

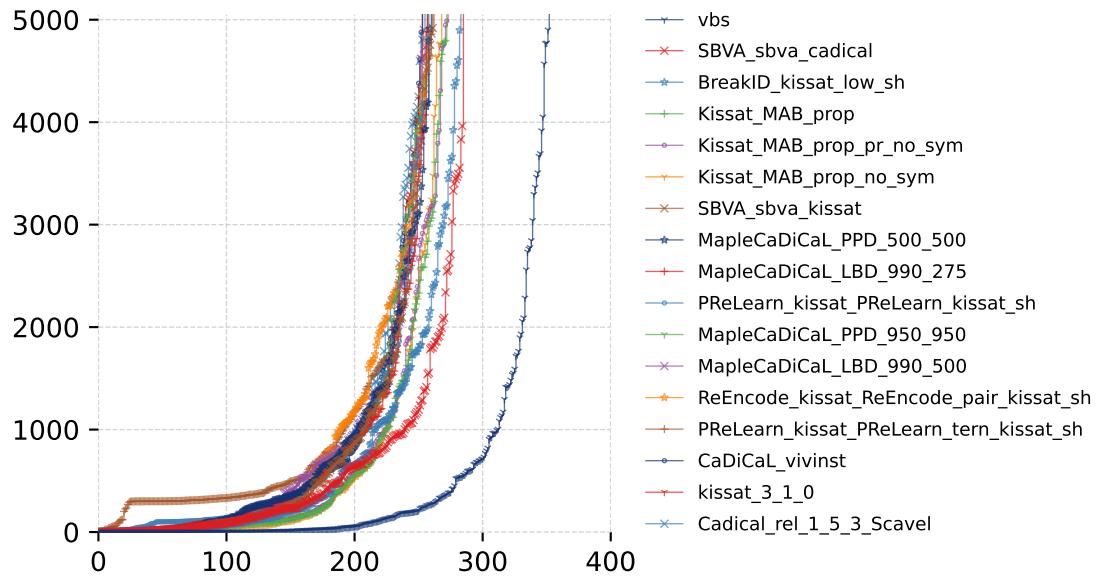
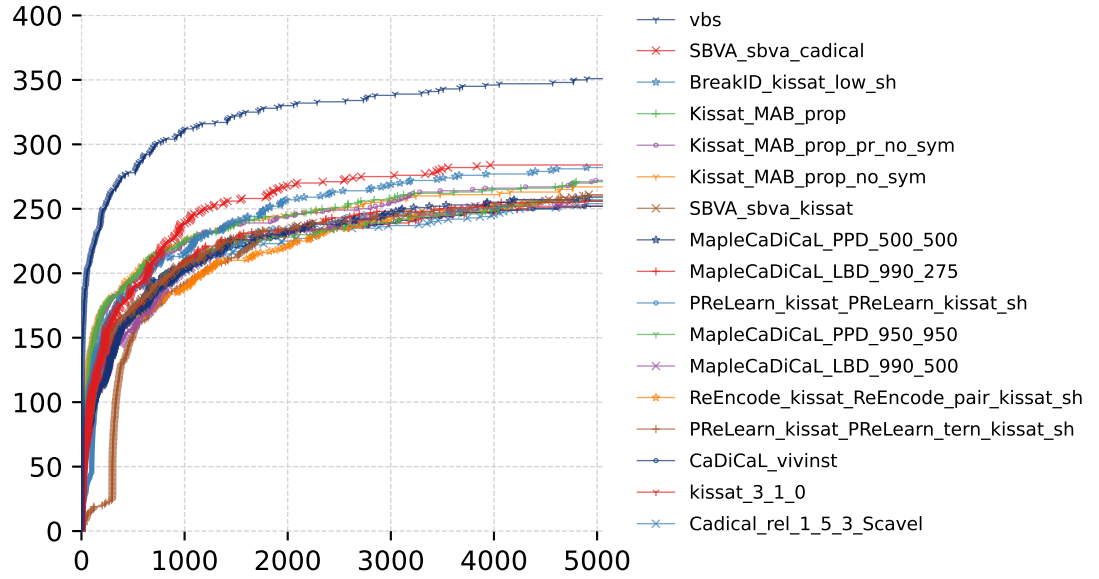
# SAT Competition 2023

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Evaluation is based on solver runtimes in SAT Competition 2023 without the checker-timeout penalty in order to compare the pure proof-production performance of solvers.

