I. TABLES AND FIGURES

This document shows additional data of Mythril, SmartExecutor, and Phase 1 of SmartExecutor on the SGUARD dataset under two timeouts: 900s and 1800s. After removing the contracts that fail to be compiled properly, a total of 4816 contracts are considered experiments.

A. Tables

1) : Tables I and II show the data about the numbers of contracts that are finished before timeout and that have timeout under 900s and 1800s, respectively.

TABLE I
DATA REGARDING THE NUMBERS OF CONTRACTS WITH AND WITHOUT TIMEOUT UNDER TIMEOUT 900S.

| | Timeout: 900s | | | | | | | | | | | |
| | Mythril | | | | SmartExecutor | | | | Phase 1 of SmartExecutor | | | |
	1st	2nd	3rd	Average	1st	2nd	3rd	Average	1st	2nd	3rd	Average
Contracts Without Timeout	2662	2659	2659	2660	3466	3462	3463	3464	3791	3792	3789	3791
Contracts With Timeout	2154	2157	2157	2156	1350	1354	1353	1352	1025	1024	1027	1025

TABLE II
DATA REGARDING THE NUMBERS OF CONTRACTS WITH AND WITHOUT TIMEOUT UNDER TIMEOUT 1800S.

| | Timeout: 1800s | | | | | | | | | | | |
| | Mythril | | | | SmartExecutor | | | | Phase 1 of SmartExecutor | | | |
	1st	2nd	3rd	Average	1st	2nd	3rd	Average	1st	2nd	3rd	Average
Contracts Without Timeout	3356	3349	3348	3351	3729	3734	3738	3734	4086	4086	4088	4087
Contracts With Timeout	1460	1467	1468	1465	1087	1082	1078	1082	730	730	728	729

2) : Tables III and IV present the distributions of the contracts that we can not collect data for some metrics. These contracts are categorized into 4 cases.

TABLE III
DATA REGARDING THE NUMBERS OF CONTRACTS WE CANNOT COLLECT RESULTS UNDER TIMEOUT 900S.

| | Timeout: 900s | | | | | | | | | | | |
| | Mythril | | | | SmartExecutor | | | | Phase 1 of SmartExecutor | | | |
	1st	2nd	3rd	Average	1st	2nd	3rd	Average	1st	2nd	3rd	Average
Case 1	161	160	162	161	170	170	170	170	182	185	182	183
Case 2	337	335	336	336	331	332	332	332	332	332	332	332
Case 3	953	953	967	958	427	452	447	442	307	295	308	303
Case 4	40	41	40	40	95	99	96	97	94	94	94	94
Total Contracts	1491	1489	1505	1495	1023	1053	1045	1040	915	906	916	912

Case 1: contracts having coverage data of other invoked contracts.
Case 2: contracts failed to be deployed.
Case 3: contracts whose results are not accessible caused by timeout.
Case 4: contracts experienced a runtime exception.

TABLE IV
DATA REGARDING THE NUMBERS OF CONTRACTS WE CANNOT COLLECT RESULTS UNDER TIMEOUT 1800S.

| | Timeout: 1800s | | | | | | | | | | | |
| | Mythril | | | | SmartExecutor | | | | Phase 1 of SmartExecutor | | | |
	1st	2nd	3rd	Average	1st	2nd	3rd	Average	1st	2nd	3rd	Average
Case 1	141	143	155	146	177	179	175	177	191	190	190	190
Case 2	337	337	337	337	331	331	331	331	332	332	332	332
Case 3	963	940	846	916	471	437	455	454	297	339	311	316
Case 4	40	41	40	40	95	95	95	95	94	94	94	94
Total Contracts	1481	1461	1378	1440	1074	1042	1056	1057	914	955	927	932

Case 1: contracts having coverage data of other invoked contracts.
Case 2: contracts failed to be deployed.
Case 3: contracts whose results are not accessible caused by timeout.
Case 4: contracts experienced a runtime exception.

