The Patches of the Nopol Automatic Repair System on the Bugs of Defects4J version 1.1.0

Thomas Durieux, Benjamin Danglot, Zhongxing Yu, Matias Martinez, Simon Urli, Martin Monperrus

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The Patches of the Nopol Automatic Repair System on the Bugs of Defects4J version 1.1.0

Thomas Durieux\(^1\)  Benjamin Danglot\(^1\)  Zhongxing Yu\(^1\)
Matias Martinez\(^3\)  Simon Urli\(^1\)  Martin Monperrus\(^1,2\)

1) Inria, 2) University of Lille, 3) University of Valenciennes

Technical report hal-01480084

https://hal.archives-ouvertes.fr/hal-01480084

This report lists the test-suite adequate patches found by the Nopol automatic repair system \(^3\) on version 1.1.0 of the Defects4J benchmark of bugs \(^2\). In total, Nopol finds a test-suite adequate patches for 103 different bugs, as shown in Table 1.

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We the Oracle JDK 1.7.0_7 to run Nopol and OpenJDK 1.8.0 for compiling the project Mockito. We give a time budget of three hours to Nopol to find a patch. The experiment has been conducted on machines that are equipped of Xeon X3440 Quad-core processor and 15GB RAM, the machines are part of the Grid5000 infrastructure \(^1\).

Reproduction information:

- Nopol source code: https://github.com/SpoonLabs/nopol/
  Commit used: 473964e2d5c668517bd45be1d878074858c8b934
- Defects4j version: https://github.com/rjust/defects4j/releases/tag/v1.1.0/
- Execution traces: https://github.com/Spirals-Team/defects4j-repair/tree/master/results/2017-march/

1 Chart

Nopol repairs 9 bugs in the project Chart.

1.1 Chart 3

--- /tmp/chart_3_Nopol/source/org/jfree/data/time/TimeSeries.java
+++ /tmp/chart_3_Nopol/source/org/jfree/data/time/TimeSeries.java
@@ -884,3 +884,3 @@
     }
-    if (removed) {
+    if (removed) {
     }
Table 1: The number of synthesized test-suite adequate patches for each project.

<table>
<thead>
<tr>
<th>Project</th>
<th># Patches</th>
<th># Bugs</th>
<th>Repair Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart</td>
<td>9</td>
<td>26</td>
<td>37%</td>
</tr>
<tr>
<td>Closure</td>
<td>56</td>
<td>133</td>
<td>42%</td>
</tr>
<tr>
<td>Lang</td>
<td>4</td>
<td>65</td>
<td>6%</td>
</tr>
<tr>
<td>Math</td>
<td>24</td>
<td>106</td>
<td>22%</td>
</tr>
<tr>
<td>Mockito</td>
<td>2</td>
<td>38</td>
<td>5%</td>
</tr>
<tr>
<td>Time</td>
<td>8</td>
<td>27</td>
<td>29%</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
<td>395</td>
<td>26%</td>
</tr>
</tbody>
</table>

Listing 1: "The generated patch for the bug Chart 3"

Number of tests that execute the patch: 86
Execution time: 50 seconds

1.2 Chart 4

Listing 2: "The generated patch for the bug Chart 4"

Number of tests that execute the patch: 18
Execution time: 7 minutes, 32 seconds

1.3 Chart 5

Listing 3: "The generated patch for the bug Chart 5"

Number of tests that execute the patch: 6
Execution time: 38 seconds

1.4 Chart 9

Listing 4: "The generated patch for the bug Chart 9"

Number of tests that execute the patch: 4
Execution time: 34 seconds

1.5 Chart 13
```
--- /tmp/chart_13_Nopol/source/org/jfree/chart/block/BorderArrangement.java
+++ /tmp/chart_13_Nopol/source/org/jfree/chart/block/BorderArrangement.java
@@ -452,9 +452,11 @@
    h[3] = h[2];
-   if (this.rightBlock != null) {
-      RectangleConstraint c4 = new RectangleConstraint(0.0,
-          new Range(0.0, constraint.getWidth() - w[2]),
-          LengthConstraintType.RANGE, h[2], null,
-          LengthConstraintType.FIXED);
-      Size2D size = this.rightBlock.arrange(g2, c4);
-      w[3] = size.width;
+   if (null!=null) {
+      if (this.rightBlock != null) {
+          RectangleConstraint c4 = new RectangleConstraint(0.0,
+              new Range(0.0, constraint.getWidth() - w[2]),
+              LengthConstraintType.RANGE, h[2], null,
+              LengthConstraintType.FIXED);
+          Size2D size = this.rightBlock.arrange(g2, c4);
+          w[3] = size.width;
+      }

Listing 5: "The generated patch for the bug Chart 13"

Number of tests that execute the patch: 2
Execution time: 42 seconds

1.6 Chart 17

--- /tmp/chart_17_Nopol/source/org/jfree/data/time/TimeSeries.java
+++ /tmp/chart_17_Nopol/source/org/jfree/data/time/TimeSeries.java
@@ -879,3 +879,5 @@
    if (end < start) {
-        throw new IllegalArgumentException("Requires start <= end.");
+        if (org.jfree.data.time.TimeSeries.this.data.size() == org.jfree.data.time.
+            TimeSeries.this.range.length()) {
+            throw new IllegalArgumentException("Requires start <= end.");
+        }
}

Listing 6: "The generated patch for the bug Chart 17"

Number of tests that execute the patch: 4
Execution time: 33 seconds

1.7 Chart 21

--- /tmp/chart_21_Nopol/source/org/jfree/data/Range.java
+++ /tmp/chart_21_Nopol/source/org/jfree/data/Range.java
@@ -334,3 +334,5 @@
    if (!this.lower.equals(range.lower)) {
-        return false;
+        if (((1 + org.jfree.data.Range.this.lower) - (-1) < org.jfree.data.Range.this.
+            upper) || (org.jfree.data.Range.this.lower <= 0)) {
+            return false;
+        }
    }

Listing 7: "The generated patch for the bug Chart 21"

Number of tests that execute the patch: 12
Execution time: 37 seconds

1.8 Chart 25

--- /tmp/chart_25_Nopol/source/org/jfree/chart/renderer/category/StatisticalBarRenderer.java
+++ /tmp/chart_25_Nopol/source/org/jfree/chart/renderer/category/StatisticalBarRenderer.java
@@ -206,10 +206,12 @@
        PlotOrientation orientation = plot.getOrientation();
-       if (orientation == PlotOrientation.HORIZONTAL) {
-           drawHorizontalItem(g2, state, dataArea, plot, domainAxis,
-               rangeAxis, statData, row, column);
+       if (0 == 1) {
+           if (orientation == PlotOrientation.HORIZONTAL) {
+               drawHorizontalItem(g2, state, dataArea, plot, domainAxis,
+                   rangeAxis, statData, row, column);
+           } else if (orientation == PlotOrientation.VERTICAL) {
+               drawVerticalItem(g2, state, dataArea, plot, domainAxis,
+                   rangeAxis, statData, row, column);
```