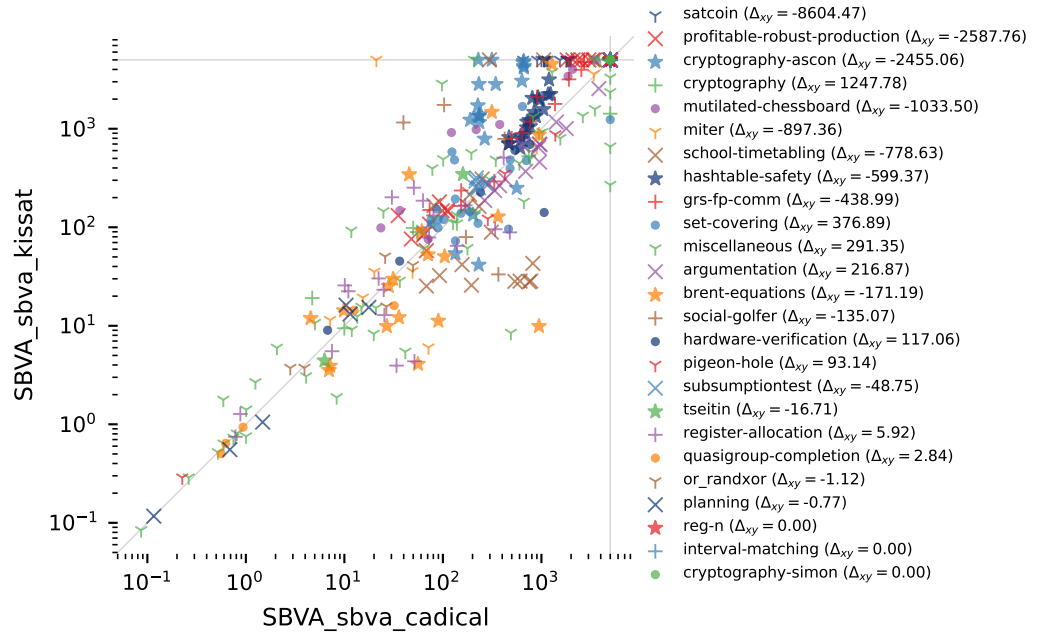
At the same time, this is a sample document for testing and showing how to use the evaluation functions in this repository.