B. Figures

This part shows the difference distributions of the four metrics in charts. Xaxes define the intervals. Yaxes denote the number of contracts. 'min' and 'max' represent the minimum and maximum numbers in the same data series respectively.

1) Mythril and SmartExecutor: Fig. 1 and Fig. 2 show the difference distributions between Mythril and SmartExecutor. The differences are the results of the metric data of Mythril minus those of SmartExecutor.
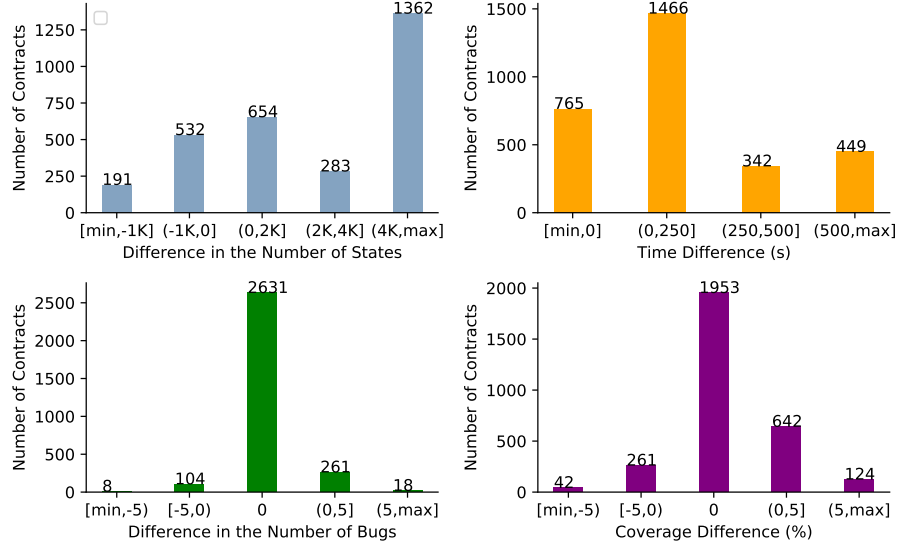

Fig. 1. The Difference Distribution of Each of the Metrics: Time, # of States, # of Bugs, and Code Coverage on the 2971 Contracts under 900s Timeout.
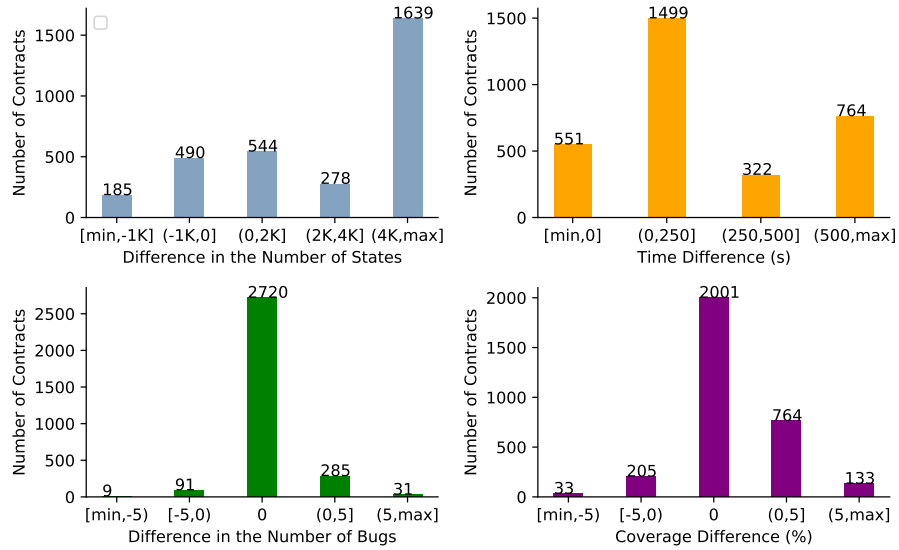
Fig. 2. The Difference Distribution of Each of the Metrics: Time, # of States, # of Bugs, and Code Coverage on the 3136 Contracts under 1800s Timeout.

