**RQ1:**

tornado

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Release | Dynamic features  —  changes | Dynamic features  —  no changes | No dynamic features  —  changes | No dynamic features  —  no changes | P-values | OR |
| 1.0.0 |  |  |  |  | 0.04 | 3.94 |
| 1.2.0 |  |  |  |  | 1 | 1.43 |
| 2.1.0 |  |  |  |  | <0.01 | 4.21 |
| 2.2.0 |  |  |  |  | 0.11 | 2.57 |
| 2.4.0 |  |  |  |  | 0.16 | 3.45 |
| 3.0.0 |  |  |  |  | <0.01 | 6.52 |
| 3.1.1 |  |  |  |  | <0.01 | 6.41 |
| 3.2.1 |  |  |  |  | <0.01 | 8.70 |
| 4.0.2 |  |  |  |  |  |  |

**RQ2**

tornado

|  |  |  |
| --- | --- | --- |
| Release | M-W | Cohen d |
| 1.0.0 | 0.05 | 0.49 (small) |
| 1.2.0 | 0.83 | 0.13(negligible) |
| 2.1.0 | <0.01 | 0.61 (medium) |
| 2.2.0 | 0.10 | 0.37 (small) |
| 2.4.0 | 0.05 | 0.53 (medium) |
| 3.0.0 | <0.01 | 0.75(medium) |
| 3.1.1 | <0.01 | 0.66 (medium) |
| 3.2.1 | <0.01 | 0.54 (medium) |
| 4.0.2 |  |  |

**RQ3:**

tornado

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Version ID  Dynamic Features | 1.0.0 | 1.2.0 | 2.1.0 | 2.2.0 | 2.4.0 | 3.0.0 | 3.1.1 | 3.2.1 | 4.0.2 |
| introspection | 0.16 | 0.91 | 0.05 | 0.38 | 0.25 | <0.01 | 0.02 | 0.09 |  |
| object changes | 0.58 | 0.44 | 0.05 | 0.18 | 0.50 | 0.12 | 0.27 | 0.26 |  |
| code generation | 0.37 | 0.74 | 0.30 | 0.61 | 0.82 | NA | NA | NA |  |
| library loading | 0.24 | 0.64 | 0.72 | 0.53 | 0.71 | 0.28 | 0.33 | 0.42 |  |