# 1 CDF and Cactus Plots



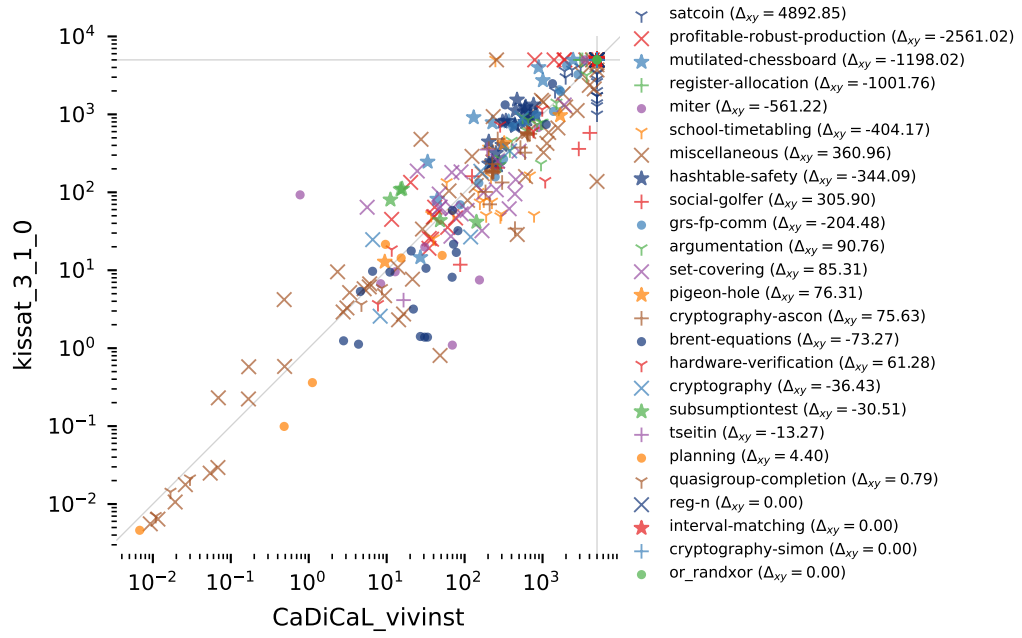
## 2 SBVA-CaDiCaL vs. SBVA-Kissat

Family	Count	SBVA CaDiCaL	SBVA Kissat	VBS
Satcoin	15	<b>1395.53</b>	10000.00	1151.09
Profitable-Robust-Production	20	<b>2470.42</b>	5058.18	1333.87
Cryptography-Ascon	20	<b>356.82</b>	2811.89	234.84
Cryptography	7	1578.46	<b>330.68</b>	269.45
Mutilated-Chessboard	12	<b>3194.54</b>	4228.03	1540.17
Miter	11	<b>3134.91</b>	4032.27	3012.37
School-Timetabling	19	<b>1399.65</b>	2178.28	1087.90
Hashtable-Safety	20	<b>797.46</b>	1396.84	179.58
Grs-Fp-Comm	17	<b>3649.90</b>	4088.89	1885.76
Set-Covering	20	722.01	<b>345.13</b>	2.88
Miscellaneous	70	3071.07	<b>2779.72</b>	490.37
Argumentation	20	3693.93	<b>3477.05</b>	3401.26
Brent-Equations	19	<b>232.86</b>	404.04	83.28
Social-Golfer	20	<b>7555.16</b>	7690.23	5654.50
Hardware-Verification	8	2832.05	<b>2714.99</b>	1443.63
Pigeon-Hole	8	5261.85	<b>5168.71</b>	5063.78
Subsumptiontest	5	<b>230.22</b>	278.97	4.89
Tseitin	11	<b>8196.91</b>	8213.62	249.27
Register-Allocation	20	101.20	<b>95.28</b>	1.61
Quasigroup-Completion	5	9.33	<b>6.49</b>	1.05
Or_Randxor	5	<b>21.82</b>	22.94	17.87
Planning	6	<b>6.97</b>	7.75	4.24
Reg-N	5	<b>10000.00</b>	<b>10000.00</b>	4766.27
Interval-Matching	20	<b>10000.00</b>	<b>10000.00</b>	0.15
Cryptography-Simon	17	<b>10000.00</b>	<b>10000.00</b>	9700.12
All	400	<b>3257.62</b>	3882.65	1548.15



