestrianLight == 1]

Decisions analyzed

PedestrianLight == 1	100%
false	37/39
true	2/39

Transition "[PedestrianLight == 0 && ~after(15,sec)]..." from "TimingGreen" to "NotGreen"

Justify or Exclude

Parent: statechart/Pedestrian Duration Observer/Chart

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	2
Decision	50% (1/2) decision outcomes

```
1  [PedestrianLight == 0 && ~after(15,sec)] /{ DurationOK = 0;}
```

#1: [PedestrianLight == 0 && ~after(15,sec)] /{ DurationOK = 0;}

Decisions analyzed

PedestrianLight == 0 && ~after(15,sec)	50%
false	21/21
true	0/21 

Transition "[PedestrianLight == 0 && after(15,sec)]" from "TimingGreen" to "NotGreen"

Justify or Exclude

Parent: statechart/Pedestrian Duration Observer/Chart

Metric	Coverage
Cyclomatic Complexity	2
Decision	100% (2/2) decision outcomes

```
1  [PedestrianLight == 0 && after(15,sec)]
```

#1: [PedestrianLight == 0 && after(15,sec)]

Decisions analyzed

PedestrianLight == 0 && after(15,sec)	100%
false	20/21
true	1/21

13. SubSystem block "Safety Observer"

Justify or Exclude

Parent: /statechart
Child Systems: Compare To Constant, Compare To Constant1

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (5/5) objective outcomes

Logic block "Logical Operator"

Justify or Exclude
Parent: statechart/Safety Observer

Metric	Coverage
Cyclomatic Complexity	0
Execution	100% (1/1) objective outcomes

Execution analyzed

Block executed	100%
	61/61

Logic block "NOT"

Justify or Exclude
Parent: statechart/Safety Observer

Metric	Coverage
Cyclomatic Complexity	0
Execution	100% (1/1) objective outcomes

Execution analyzed

Block executed	100%
	61/61

Assertion block "Assertion"

Justify or Exclude
Parent: statechart/Safety Observer

Metric	Coverage
Cyclomatic Complexity	0
Execution	100% (1/1) objective outcomes

Execution analyzed

Block executed	100%
	61/61

14. SubSystem block "Compare To Constant"

Justify or Exclude

Parent: statechart/Safety Observer

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

RelationalOperator block "Compare"

Justify or Exclude

Parent: statechart/Safety Observer/Compare To Constant

Metric	Coverage
Cyclomatic Complexity	0
Execution	100% (1/1) objective outcomes

Execution analyzed

Block executed	100%
	61/61

15. SubSystem block "Compare To Constant1"

Justify or Exclude

Parent: statechart/Safety Observer

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

RelationalOperator block "Compare"

Justify or Exclude

Parent: statechart/Safety Observer/Compare To Constant1

Metric	Coverage
Cyclomatic Complexity	0
Execution	100% (1/1) objective outcomes

Execution analyzed

Block executed	100%
	61/61