3
Listing 8: "The generated patch for the bug Chart 25"

Number of tests that execute the patch: 10
Execution time: 33 seconds

1.9 Chart 26

--- /tmp/chart_26_Nopol/source/org/jfree/chart/plt/CatetoryPlot.java
+++ /tmp/chart_26_Nopol/source/org/jfree/chart/plt/CatetoryPlot.java
@@ -2537,3 +2537,3 @@
  boolean b2 = (area.getHeight() <= MINIMUM_HEIGHT_TO DRAW);
  if (b1 || b2) {
+    if (org.jfree.chart.plt.CategoryPlot.DEFAULT_CROSSHAIR_STROKE != null) {
    return;
  }
  
Listing 9: "The generated patch for the bug Chart 26"

Number of tests that execute the patch: 48
Execution time: 1 minute, 40 seconds

2 Closure

Nopol repairs 56 bugs in the project Closure.

2.1 Closure 1

--- /tmp/closure_1_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_1_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1410,7 +1410,9 @@
  if (diff != null) {
-    return "Node tree inequality:" +
-      "\nTree1:\n" + toStringTree() +
-      "\nTree2:\n" + node2.toStringTree() +
-      "\nSubtree1: " + diff.nodeA.toStringTree() +
-      "\nSubtree2: " + diff.nodeB.toStringTree();
+    if ((node2.type) != (com.google.javascript.rhino.Node.this.type)) {
+      return "Node tree inequality:" +
-      "\nTree1:\n" + toStringTree() +
-      "\nTree2:\n" + node2.toStringTree() +
-      "\nSubtree1: " + diff.nodeA.toStringTree() +
-      "\nSubtree2: " + diff.nodeB.toStringTree();
+    }
  }

Listing 10: "The generated patch for the bug Closure 1"

Number of tests that execute the patch: 15
Execution time: 2 minutes, 4 seconds

2.2 Closure 2

--- /tmp/closure_2_Nopol/src/com/google/javascript/jscomp/TypeCheck.java
+++ /tmp/closure_2_Nopol/src/com/google/javascript/jscomp/TypeCheck.java
@@ -1663,4 +1663,6 @@
  currentProperties.clear();
  checkInterfaceConflictProperties(t, n, functionPrivateName,
-    properties, currentProperties, interfaceType);
+    if (com.google.javascript.jscomp.TypeCheck.this.unknownCount < com.google.javascript
-      .jscomp.TypeCheck.this.typedCount) {
+      checkInterfaceConflictProperties(t, n, functionPrivateName,
+        properties, currentProperties, interfaceType);
  }
  properties.putAll(currentProperties);

Listing 11: "The generated patch for the bug Closure 2"

Number of tests that execute the patch: 17
Execution time: 2 minutes, 7 seconds

2.3 Closure 3
Listing 12: "The generated patch for the bug Closure 3"
Number of tests that execute the patch: 10
Execution time: 7 minutes, 8 seconds

2.4 Closure 5

Listing 13: "The generated patch for the bug Closure 5"
Number of tests that execute the patch: 8
Execution time: 1 minute, 51 seconds

2.5 Closure 7

Listing 14: "The generated patch for the bug Closure 7"
Number of tests that execute the patch: 358
Execution time: 3 minutes, 26 seconds

2.6 Closure 8
Listing 15: "The generated patch for the bug Closure 8"

Number of tests that execute the patch: 8
Execution time: 2 minutes, 28 seconds

2.7 Closure 10

Listing 16: "The generated patch for the bug Closure 10"

Number of tests that execute the patch: 8
Execution time: 4 minutes, 28 seconds

2.8 Closure 12

Listing 17: "The generated patch for the bug Closure 12"

Number of tests that execute the patch: 8
Execution time: 7 minutes, 35 seconds

2.9 Closure 14

Listing 18: "The generated patch for the bug Closure 14"

Number of tests that execute the patch: 7
2.10 Closure 15

Listing 19: "The generated patch for the bug Closure 15"

Number of tests that execute the patch: 8
Execution time: 7 minutes, 28 seconds

2.11 Closure 16

Listing 20: "The generated patch for the bug Closure 16"

Number of tests that execute the patch: 12
Execution time: 4 minutes, 12 seconds

2.12 Closure 17

Listing 21: "The generated patch for the bug Closure 17"

Number of tests that execute the patch: 25
Execution time: 2 minutes, 1 second

2.13 Closure 18
Subtree2 : diff.nodeB.toStringTree();
}  
}

Listing 22: "The generated patch for the bug Closure 18"

Number of tests that execute the patch: 8
Execution time: 1 minute, 51 seconds

2.14 Closure 20

--- /tmp/closure_20_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_20_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1429,7 +1429,9 @@
 if (diff != null) {
     return "Node tree inequality:"
     + "\nTree1:
" + toStringTree()
-    + "\nTree2:
" + node2.toStringTree()
+    + "\nSubtree1: " + diff.nodeA.toStringTree()
+    + "\nSubtree2: " + diff.nodeB.toStringTree();
+    } if (com.google.javascript.rhino.Node.this.type < 32) {
+    return "Node tree inequality:"
+    + "\nTree1:
" + toStringTree()
+    + "\nTree2:
" + node2.toStringTree()
+    + "\nSubtree1: " + diff.nodeA.toStringTree()
+    + "\nSubtree2: " + diff.nodeB.toStringTree();
}

Listing 23: "The generated patch for the bug Closure 20"