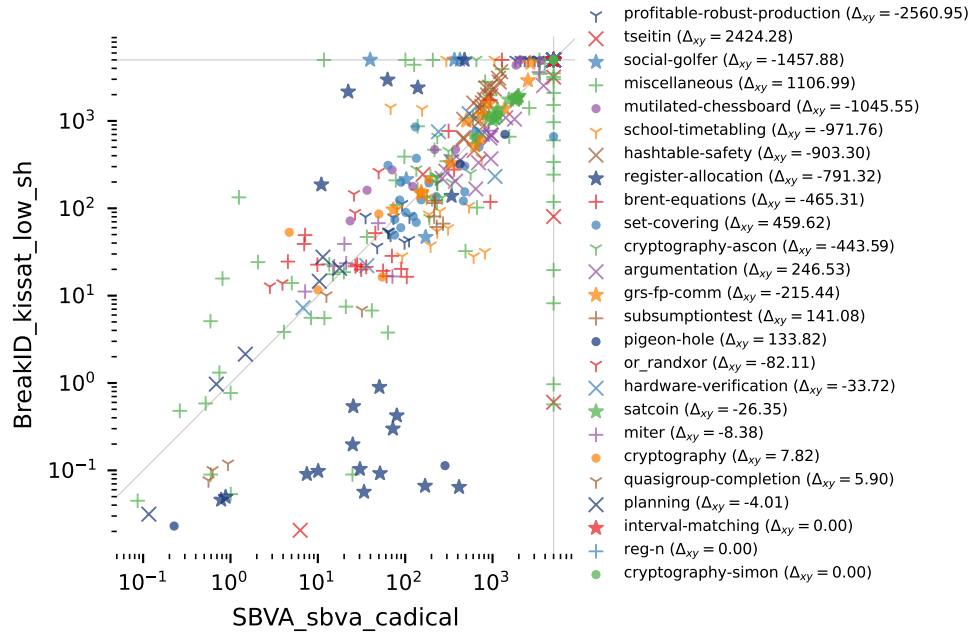
### 3 CaDiCaL-vivinst vs. Kissat-3.1.0

Family	Count	Cadical.Vivinst	Kissat_3.1.0	VBS
Satcoin	15	7388.71	<b>2495.86</b>	1151.09
Profitable-Robust-Production	20	<b>2463.60</b>	5024.62	1333.87
Mutilated-Chessboard	12	<b>2933.52</b>	4131.55	1540.17
Register-Allocation	20	<b>8998.24</b>	10000.00	1.61
Miter	11	<b>3149.19</b>	3710.41	3012.37
School-Timetabling	19	<b>1264.86</b>	1669.03	1087.90
Miscellaneous	70	3140.29	<b>2779.33</b>	490.37
Hashtable-Safety	20	<b>460.96</b>	805.04	179.58
Social-Golfer	20	7871.79	<b>7565.89</b>	5654.50
Grs-Fp-Comm	17	<b>3659.80</b>	3864.28	1885.76
Argumentation	20	3688.69	<b>3597.93</b>	3401.26
Set-Covering	20	259.73	<b>174.42</b>	2.88
Pigeon-Hole	8	6502.28	<b>6425.97</b>	5063.78
Cryptography-Ascon	20	378.92	<b>303.29</b>	234.84
Brent-Equations	19	<b>176.54</b>	249.81	83.28
Hardware-Verification	8	2893.13	<b>2831.85</b>	1443.63
Cryptography	7	<b>1602.26</b>	1638.69	269.45
Subsumptiontest	5	<b>46.47</b>	76.98	4.89
Tseitin	11	<b>8201.03</b>	8214.31	249.27
Planning	6	13.03	<b>8.63</b>	4.24
Quasigroup-Completion	5	2.70	<b>1.91</b>	1.05
Reg-N	5	<b>10000.00</b>	<b>10000.00</b>	4766.27
Interval-Matching	20	<b>10000.00</b>	<b>10000.00</b>	0.15
Cryptography-Simon	17	<b>10000.00</b>	<b>10000.00</b>	9700.12
Or_Randxor	5	<b>10000.00</b>	<b>10000.00</b>	17.87
All	400	<b>4048.63</b>	4050.74	1548.15



