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

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Technical report hal-01480084
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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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TITLE = {{The Patches of the Nopol Automatic Repair System on the Bugs of Defects4J version 1.1.0}},
AUTHOR = {Durieux, Thomas and Danglot, Benjamin and Zu, Zhongxing and Martinez, Matias and Monperrus, Martin},
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}

We use 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: 473966c2d5c6d6517bd45beb1d87876858e6b934f
• 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) {

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
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

if (end < start) {
    throw new IllegalArgumentException("Requires start <= end.");
} else 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

if (this.lower == 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

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

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

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

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

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
Number of tests that execute the patch: 10
Execution time: 7 minutes, 8 seconds

2.4 Closure 5

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

2.5 Closure 7

Number of tests that execute the patch: 358
Execution time: 3 minutes, 26 seconds

2.6 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
Listing 19: "The generated patch for the bug Closure 15"
Number of tests that execute the patch: 8
Execution time: 7 minutes, 28 seconds

Listing 20: "The generated patch for the bug Closure 16"
Number of tests that execute the patch: 12
Execution time: 4 minutes, 12 seconds

Listing 21: "The generated patch for the bug Closure 17"
Number of tests that execute the patch: 25
Execution time: 2 minutes, 1 second
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:\n" + toStringTree() +
            "\nTree2:\n" + node2.toStringTree() +
            "\nSubtree1: " + diff.nodeA.toStringTree() +
            "\nSubtree2: " + diff.nodeB.toStringTree();
    }

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

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()) {
            ancestorType = an.getType();
-            if (ancestorType == Token.COMMA) continue;
-            if (ancestorType != Token.EXPR_RESULT && ancestorType != Token.BLOCK) return;
+            if (com.google.javascript.jscomp.CheckSideEffects.PROTECTOR_FN.length() == 0) {
+                for (Node an : parent.getAncestors()) {
+                    ancestorType = an.getNodeType();
+                    if (ancestorType == Token.COMMA) continue;
+                    if (ancestorType != Token.EXPR_RESULT && ancestorType != Token.BLOCK) return;
+                } else break;
+            } else break;
+        }

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

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

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)
+        if (com.google.javascript.jscomp.CheckSideEffects.PROTECTOR_FN.length() == 0) {
+            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: 2  
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)
+        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
2.17 Closure 26

```
--- /tmp/closure_26_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_26_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();
    }
```

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

```
--- /tmp/closure_28_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_28_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();
    }
```

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

```
--- /tmp/closure_29_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_29_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();
    }
```

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
+ if ((fieldName.length()) != 5) {
+ if (builder.addProperty(fieldName, fieldType, fieldNameNode) == null) {
+ // Duplicate field name, warning and skip
+ reporter.warning("Duplicate record field "+ fieldName,
+ + sourceName,
+ + n.getLineno(), fieldNameNode.getCharno());
+ }
+ }

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

--- /tmp/closure_36_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_36_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() +
-    "\nSubtree1: " + diff.nodeA.toStringTree() +
-    "\nSubtree2: " + diff.nodeB.toStringTree();
+    if (com.google.javascript.rhino.Node.this.type <= com.google.javascript.rhino.Node.IS_DISPATCHER) {
+      return "Node tree inequality:" +
+        "\nTree1:\n" + toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
+        "\nSubtree1: " + diff.nodeA.toStringTree() +
+        "\nSubtree2: " + diff.nodeB.toStringTree();
+    }

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

--- /tmp/closure_38_Nopol/src/com/google/javascript/jscomp/CodeConsumer.java
+++ /tmp/closure_38_Nopol/src/com/google/javascript/jscomp/CodeConsumer.java
@@ -244 ,3 +244 ,3 @@
-    if (x < 0 && prev == '-') {
+    if (( prev == '-')) {
+      if ((prev == ' ')) {
+        add(" ");
+      }