Number of tests that execute the patch: 8
Execution time: 2 minutes

2.15 Closure 21

--- /tmp/closure_21_Nopol/src/com/google/javascript/jscomp/CheckSideEffects.java
+++ /tmp/closure_21_Nopol/src/com/google/javascript/jscomp/CheckSideEffects.java
@@ -117,7 +117,9 @@
     if (n == parent.getLastChild()) {
         for (Node an : parent.getAncestors()) {
             int ancestorType = an.getType();
-            if (ancestorType == Token.COMMA) continue;
-            if (ancestorType != Token.EXPR_RESULT && ancestorType != Token.BLOCK) return;
-            else break;
+            if (com.google.javascript.jscomp.CheckSideEffects.PROTECTOR_FN.length() == 0) {
+                for (Node an : parent.getAncestors()) {
+                    int ancestorType = an.getType();
+                    if (ancestorType == Token.COMMA) continue;
+                    if (ancestorType != Token.EXPR_RESULT && ancestorType != Token.BLOCK) return;
+                    else break;
+                }
}

Listing 24: "The generated patch for the bug Closure 21"

Number of tests that execute the patch: 3
Execution time: 1 minute, 59 seconds

2.16 Closure 22

--- /tmp/closure_22_Nopol/src/com/google/javascript/jscomp/CheckSideEffects.java
+++ /tmp/closure_22_Nopol/src/com/google/javascript/jscomp/CheckSideEffects.java
@@ -115,6 +115,8 @@
     continue;
-    if (ancestorType != Token.EXPR_RESULT && ancestorType != Token.BLOCK) return;
+    if (com.google.javascript.jscomp.CheckSideEffects.PROTECTOR_FN.length() == 0) {
+        if (ancestorType != Token.EXPR_RESULT && ancestorType != Token.BLOCK) return;
+        else break;
+    }
}

Listing 25: "The generated patch for the bug Closure 22"

Number of tests that execute the patch: 3

8
2.17 Closure 26

Listing 26: "The generated patch for the bug Closure 26"

Number of tests that execute the patch: 14
Execution time: 3 minutes, 34 seconds

2.18 Closure 28

Listing 27: "The generated patch for the bug Closure 28"

Number of tests that execute the patch: 8
Execution time: 1 minute, 55 seconds

2.19 Closure 29

Listing 28: "The generated patch for the bug Closure 29"

Number of tests that execute the patch: 12
Execution time: 2 minutes

2.20 Closure 30
Listing 29: "The generated patch for the bug Closure 30"

Number of tests that execute the patch: 5
Execution time: 1 minute, 45 seconds

2.21 Closure 31

Listing 30: "The generated patch for the bug Closure 31"

Number of tests that execute the patch: 3
Execution time: 1 minute, 54 seconds

2.22 Closure 33

Listing 31: "The generated patch for the bug Closure 33"

Number of tests that execute the patch: 8
Execution time: 1 minute, 52 seconds

2.23 Closure 35
Listing 32: "The generated patch for the bug Closure 35"

Number of tests that execute the patch: 26
Execution time: 2 minutes, 43 seconds

2.24 Closure 36

Listing 33: "The generated patch for the bug Closure 36"

Number of tests that execute the patch: 3
Execution time: 1 minute, 48 seconds

2.25 Closure 38

Listing 34: "The generated patch for the bug Closure 38"

Number of tests that execute the patch: 1665
Execution time: 3 minutes, 11 seconds

2.26 Closure 40

Listing 35: "The generated patch for the bug Closure 40"
Number of tests that execute the patch: 3
Execution time: 2 minutes, 7 seconds

2.27 Closure 45

--- /tmp/closure_45_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_45_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1403,7 +1403,9 @@
      if (diff != null) {
        return "Node tree inequality:"
            + "\nTree1:\n" + toStringTree() +
-      return "Node tree inequality:"
-        + "\nTree1:\n" + toStringTree() +
-          "\nSubtree1: " + diff.nodeA.toStringTree() +
-          "\nSubtree2: " + diff.nodeB.toStringTree();
+      if (com.google.javascript.rhino.Node.this.type < 32) {
+        return "Node tree inequality:"
+          + "\nTree1:\n" + toStringTree() +
+            + "\nSubtree1: " + diff.nodeA.toStringTree() +
+            + "\nSubtree2: " + diff.nodeB.toStringTree();
+    }

Listing 36: "The generated patch for the bug Closure 45"

Number of tests that execute the patch: 3
Execution time: 1 minute, 41 seconds

2.28 Closure 49

--- /tmp/closure_49_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_49_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1566,7 +1566,9 @@
      if (diff != null) {
        return "Node tree inequality:"
            + "\nTree1:\n" + toStringTree() +
-      return "Node tree inequality:"
-        + "\nTree1:\n" + toStringTree() +
-          "\nSubtree1: " + diff.nodeA.toStringTree() +
-          "\nSubtree2: " + diff.nodeB.toStringTree();
+      if (com.google.javascript.rhino.Node.this.type < 29) {
+        return "Node tree inequality:"
+          + "\nTree1:\n" + toStringTree() +
+            + "\nSubtree1: " + diff.nodeA.toStringTree() +
+            + "\nSubtree2: " + diff.nodeB.toStringTree();
+    }

Listing 37: "The generated patch for the bug Closure 49"

Number of tests that execute the patch: 68
Execution time: 1 minute, 47 seconds

2.29 Closure 50

--- /tmp/closure_50_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_50_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1566,7 +1566,9 @@
      if (diff != null) {
        return "Node tree inequality:"
            + "\nTree1:\n" + toStringTree() +
-      return "Node tree inequality:"
-        + "\nTree1:\n" + toStringTree() +
-          "\nSubtree1: " + diff.nodeA.toStringTree() +
-          "\nSubtree2: " + diff.nodeB.toStringTree();
+        LABEL_PROP) {
+        return "Node tree inequality:"
+          + "\nTree1:\n" + toStringTree() +
+            + "\nSubtree1: " + diff.nodeA.toStringTree() +
+            + "\nSubtree2: " + diff.nodeB.toStringTree();
+    }

Listing 38: "The generated patch for the bug Closure 50"

Number of tests that execute the patch: 4
Execution time: 1 minute, 50 seconds

2.30 Closure 55
Listing 39: "The generated patch for the bug Closure 55"

Number of tests that execute the patch: 11
Execution time: 2 minutes, 14 seconds

2.31 Closure 60

Listing 40: "The generated patch for the bug Closure 60"

Number of tests that execute the patch: 31
Execution time: 12 minutes, 12 seconds

2.32 Closure 61

Listing 41: "The generated patch for the bug Closure 61"

Number of tests that execute the patch: 4
Execution time: 1 minute, 39 seconds

2.33 Closure 62
if (error != null) {
    for (int i = 0; i < charno; i++) {
Listing 42: "The generated patch for the bug Closure 62"