## 4 SBVA-CaDiCaL vs. BreakId

Family	Count	SBVA CaDiCaL	Breakid_Kissat_Low_Sh	VBS
Profitable-Robust-Production	20	<b>2470.42</b>	5031.37	1333.87
Tseitin	11	8196.91	<b>5772.63</b>	249.27
Social-Golfer	20	<b>7555.16</b>	9013.05	5654.50
Miscellaneous	70	3071.07	<b>1964.08</b>	490.37
Mutilated-Chessboard	12	<b>3194.54</b>	4240.09	1540.17
School-Timetabling	19	<b>1399.65</b>	2371.42	1087.90
Hashtable-Safety	20	<b>797.46</b>	1700.77	179.58
Register-Allocation	20	<b>101.20</b>	892.52	1.61
Brent-Equations	19	<b>232.86</b>	698.16	83.28
Set-Covering	20	722.01	<b>262.39</b>	2.88
Cryptography-Ascon	20	<b>356.82</b>	800.41	234.84
Argumentation	20	3693.93	<b>3447.39</b>	3401.26
Grs-Fp-Comm	17	<b>3649.90</b>	3865.34	1885.76
Subsumptiontest	5	230.22	<b>89.14</b>	4.89
Pigeon-Hole	8	5261.85	<b>5128.03</b>	5063.78
Or_Randxor	5	<b>21.82</b>	103.93	17.87
Hardware-Verification	8	<b>2832.05</b>	2865.77	1443.63
Satcoin	15	<b>1395.53</b>	1421.87	1151.09
Miter	11	<b>3134.91</b>	3143.29	3012.37
Cryptography	7	1578.46	<b>1570.64</b>	269.45
Quasigroup-Completion	5	9.33	<b>3.43</b>	1.05
Planning	6	<b>6.97</b>	10.98	4.24
Interval-Matching	20	<b>10000.00</b>	<b>10000.00</b>	0.15
Reg-N	5	<b>10000.00</b>	<b>10000.00</b>	4766.27
Cryptography-Simon	17	<b>10000.00</b>	<b>10000.00</b>	9700.12
All	400	<b>3257.62</b>	3376.88	1548.15





## 5 Portfolio Analysis

K	Portfolio	Score
1	Sbva_Sbva_Cadical	3257.62
1	Breakid_Kissat_Low_Sh	3376.88
1	Kissat_Mab_Prop	3575.78
2	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym	2192.67
2	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_No_Sym	2233.91
2	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop	2283.26
3	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Cadical_Rel.1.5.3_Scavel	2015.44
3	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Sbva_Sbva_Cadical	2029.28
3	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine	2030.71
4	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Cadical_Rel.1.5.3_Scavel	1853.78
4	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Sbva_Sbva_Cadical	1867.67
4	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Cadical_Vivinst	1876.50
5	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Hkissatinc_Unsat, Cadical_Rel.1.5.3_Scavel	1760.73
5	Breakid_Kissat_Low_Sh, Minisat_Xorengine, Hkissatinc_Unsat, Cadical_Rel.1.5.3_Scavel, Kissat_Mab_Prop_No_Sym	1775.08
5	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Hkissatinc_Unsat, Sbva_Sbva_Cadical	1777.68
6	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Hkissatinc_Unsat, Cadical_Rel.1.5.3_Scavel, Reencode_Kissat_Reencode_Pair_Kissat_Sh	1699.73
6	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Hkissatinc_Unsat, Cadical_Rel.1.5.3_Scavel, Amsat_	1701.04
6	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Hkissatinc_Unsat, Cadical_Rel.1.5.3_Scavel, Kissat_Mab_Rephases	1702.03
7	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Hkissatinc_Unsat, Cadical_Rel.1.5.3_Scavel, Amsat_, Kissat_Mab_Rephases	1662.14
7	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Hkissatinc_Unsat, Cadical_Rel.1.5.3_Scavel, Amsat_, Reencode_Kissat_Reencode_Pair_Kissat_Sh	1663.30
7	Breakid_Kissat_Low_Sh, Kissat_Mab_Prop_Pr_No_Sym, Minisat_Xorengine, Hkissatinc_Unsat, Cadical_Rel.1.5.3_Scavel, Cadical_Vivinst, Kissat_Mab_Rephases	1663.99

## 6 Family-wise CDF Plots