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

--- /tmp/closure_40_Nopol/src/com/google/javascript/rhino/Node.java
+++ /tmp/closure_40_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1411 ,7 +1411 ,9 @@
   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 < 32) {
+      return "Node tree inequality:" +
+        "\nTree1:\n" + toStringTree() +
+        "\nTree2:\n" + node2.toStringTree() +
+        "\nSubtree1: " + diff.nodeA.toStringTree() +
+        "\nSubtree2: " + diff.nodeB.toStringTree();
+    }

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

```java
--- /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() +
     - "\nTree2:\n" + node2.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() +
+             "\nTree2:\n" + node2.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

```java
--- /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() +
     - "\nTree2:\n" + node2.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() +
+             "\nTree2:\n" + node2.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

```java
--- /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() +
     - "\nTree2:\n" + node2.toStringTree() +
     - "\nSubtree1: " + diff.nodeA.toStringTree() +
     - "\nSubtree2: " + diff.nodeB.toStringTree();
+ LABEL_PROP) {
+         return "Node tree inequality:" +
+             "\nTree1:\n" + toStringTree() +
+             "\nTree2:\n" + node2.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
Number of tests that execute the patch: 11
Execution time: 2 minutes, 14 seconds

2.31 Closure 60

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

2.32 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/com/google/javascript/jscomp/LightweightMessageFormatter.java
+++ /tmp/closure_63_Nopol/src/com/google/javascript/jscomp/LightweightMessageFormatter.java
@@ -96,4 +96,3 @@
        // at the end of the line
        if (excerpt.equals(LINE))
            & & 0 <= charno & & charno < sourceExcerpt.length()) {
+        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/com/google/javascript/jscomp/TypeCheck.java
+++ /tmp/closure_66_Nopol/src/com/google/javascript/jscomp/TypeCheck.java
@@ -821,3 +821,5 @@
        if (type == null) {
            nullCount++;
            if (com.google.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/com/google/javascript/rhino/Node.java
+++ /tmp/closure_67_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1384,7 +1384,9 @@
        if (diff != null) {
            return "Node tree inequality:" +
            "\nTree1:\n" + toStringTree() +
            "\nTree2:\n" + 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/com/google/javascript/rhino/Node.java
+++ /tmp/closure_72_Nopol/src/com/google/javascript/rhino/Node.java
@@ -1381,7 +1381,9 @@
        if (diff != null) {
            return "Node tree inequality:" +
            "\nTree1:\n" + toStringTree() +
            "\nTree2:\n" + 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

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

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

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
+ 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();
+      "\nTree1:\n" + node2.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();
+      "\nTree1:\n" + node2.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();
+      "\nTree1:\n" + node2.toStringTree() +
+      "\nTree2:\n" + node2.toStringTree() +
+      "\nSubtree1: " + diff.nodeA.toStringTree() +
+      "\nSubtree2: " + diff.nodeB.toStringTree();
     }
}

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

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

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

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
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

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

Listing 63: "The generated patch for the bug Closure 131"

Number of tests that execute the patch: 9
Execution time: 2 minutes, 21 seconds
if (diff != null) {
  return "Node tree inequality:" +
  "\nTree1: " + toStringTree() +
  "\nTree2: " + 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);
   
   return

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
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
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

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

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

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
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/math_44_Nopol/src/main/java/org/apache/commons/math/ode/AbstractIntegrator.java
+++ /tmp/math_44_Nopol/src/main/java/org/apache/commons/math/ode/AbstractIntegrator.java
@@ -286,3 +286,5 @@
     statesInitialized = true;
     }()
     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/math_49_Nopol/src/main/java/org/apache/commons/math/linear/OpenMapRealVector.java
+++ /tmp/math_49_Nopol/src/main/java/org/apache/commons/math/linear/OpenMapRealVector.java
@@ -666,3 +666,5 @@
         if (org.apache.commons.math.linear.OpenMapRealVector.DEFAULT_ZERO_TOLERANCE == org
             apache.commons.math.linear.OpenMapRealVector.this.epsilon) {
             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/math_50_Nopol/src/main/java/org/apache/commons/math/analysis/solvers/BaseSecantSolver.java
+++ /tmp/math_50_Nopol/src/main/java/org/apache/commons/math/analysis/solvers/BaseSecantSolver.java
@@ -236,15 +236,17 @@
         switch (allowed) {
             case ANY_SIDE:
             return x1;
Listing 24
Listing 82: "The generated patch for the bug Math 50"

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

4.14 Math 57

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

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

4.15 Math 58

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

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

4.16 Math 69

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

Number of tests that execute the patch: 11
Execution time: 33 seconds

4.17 Math 73
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);
} else {
    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

--- /tmp/math_78_Nopol/src/main/java/org/apache/commons/math/analysis/solvers/BrentSolver.java
+++ /tmp/math_78_Nopol/src/main/java/org/apache/commons/math/analysis/solvers/BrentSolver.java
@@ -260,3 +260,3 @@
    // it should NOT be replaced by proximity test
    - if (x0 == x2) {
    + if (((1 < x2) && (!(y0 <= i))) || (x0 == x2)) {
        // Linear interpolation.

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

--- /tmp/math_80_Nopol/src/main/java/org/apache/commons/math/linear/EigenDecompositionImpl.java
+++ /tmp/math_80_Nopol/src/main/java/org/apache/commons/math/linear/EigenDecompositionImpl.java
@@ -1138,3 +1138,5 @@
    final double tmp = work[i + k];
    - work[i + k] = work[j - k];
    + if (org.apache.commons.math.linear.EigenDecompositionImpl.this.cachedD != null) {
    +     work[i + k] = work[j - k];
    +     }
    work[j - k] = tmp;

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

--- /tmp/math_81_Nopol/src/main/java/org/apache/commons/math/linear/EigenDecompositionImpl.java
+++ /tmp/math_81_Nopol/src/main/java/org/apache/commons/math/linear/EigenDecompositionImpl.java
@@ -1585,4 +1585,4 @@
    case 1 : // one eigenvalue just deflated. use dMin1, dN1 for dMin and dN.
    - if (dMin1 == dN1 && dMin2 == dN2) {
    + if (org.apache.commons.math.linear.EigenDecompositionImpl.this.main != null) {
    +     // cases 7 and 8.
    -    }
    +    }
    } else {
    
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

--- /tmp/math_85_Nopol/src/java/org/apache/commons/math/analysis/solvers/UnivariateRealSolverUtils.java
+++ /tmp/math_85_Nopol/src/java/org/apache/commons/math/analysis/solvers/UnivariateRealSolverUtils.java
@@ -197,9 +197,9 @@

Listing 90: "The generated patch for the bug 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 a value={5}, " +
- "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 @@
    xbar = x;
    ybar = y;
    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