Number of tests that execute the patch: 5
Execution time: 1 minute, 32 seconds

2.34 Closure 63

--- /tmp/closure_63_Nopol/src/google/javascript/jscomp/LightweightMessageFormatter.java
+++ /tmp/closure_63_Nopol/src/google/javascript/jscomp/LightweightMessageFormatter.java
@@ -96,4 +96,3 @@
     // at the end of the line
-    if (excerpt.equals(LINE)) {
+    if (error != null) {
        for (int i = 0; i < charno; i++) {
Listing 43: "The generated patch for the bug Closure 63"

Number of tests that execute the patch: 5
Execution time: 1 minute, 31 seconds

2.35 Closure 66

--- /tmp/closure_66_Nopol/src/google/javascript/jscomp/TypeCheck.java
+++ /tmp/closure_66_Nopol/src/google/javascript/jscomp/TypeCheck.java
@@ -821,3 +821,5 @@
if (type == null) {
-    nullCount++; +
+    if (com.google.javascript.jscomp.TypeCheck.this.inExterns) {
+        nullCount++; +
+    }
} else if (type.isUnknownType()) {
Listing 44: "The generated patch for the bug Closure 66"

Number of tests that execute the patch: 166
Execution time: 2 minutes, 21 seconds

2.36 Closure 67

--- /tmp/closure_67_Nopol/src/google/javascript/rhino/Node.java
+++ /tmp/closure_67_Nopol/src/google/javascript/rhino/Node.java
@@ -1384,7 +1384,9 @@
if (diff != null) {
    return "Node tree inequality:" +
    + "\nTree1: " + toStringTree() +
    + "\nTree2: " + node2.toStringTree() +
    + "\nSubtree1: " + diff.nodeA.toStringTree() +
    + "\nSubtree2: " + diff.nodeB.toStringTree(); +
} else if (type.isUnknownType()) {
Listing 45: "The generated patch for the bug Closure 67"

Number of tests that execute the patch: 2
Execution time: 1 minute, 37 seconds

2.37 Closure 72

--- /tmp/closure_72_Nopol/src/google/javascript/rhino/Node.java
+++ /tmp/closure_72_Nopol/src/google/javascript/rhino/Node.java
@@ -1381,7 +1381,9 @@
if (diff != null) {
    return "Node tree inequality:" +
    + "\nTree1: " + toStringTree() +
    + "\nTree2: " + node2.toStringTree() +
    + "\nSubtree1: " + diff.nodeA.toStringTree() +
    + "\nSubtree2: " + diff.nodeB.toStringTree(); +
} else if (type.isUnknownType()) {
Listing 46: "The generated patch for the bug Closure 72"
Listing 46: "The generated patch for the bug Closure 72"

Number of tests that execute the patch: 2
Execution time: 1 minute, 32 seconds

2.38 Closure 75

--- /tmp/closure_75_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_75_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1410 ,3 +1410 ,5 @@
   - res = n.checkTreeEqualsImpl(n2);
     this.first.getType()) {
     + res = n.checkTreeEqualsImpl(n2);
   + }
   if (res != null) {

Listing 47: "The generated patch for the bug Closure 75"

Number of tests that execute the patch: 3164
Execution time: 24 minutes, 1 second

2.39 Closure 76

--- /tmp/closure_76_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_76_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1368 ,7 +1368 ,9 @@
   - return "Node tree inequality:" +
   - "\n\nTree1:\n" + toStringTree() +
   - "\n\nTree2:\n" + node2.toStringTree() +
   - "\n\nSubtree1: " + diff.nodeA.toStringTree() +
   - "\n\nSubtree2: " + diff.nodeB.toStringTree();
   + if (node2.type < com.google.javascript.rhino.Node.FUNCTION_PROP) {
   + return "Node tree inequality:" +
   + "\n\nTree1:\n" + toStringTree() +
   + "\n\nTree2:\n" + node2.toStringTree() +
   + "\n\nSubtree1: " + diff.nodeA.toStringTree() +
   + "\n\nSubtree2: " + diff.nodeB.toStringTree();
   + }
}

Listing 48: "The generated patch for the bug Closure 76"

Number of tests that execute the patch: 5
Execution time: 1 minute, 30 seconds

2.40 Closure 78

--- /tmp/closure_78_Nopol/src/com/google/javascript/jscomp/PeepholeFoldConstants.java
+++ /tmp/closure_78_Nopol/src/com/google/javascript/jscomp/PeepholeFoldConstants.java
@@ -717 ,3 +717 ,5 @@
   if ( rval == 0 ) {
     - error(DiagnosticType.error("JSC_DIVIDE_BY_0_ERROR", "Divide by 0"), right);
     + if (53 == 0) {
     + error(DiagnosticType.error("JSC_DIVIDE_BY_0_ERROR", "Divide by 0"), right);
     + }
     return null;

Listing 49: "The generated patch for the bug Closure 78"

Number of tests that execute the patch: 1
Execution time: 1 minute, 25 seconds

2.41 Closure 111

--- /tmp/closure_111_Nopol/src/com/google/javascript/rhino/testing/Asserts.java
+++ /tmp/closure_111_Nopol/src/com/google/javascript/rhino/testing/Asserts.java
@@ -102 ,3 +102 ,3 @@
   + if ((a == null) == (b == null));
   - if (a == null) {

15
if (message != null) {
    return;
}

Listing 50: "The generated patch for the bug Closure 111"

Number of tests that execute the patch: 381
Execution time: 2 minutes, 49 seconds

2.42 Closure 113

--- /tmp/closure_113_Nopol/src/com/google/javascript/jscomp/ProcessClosurePrimitives.java
+++ /tmp/closure_113_Nopol/src/com/google/javascript/jscomp/ProcessClosurePrimitives.java
@@ -328,3 +328,3 @@
    // let them be caught in the subsequent run.
-    if (provided != null) {
+    if ((provided != null) || (!(ns.length() < 10))) {
        parent.detachFromParent();

Listing 51: "The generated patch for the bug Closure 113"

Number of tests that execute the patch: 26
Execution time: 2 minutes, 22 seconds

2.43 Closure 114

--- /tmp/closure_114_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_114_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1429,7 +1429,9 @@
    if (diff != null) {
        return "Node tree inequality:" +
        "\nTree1:\n" + toStringTree() +
        "\nTree2:\n" + node2.toStringTree() +
        "\nSubtree1: " + diff.nodeA.toStringTree() +
        "\nSubtree2: " + diff.nodeB.toStringTree();
+    if (node2.type < com.google.javascript.rhino.Node.JSDOC_INFO_PROP) {
+        return "Node tree inequality:" +
+        "\nTree1:\n" + toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
+        "\nSubtree1: " + diff.nodeA.toStringTree() +
+        "\nSubtree2: " + diff.nodeB.toStringTree();
    }
}