2) SmartExecutor as a whole and Phase 1 of SmartExecutor: Fig. 3 and Fig. 4 show the difference distributions between SmartExecutor as a whole and Phase 1 of SmartExecutor. The differences are obtained by subtracting the metric data of Phase 1 of SmartExecutor from those of SmartExecutor.
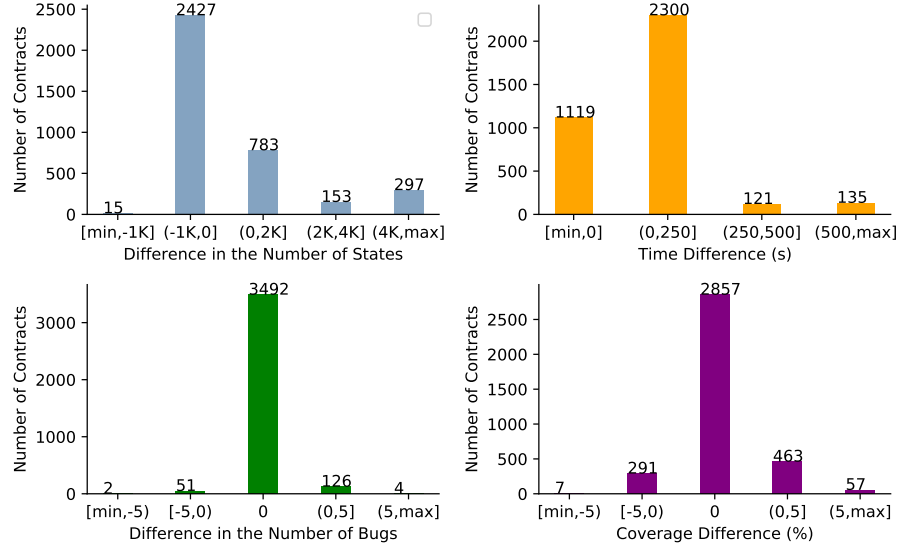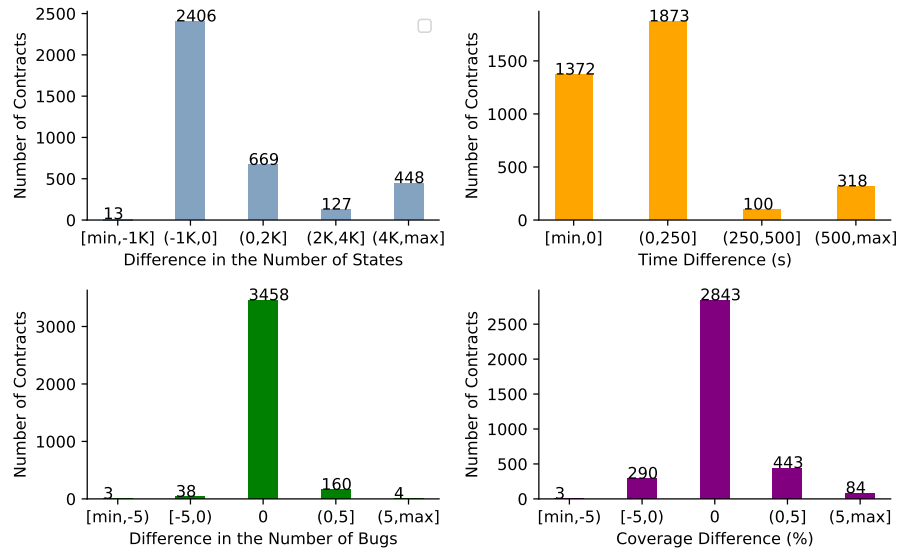

Fig. 3. The Difference Distribution of Each of the Metrics: Time, # of States, # of Bugs, and Code Coverage on the 3675 Contracts under 900s Timeout.

Fig. 4. The Difference Distribution of Each of the Metrics: Time, # of States, # of Bugs, and Code Coverage on the 3663 Contracts under 1800s Timeout.

