Appendix C: Types of Bugs

Paper #305

I. Types of Bugs

The types of bugs fall into two categories: crash and wrong code.

The average numbers of crash bugs detected by CTC and its competitors on all subjects are shown in Table I.

The average numbers of wrong code bugs detected by CTC and its competitors on all subjects are shown in Table II.

The average numbers of crash bugs detected by CTC and its alternative versions on all subjects are shown in Table III.

The average numbers of wrong code bugs detected by CTC and its alternative versions on all subjects are shown in Table IV.

TABLE I: Average numbers of unique crash bugs detected by *CTC*, *COTest* and random testing on all subjects in 24 hours.

Approach	GCC		LLVM		Total
	4.5.0	4.6.0	5.0	10.0	
CTC	**5.6**	**4.4**	**2.4**	**1.8**	**14.2**
COTest	5.4	4.3	1.4	0.6	11.7
Rand	4.5	3.2	0.9	0.4	9.0

TABLE II: Average numbers of unique wrong code bugs detected by *CTC*, *COTest* and random testing on all subjects in 24 hours.

Approach	GCC		LLVM		Total
	4.5.0	4.6.0	5.0	10.0	
CTC	**50.1**	**14.1**	**22.0**	**16.8**	**103.0**
COTest	34.9	5.1	1.0	1.2	42.2
Rand	18.8	4.5	4.3	0.6	28.2

TABLE III: Average numbers of unique crash bugs detected by *CTC* and its all alternative versions on all subjects in 24 hours.

Approach	GCC		LLVM		Total
	4.5.0	4.6.0	5.0	10.0	
CTC	**5.6**	**4.4**	**2.4**	**1.8**	**14.2**
Alt-1	4.9	3.7	0.7	0.4	9.7
Alt-2	5.3	4.3	1.3	0.5	11.4
Alt-3	5.2	4.2	1.7	0.6	11.7
Alt-4	5.2	4.3	1.2	0.4	11.1

TABLE IV: Average numbers of unique wrong code bugs detected by *CTC* and its all alternative versions on all subjects in 24 hours.

Approach	GCC		LLVM		Total
	4.5.0	4.6.0	5.0	10.0	
CTC	**50.1**	**14.1**	**22.0**	**16.8**	**103.0**
Alt-1	32.9	4.2	6.0	2.9	46.0
Alt-2	35.2	8.4	14.8	8.7	67.1
Alt-3	38.1	7.2	11.5	8.1	64.9
Alt-4	33.8	6.1	11.8	4.7	56.4