Listing 52: "The generated patch for the bug Closure 114"

Number of tests that execute the patch: 8
Execution time: 2 minutes, 14 seconds

2.44 Closure 115

--- /tmp/closure_115_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_115_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1429,7 +1429,9 @@
    if (diff != null) {
        return "Node tree inequality:" +
        "\nTree1:\n" + toStringTree() +
        "\nTree2:\n" + node2.toStringTree() +
        "\nSubtree1: " + diff.nodeA.toStringTree() +
        "\nSubtree2: " + diff.nodeB.toStringTree();
+    if (node2.type < com.google.javascript.rhino.Node.JSDOC_INFO_PROP) {
+        return "Node tree inequality:" +
+        "\nTree1:\n" + toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
+        "\nSubtree1: " + diff.nodeA.toStringTree() +
+        "\nSubtree2: " + diff.nodeB.toStringTree();
    }
}

Listing 53: "The generated patch for the bug Closure 115"

Number of tests that execute the patch: 14
Execution time: 2 minutes, 18 seconds

2.45 Closure 116

--- /tmp/closure_116_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_116_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1429,7 +1429,9 @@
    if (diff != null) {
        return "Node tree inequality:" +
        "\nTree1:\n" + toStringTree() +
        "\nTree2:\n" + node2.toStringTree() +
        "\nSubtree1: " + diff.nodeA.toStringTree() +
        "\nSubtree2: " + diff.nodeB.toStringTree();
+    if (node2.type < com.google.javascript.rhino.Node.JSDOC_INFO_PROP) {
+        return "Node tree inequality:" +
+        "\nTree1:\n" + toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
+        "\nSubtree1: " + diff.nodeA.toStringTree() +
+        "\nSubtree2: " + diff.nodeB.toStringTree();
    }
}

Listing 54: "The generated patch for the bug Closure 116"

Number of tests that execute the patch: 381
Execution time: 2 minutes, 49 seconds
Listing 54: "The generated patch for the bug Closure 116"
Number of tests that execute the patch: 13
Execution time: 2 minutes, 13 seconds

Listing 55: "The generated patch for the bug Closure 119"
Number of tests that execute the patch: 394
Execution time: 32 minutes, 2 seconds

Listing 56: "The generated patch for the bug Closure 120"
Number of tests that execute the patch: 8
Execution time: 2 minutes, 11 seconds

Listing 57: "The generated patch for the bug Closure 121"
Listing 57: "The generated patch for the bug Closure 121"

Number of tests that execute the patch: 8
Execution time: 2 minutes, 12 seconds

2.49 Closure 124

--- /tmp/closure_124_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_124_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1427,7 +1427,9 @@
    - if (diff != null) {
       - return "Node tree inequality:" +
       - "\nNode1:\n" + toStringTree() +
       - "\nNode2:\n" + node2.toStringTree() +
       - "\nSubtree1: " + diff.nodeA.toStringTree() +
       - "\nSubtree2: " + diff.nodeB.toStringTree();
+    if (node2.type < com.google/javascript.rhino.Node.SIDE_EFFECT_FLAGS) {
+       return "Node tree inequality:" +
+       "\nNode1:\n" + toStringTree() +
+       "\nNode2:\n" + node2.toStringTree() +
+       "\nSubtree1: " + diff.nodeA.toStringTree() +
+       "\nSubtree2: " + diff.nodeB.toStringTree();
+    }
    }

Listing 58: "The generated patch for the bug Closure 124"

Number of tests that execute the patch: 8
Execution time: 17 minutes, 49 seconds

2.50 Closure 126

--- /tmp/closure_126_Nopol/src/com/google/javascript/jscomp/MinimizeExitPoints.java
+++ /tmp/closure_126_Nopol/src/com/google/javascript/jscomp/MinimizeExitPoints.java
@@ -142,3 +142,5 @@
    Node finallyBlock = n.getLastChild();
    tryMinimizeExits(finallyBlock, exitType, labelName);
    if (0 == 1) {
+ tryMinimizeExits(finallyBlock, exitType, labelName);
+ }
    }

Listing 59: "The generated patch for the bug Closure 126"

Number of tests that execute the patch: 2
Execution time: 2 minutes, 1 second

2.51 Closure 127

--- /tmp/closure_127_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_127_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1427,7 +1427,9 @@
    - if (diff != null) {
       - return "Node tree inequality:" +
       - "\nNode1:\n" + toStringTree() +
       - "\nNode2:\n" + node2.toStringTree() +
       - "\nSubtree1: " + diff.nodeA.toStringTree() +
       - "\nSubtree2: " + diff.nodeB.toStringTree();
+    if (node2.type < com.google/javascript.rhino.Node.SIDE_EFFECT_FLAGS) {
+       return "Node tree inequality:" +
+       "\nNode1:\n" + toStringTree() +
+       "\nNode2:\n" + node2.toStringTree() +
+       "\nSubtree1: " + diff.nodeA.toStringTree() +
+       "\nSubtree2: " + diff.nodeB.toStringTree();
+    }
    }

Listing 60: "The generated patch for the bug Closure 127"

Number of tests that execute the patch: 13
Execution time: 2 minutes, 4 seconds

2.52 Closure 129
... /tmp/closure_129_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1427,7 +1427,9 @@

    if ( diff != null ) {
        return "Node tree inequality:" +
              "\nTree1:\n" + toStringTree() +
-        "\nTree2:\n" + node2.toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
              "\nSubtree1 : " + diff.nodeA.toStringTree() +
+              "\nSubtree2 : " + diff.nodeB.toStringTree();
    } }
Listing 61: "The generated patch for the bug Closure 129"

Number of tests that execute the patch: 8
Execution time: 2 minutes, 18 seconds

2.53 Closure 130

... /tmp/closure_130_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_130_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1416,7 +1416,9 @@

    if ( diff != null ) {
        return "Node tree inequality:" +
              "\nTree1:\n" + toStringTree() +
-        "\nTree2:\n" + node2.toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
              "\nSubtree1 : " + diff.nodeA.toStringTree() +
+              "\nSubtree2 : " + diff.nodeB.toStringTree();
    } }
Listing 62: "The generated patch for the bug Closure 130"