```
--- /tmp/mockito_29_Nopol/src/org/mockito/internal/matchers/Same.java
+++ /tmp/mockito_29_Nopol/src/org/mockito/internal/matchers/Same.java
@@ -28,3 +28,5 @@
    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

```
--- /tmp/mockito_38_Nopol/src/org/mockito/internal/matchers/Equals.java
+++ /tmp/mockito_38_Nopol/src/org/mockito/internal/matchers/Equals.java
@@ -19,3 +19,3 @@
     public boolean matches(Object actual) {
-        if (this.wanted == null) {
+        if (org.mockito.internal.matchers.Equals.this.wanted == 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

```
--- /tmp/time_4_Nopol/src/main/java/org/joda/time/Partial.java
+++ /tmp/time_4_Nopol/src/main/java/org/joda/time/Partial.java
@@ -458,3 +458,5 @@
    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

```
--- /tmp/time_7_Nopol/src/main/java/org/joda/time/format/DateTimeParserBucket.java
+++ /tmp/time_7_Nopol/src/main/java/org/joda/time/format/DateTimeParserBucket.java
@@ -358,3 +358,5 @@
    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

28
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,
 FieldUtils.verifyValueBounds(DateTimeFieldType.dayOfMonth(), dayOfMonth, 1,
 getDaysInYearMonth(year, monthOfYear));
- FieldUtils.verifyValueBounds(DateTimeFieldType.dayOfMonth(), dayOfMonth, 1,
- getDaysInYearMonth(year, monthOfYear));
+ 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) {
     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