3) Mythril and Phase 1 of SmartExecutor: Fig. 5 and Fig. 6 show the difference distributions between Mythril and Phase 1 of SmartExecutor. The differences are obtained by subtracting the metric data of Phase 1 of SmartExecutor from those of Mythril.
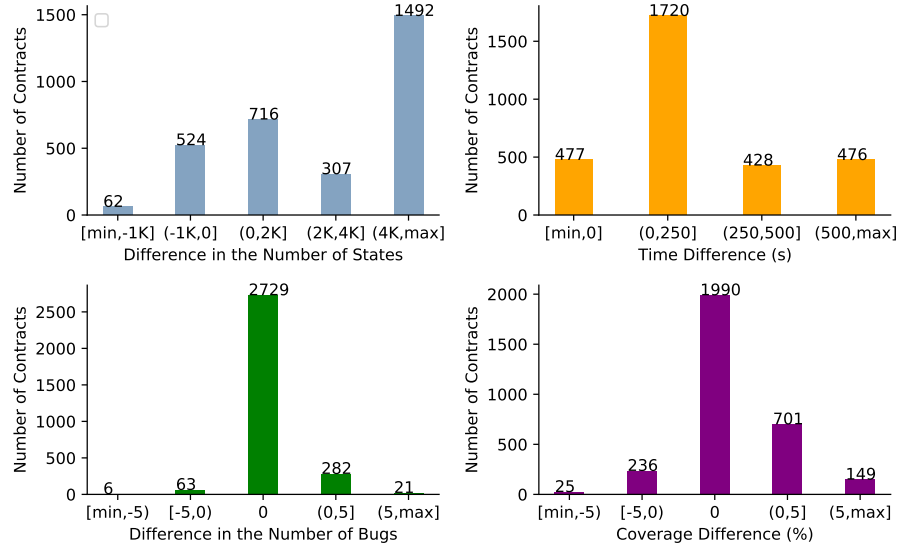

Fig. 5. The Difference Distribution of Each of the Metrics: Time, # of States, # of Bugs, and Code Coverage on the 3101 Contracts under 900s Timeout.
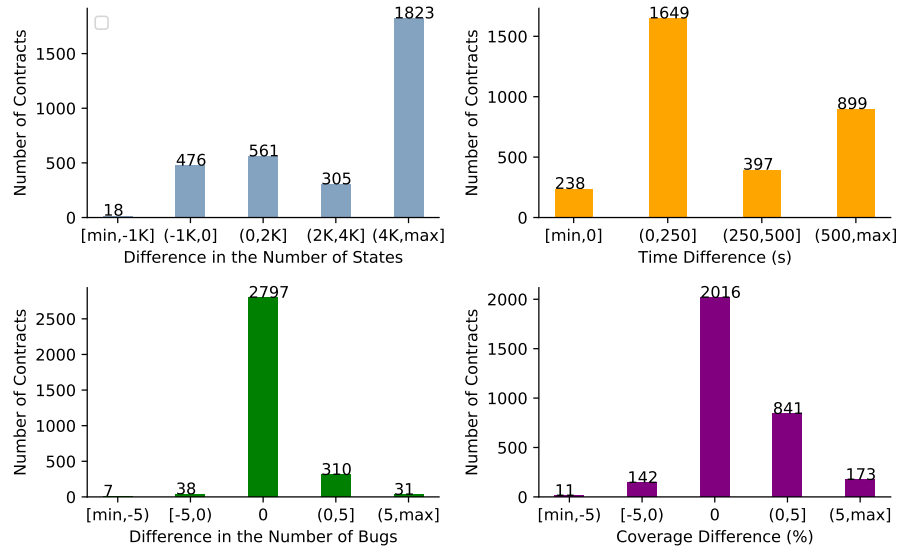

Fig. 6. The Difference Distribution of Each of the Metrics: Time, # of States, # of Bugs, and Code Coverage on the 3183 Contracts under 1800s Timeout.