Number of tests that execute the patch: 8
Execution time: 2 minutes, 3 seconds

2.54 Closure 131

... /tmp/closure_131_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_131_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1416,7 +1416,9 @@

    if ( diff != null ) {
        return "Node tree inequality:" +
              "\nTree1:\n" + toStringTree() +
-        "\nTree2:\n" + node2.toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
              "\nSubtree1 : " + diff.nodeA.toStringTree() +
+              "\nSubtree2 : " + diff.nodeB.toStringTree();
    } }
Listing 63: "The generated patch for the bug Closure 131"

Number of tests that execute the patch: 9
Execution time: 2 minutes, 21 seconds

2.55 Closure 132

... /tmp/closure_132_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_132_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1416,7 +1416,9 @@

    if ( diff != null ) {
        return "Node tree inequality:" +
              "\nTree1:\n" + toStringTree() +
-        "\nTree2:\n" + node2.toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
              "\nSubtree1 : " + diff.nodeA.toStringTree() +
+              "\nSubtree2 : " + diff.nodeB.toStringTree();
    } }

19
if (diff != null) {
    return "Node tree inequality:" +
    "\nTree1:\n" + toStringTree() +
    "\nTree2:\n" + node2.toStringTree() +
    "\nSubtree1: " + diff.nodeA.toStringTree() +
    "\nSubtree2: " + diff.nodeB.toStringTree();
}

if (com.google.javascript.rhino.Node.this.type <= com.google.javascript.rhino.Node.INFERRED_FUNCTION) {
    return "Node tree inequality:" +
    "\nTree1:\n" + toStringTree() +
    "\nTree2:\n" + node2.toStringTree() +
    "\nSubtree1: " + diff.nodeA.toStringTree() +
    "\nSubtree2: " + diff.nodeB.toStringTree();
}

Listing 64: "The generated patch for the bug Closure 132"
Number of tests that execute the patch: 8
Execution time: 2 minutes, 25 seconds

2.56 Closure 133

--- /tmp/closure_133_Nopol/src/com/google/javascript/jscomp/parsing/JsDocInfoParser.java
+++ /tmp/closure_133_Nopol/src/com/google/javascript/jscomp/parsing/JsDocInfoParser.java
@@ -1412 ,4 +1412 ,3 @@
- if (token == JsDocToken.EOC || token == JsDocToken.EOL ||
- token == JsDocToken.EOF) {
+ if (com.google.javascript.jscomp.parsing.JsDocInfoParser.this.unreadToken!=null) {
    return new ExtractionInfo("", token);
}

Listing 65: "The generated patch for the bug Closure 133"
Number of tests that execute the patch: 254
Execution time: 4 minutes, 22 seconds

3 Lang

Nopol repairs 4 bugs in the project Lang.

3.1 Lang 44

--- /tmp/lang_44_Nopol/src/java/org/apache/commons/NumberUtils.java
+++ /tmp/lang_44_Nopol/src/java/org/apache/commons/NumberUtils.java
@@ -192 ,5 +192 ,3 @@
    case 'L' :
-     if (dec == null
-         && exp == null
-         && (numeric.charAt(0) == '-' && isDigits(numeric.substring(1)) ||
+     if (((dec == null) && (exp == null))) {
         try {
@@ -201 ,3 +199 ,3 @@
             return createBigInteger(numeric);
-         
+         }

Listing 66: "The generated patch for the bug Lang 44"
Number of tests that execute the patch: 3
Execution time: 29 seconds

3.2 Lang 51

--- /tmp/lang_51_Nopol/src/java/org/apache/commons/BooleanUtils.java
+++ /tmp/lang_51_Nopol/src/java/org/apache/commons/BooleanUtils.java
@@ -676 ,6 +676 ,6 @@
}
-    if (ch == 'Y') {
-        return
-        (str.charAt(1) == 'E' || str.charAt(1) == 'e') &&
-        (str.charAt(2) == 'S' || str.charAt(2) == 's');
+    if (str!=null) {
+        return
+        (str.charAt(1) == 'E' || str.charAt(1) == 'e') &&

20
Listing 67: "The generated patch for the bug Lang 51"

Number of tests that execute the patch: 1
Execution time: 28 seconds

3.3 Lang 53

Listing 68: "The generated patch for the bug Lang 53"

Number of tests that execute the patch: 6
Execution time: 35 seconds

3.4 Lang 58

Listing 69: "The generated patch for the bug Lang 58"

Number of tests that execute the patch: 3
Execution time: 10 minutes, 26 seconds

4 Math

Nopol repairs 24 bugs in the project Math.

4.1 Math 2

Listing 70: "The generated patch for the bug Math 2"

Number of tests that execute the patch: 63
Execution time: 6 minutes, 18 seconds

4.2 Math 4
Listing 71: "The generated patch for the bug Math 4"

Number of tests that execute the patch: 24
Execution time: 6 minutes, 7 seconds

4.3 Math 7

Listing 72: "The generated patch for the bug Math 7"

Number of tests that execute the patch: 14
Execution time: 20 minutes, 6 seconds

4.4 Math 24

Listing 73: "The generated patch for the bug Math 24"

Number of tests that execute the patch: 2
Execution time: 9 minutes, 53 seconds

4.5 Math 28

Listing 74: "The generated patch for the bug Math 28"

Number of tests that execute the patch: 4
Execution time: 10 minutes, 31 seconds

4.6 Math 33
+ if (org.apache.commons.math3.optimization.linear.SimplexTableau.this.
+ numSlackVariables < org.apache.commons.math3.optimization.linear.SimplexTableau.this.
+ constraints.size()) {
+    columnsToAdd.add(i);
+    }
+}

Listing 75: "The generated patch for the bug Math 33"

Number of tests that execute the patch: 5
Execution time: 9 minutes, 59 seconds

4.7 Math 39

--- /tmp/math_39_Nopol/src/main/java/org/apache/commons/math/ode/nonstiff/
AdaptiveStepsizeIntegrator.java
+++ /tmp/math_39_Nopol/src/main/java/org/apache/commons/math/ode/nonstiff/
AdaptiveStepsizeIntegrator.java
@@ -263,3 +263,5 @@
    ratio = yDot0[j] / scale[j];
    yDotOnScale2 += ratio * ratio;
+        this.maxStep)) {
+        yDotOnScale2 += ratio * ratio;
+    }

Listing 76: "The generated patch for the bug Math 39"

Number of tests that execute the patch: 101
Execution time: 6 minutes, 49 seconds

4.8 Math 40

--- /tmp/math_40_Nopol/src/main/java/org/apache/commons/math/analysis/solvers/
BracketingNthOrderBrentSolver.java
+++ /tmp/math_40_Nopol/src/main/java/org/apache/commons/math/analysis/solvers/
BracketingNthOrderBrentSolver.java
@@ -259,3 +259,3 @@
    // we try again with a lower interpolation order
    if (signChangeIndex - start >= end - signChangeIndex) {
+        if (((signChangeIndex - start) >= (end - signChangeIndex)) || (xA <= org.
+            apache.commons.math.analysis.solversBracketingNthOrderBrentSolver.REDUCTION_FACTOR)) {
+            // we have more points before the sign change, drop the lowest point
}

Listing 77: "The generated patch for the bug Math 40"

Number of tests that execute the patch: 19
Execution time: 10 minutes, 33 seconds

4.9 Math 41

--- /tmp/math_41_Nopol/src/main/java/org/apache/commons/math/stat/descriptive/moment/Mean.java
+++ /tmp/math_41_Nopol/src/main/java/org/apache/commons/math/stat/descriptive/moment/Mean.java
@@ -216,3 +216,5 @@
            return xbarw + (correction/sumw);
+            if (xbarw < length) {
+                return xbarw + (correction/sumw);
+            }

Listing 78: "The generated patch for the bug Math 41"

Number of tests that execute the patch: 6
Execution time: 4 minutes, 31 seconds

4.10 Math 42

java
java
@@ -346,3 +346,5 @@
    if (getBasicRow(col) == null) {
        columnsToDrop.add(col);
+        if (1 <= org.apache.commons.math.optimization.linear.SimplexTableau.this.
+            numSlackVariables) {
+            columnsToDrop.add(col);

23
Listing 79: "The generated patch for the bug Math 42"

Number of tests that execute the patch: 16
Execution time: 4 minutes, 39 seconds

4.11 Math 44

--- /tmp/mth_44_Nopol/src/main/java/org/apache/commons/math/ode/AbstractIntegrator.java
+++ /tmp/mth_44_Nopol/src/main/java/org/apache/commons/math/ode/AbstractIntegrator.java
@@ -286,3 +286,5 @@
    statesInitialized = true;
+    if (1 == org.apache.commons.math.ode.AbstractIntegrator.this.stepHandlers.size)
+      statesInitialized = true;
+    }
+
Listing 80: "The generated patch for the bug Math 44"

Number of tests that execute the patch: 137
Execution time: 7 minutes, 10 seconds

4.12 Math 49

--- /tmp/mth_49_Nopol/src/main/java/org/apache/commons/math/linear/OpenMapRealVector.java
+++ /tmp/mth_49_Nopol/src/main/java/org/apache/commons/math/linear/OpenMapRealVector.java
@@ -666,3 +666,5 @@
   } else if (entries.containsKey(index)) {
     entries.remove(index);
   }
+
Listing 81: "The generated patch for the bug Math 49"

Number of tests that execute the patch: 3
Execution time: 3 minutes, 18 seconds

4.13 Math 50

--- /tmp/mth_50_Nopol/src/main/java/org/apache/commons/math/analysis/solvers/BaseSecantSolver.java
+++ /tmp/mth_50_Nopol/src/main/java/org/apache/commons/math/analysis/solvers/BaseSecantSolver.java
@@ -236,15 +236,17 @@
    if ((((atol) != (org.apache.commons.math.analysis.solvers.BaseSecantSolver.DEFAULT_ABSOLUTE_ACCURACY)) && (org.apache.commons.math.analysis.solvers.BaseSecantSolver.this.method != null)) || (f0 <= atol)) {
      switch (allowed) {
        case ANY_SIDE:
        case LEFT_SIDE:
        return x1;
        case RIGHT_SIDE:
        return inverted ? x1 : x0;
        case BELOW_SIDE:
        return (f1 <= 0) ? x1 : x0;
        case ABOVE_SIDE:
        return (f1 >= 0) ? x1 : x0;
        default:
          throw new MathInternalError();
      }
    }

Listing 82: "The generated patch for the bug Math 50"

Number of tests that execute the patch: 8
Execution time: 7 minutes, 20 seconds
Listing 82: "The generated patch for the bug Math 50"

4.14 Math 57

Number of tests that execute the patch: 21
Execution time: 8 minutes, 22 seconds

Listing 83: "The generated patch for the bug Math 57"

4.15 Math 58

Number of tests that execute the patch: 5
Execution time: 3 minutes, 10 seconds

Listing 84: "The generated patch for the bug Math 58"

4.16 Math 69

Number of tests that execute the patch: 10
Execution time: 2 minutes, 54 seconds

Listing 85: "The generated patch for the bug Math 69"

4.17 Math 73

Number of tests that execute the patch: 11
Execution time: 33 seconds
if (((!((1) != (lower))) && (org.apache.commons.math.analysis.solvers.UnivariateRealSolverImpl.this.result < org.apache.commons.math.analysis.solvers.UnivariateRealSolverImpl.this.defaultFunctionValueAccuracy)) || (initial <= lower)) {
    throw MathRuntimeException.createIllegalArgumentException("invalid interval, initial value parameters: lower={0}, initial={1}, upper={2}" , lower, initial, upper);
}

Listing 86: "The generated patch for the bug Math 73"

Number of tests that execute the patch: 5
Execution time: 34 seconds

4.18 Math 78

Listing 87: "The generated patch for the bug Math 78"

Number of tests that execute the patch: 116
Execution time: 15 minutes, 41 seconds

4.19 Math 80

Listing 88: "The generated patch for the bug Math 80"

Number of tests that execute the patch: 1
Execution time: 39 seconds

4.20 Math 81

Listing 89: "The generated patch for the bug Math 81"

Number of tests that execute the patch: 4
Execution time: 40 seconds

4.21 Math 85
if (fa * fb >= 0.0 ) {
+ if (maximumIterations == initial) {
  throw new ConvergenceException(
"number of iterations={0} , maximum iterations={1} , " +
"initial={2} , lower bound={3} , upper bound={4} , " +
"final b value={6} , f(a)={7} , f(b)={8}" ,
  numIterations , maximumIterations , initial ,
  lowerBound , upperBound , a , b , fa , fb);
+ "number of iterations={0} , maximum iterations={1} , " +
+ "initial={2} , lower bound={3} , upper bound={4} , final a value={5} , " +
+ "final b value={6} , f(a)={7} , f(b)={8}" ,
+ numIterations , maximumIterations , initial ,
+ lowerBound , upperBound , a , b , fa , fb);
}

Listing 90: "The generated patch for the bug Math 85"

Number of tests that execute the patch: 17
Execution time: 37 seconds

4.22 Math 87

--- / tmp / math_87 _Nopol / src / java / org / apache / commons / math / optimization / linear / SimplexTableau . java
+++ / tmp / math_87 _Nopol / src / java / org / apache / commons / math / optimization / linear / SimplexTableau . java
@@ -160 ,4 +160 ,6 @@
if (! restrictToNonNegative ) {
-    matrix [ row ] [ getSlackVariableOffset () - 1] =
+    if ((1) != ( constraints . size ())) {
+        matrix [ row ] [ getSlackVariableOffset () - 1] =
+            getInvertedCoefficientSum (constraint . getCoefficients ());
+    }
}

Listing 91: "The generated patch for the bug Math 87"

Number of tests that execute the patch: 12
Execution time: 50 seconds

4.23 Math 88

--- / tmp / math_88 _Nopol / src / java / org / apache / commons / math / optimization / linear / SimplexTableau . java
+++ / tmp / math_88 _Nopol / src / java / org / apache / commons / math / optimization / linear / SimplexTableau . java
@@ -338 ,3 +338 ,5 @@
if ( tableau . getEntry ( basicRow , j) == 1) {
-    coefficients [i] = 0;
+    if (org . apache . commons . math . optimization . linear . SimplexTableau . this .
+        constraints . size () < org . apache . commons . math . optimization . linear . SimplexTableau . this .
+        numDecisionVariables ) {
+        coefficients [i] = 0;
+    }
}

Listing 92: "The generated patch for the bug Math 88"

Number of tests that execute the patch: 3
Execution time: 23 seconds

4.24 Math 105

--- / tmp / math_105 _Nopol / src / java / org / apache / commons / math / stat / regression / SimpleRegression . java
+++ / tmp / math_105 _Nopol / src / java / org / apache / commons / math / stat / regression / SimpleRegression . java
@@ -107 ,3 +107 ,5 @@
if (y <= x) {
+    ybar = y;
+    } else {

Listing 93: "The generated patch for the bug Math 105"

Number of tests that execute the patch: 9
Execution time: 35 seconds

5 Mockito

Nopol repairs 2 bugs in the project Mockito.
5.1 Mockito 29

```java
appendQuoting(description);
- description.appendText(wanted.toString());
+ if (org.mockito.internal.matchers.Same.this.wanted != null) {
+     description.appendText(wanted.toString());
+ }
appendQuoting(description);
```

Listing 94: "The generated patch for the bug Mockito 29"

Number of tests that execute the patch: 5
Execution time: 18 seconds

5.2 Mockito 38

```java
public boolean matches(Object actual) {
- if (this.wanted == null) {
+ if (!((actual != null) && (actual != null))) {
return actual == null;
+ }
```

Listing 95: "The generated patch for the bug Mockito 38"

Number of tests that execute the patch: 173
Execution time: 3 minutes, 12 seconds

6 Time

Nopol repairs 8 bugs in the project Time.

6.1 Time 4

```java
newTypes[i] = fieldType;
- newValues[i] = value;
+ if (((20) - (value + newTypes.length) < value) || ((2) != (org.joda.time.Partial.
this.iTypes.length))) {
+     newValues[i] = value;
+ }
System.arraycopy(iTypes, i, newTypes, i + 1, newTypes.length - i - 1);
```

Listing 96: "The generated patch for the bug Time 4"

Number of tests that execute the patch: 75
Execution time: 56 seconds

6.2 Time 7

```java
saveField(DateTimeFieldType.year(), iDefaultYear);
- return computeMillis(resetFields, text);
+ if (resetFields) {
+     return computeMillis(resetFields, text);
+ }
```

Listing 97: "The generated patch for the bug Time 7"

Number of tests that execute the patch: 84
Execution time: 43 seconds

6.3 Time 11
Listing 98: "The generated patch for the bug Time 11"

Number of tests that execute the patch: 18
Execution time: 53 seconds

6.4 Time 12

Listing 99: "The generated patch for the bug Time 12"

Number of tests that execute the patch: 159
Execution time: 1 minute, 29 seconds

6.5 Time 14

Listing 100: "The generated patch for the bug Time 14"

Number of tests that execute the patch: 63
Execution time: 37 seconds

6.6 Time 16
Listing 101: "The generated patch for the bug Time 16"

Number of tests that execute the patch: 54
Execution time: 40 seconds

6.7 Time 18

--- /tmp/time_18_Nopol/src/main/java/org/joda/time/chrono/BasicChronology.java
+++ /tmp/time_18_Nopol/src/main/java/org/joda/time/chrono/BasicChronology.java
@@ -604,3 +604,5 @@
    FieldUtils.verifyValueBounds(DateTimeFieldType.monthOfYear(), monthOfYear, 1,
    getMaxMonth(year));
-   FieldUtils.verifyValueBounds(DateTimeFieldType.dayOfMonth(), dayOfMonth, 1,
+   if (!(10 == monthOfYear) && (((31) - (2)) != (dayOfMonth))) {
+      FieldUtils.verifyValueBounds(DateTimeFieldType.dayOfMonth(), dayOfMonth, 1,
   getDaysInYearMonth(year, monthOfYear));
+   }
   return getYearMonthDayMillis(year, monthOfYear, dayOfMonth);

Listing 102: "The generated patch for the bug Time 18"

Number of tests that execute the patch: 3456
Execution time: 7 minutes, 48 seconds

6.8 Time 19

--- /tmp/time_19_Nopol/src/main/java/org/joda/time/DateTimeZone.java
+++ /tmp/time_19_Nopol/src/main/java/org/joda/time/DateTimeZone.java
@@ -899,3 +899,3 @@
    } else if (offsetLocal > 0) {
-   } else if (org.joda.time.DateTimeZone.this.iID != null) {
+   } else if (org.joda.time.DateTimeZone.this.iID!=null) {
       long prev = previousTransition(instantAdjusted);

Listing 103: "The generated patch for the bug Time 19"

Number of tests that execute the patch: 2139
Execution time: 3 minutes, 24 seconds

References

