

# Balancing Trade-offs in Test-suite Reduction

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1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Project	Ver	Min	LOC Med	Max	Min	Tests Med	Max	Min	Mutants Med	Max	Min	Mut Score (%) Med	Max
SLF4J	10	12336	13374	14015	76	85	106	2486	2618	2992	27.16	28.50	28.94
Dropwizard Metrics	6	12246	12679	13361	270	291	318	5041	5489	5592	64.52	66.38	73.10
Square Wire	4	6628	10577	12403	19	49	61	3415	4736	5625	77.09	78.78	79.12
Scribe-Java	8	2497	3849	6326	38	59	99	579	974	1622	34.71	49.46	59.44
Java-APNS	8	1398	2952	4029	15	62	87	337	734	1122	30.27	40.92	57.37
Caelum V raptor	5	33164	34128	35039	985	1081	1124	9338	9667	9733	72.50	75.07	75.34
MessagePack	10	24129	34771	41957	428	1117	1148	6243	6856	11452	37.20	53.73	59.37
Commons-Lang	10	65929	66861	68229	2291	2365	2480	25415	25620	26538	79.96	80.09	80.33
SQL-Parser	6	13757	15667	17730	48	109	243	9615	11437	12778	23.28	28.59	33.68
JOPT-Simple	5	7171	8742	9367	394	621	657	1561	1608	1796	92.66	94.23	94.60
GS-Collections	10	181430	202295	241025	12627	13519	16612	44417	49347	57600	83.90	84.09	84.56
Cloudfoundry UAA	6	17865	22771	29379	103	141	477	4155	5737	9852	45.81	51.08	52.89
AssertJ-Core	8	55784	64190	67661	4055	4864	5269	7691	8988	10004	82.12	85.32	87.41
JodaTime	7	87189	87882	89952	3834	3924	4033	27451	27750	28382	72.22	72.42	74.25
Caelum Stella	9	21691	29870	38345	387	524	660	4341	4653	5515	66.69	68.36	74.54
Jasmine	6	2363	5034	5864	7	82	118	377	1005	1210	43.50	59.92	61.39
LA4J	9	8120	10639	12581	172	437	625	7062	8408	9086	42.75	44.71	58.10
Cloudera ML	4	5675	7083	9046	14	16	39	2723	3283	4641	35.59	37.75	41.42
Mean over all ver	-	40910			1994			11366			60.75%		

Table 1: Project and sha numbers used in our evaluation.

Project URL	SHA
https://github.com/qos-ch/slf4j	a58ce0193c07f437d49d520efa1cc6e0b31066b5
https://github.com/qos-ch/slf4j	f56ee2ea37af6a22710b74142477b245a65aee18
https://github.com/qos-ch/slf4j	e74da9a73fc96401f39e00604fb4ad83ac31ffaf
https://github.com/qos-ch/slf4j	75cf4a0c012f4158246e15f7231360afd948faa5
https://github.com/qos-ch/slf4j	c0a016174bedbda6be1344fe260edd23bbbc1822
https://github.com/qos-ch/slf4j	36d3a0d6d081424bf40ddf10b7e5479a14a216ef
https://github.com/qos-ch/slf4j	e96146a7676a3e39b02ed228e07c383139960b98
https://github.com/qos-ch/slf4j	631a9be2cfa19e1a3fe62a7c644ab3498d705cbb
https://github.com/qos-ch/slf4j	58e6b11530ab61312326b4d5f4bf43900797d650
https://github.com/qos-ch/slf4j	cf6dbdba9809bb65e0f4517c185f144605f32d85
https://github.com/dropwizard/metrics	6bb7a30a23a50abb64d1099b2406090c4f272dc1
https://github.com/dropwizard/metrics	427eaad53e8d6d42324d43993906238af4884659
https://github.com/dropwizard/metrics	b903c819d39e439f36187433b7177fad0b009f0c
https://github.com/dropwizard/metrics	9cb5ef3dc4ee56c3fc3a681b4c618aa105c2e0bd
https://github.com/dropwizard/metrics	1e7834d765b8d57262202264cb4076ab515e8d05
https://github.com/dropwizard/metrics	6bf66144da9b9c3f4a2e83b736790de37fc43288
https://github.com/square/wire	b9815753977c6619783448c57b5718fd13c4ca07
https://github.com/square/wire	65364c2c33d711a5a21952fd34a49ff0e7b91f06
https://github.com/square/wire	3cad6d0c67de904776b098a7166994e93c1b8ac8
https://github.com/square/wire	239629cdd5cf7bf285a8bbecc32714a32e3e93f7
https://github.com/fernandezpablo85/scribe-java	9cb2af37c7c3f9fdcc3da63714ba801747df33b2
https://github.com/fernandezpablo85/scribe-java	05988a63cd03275468eb4dba39bbe18cb14d8d40
https://github.com/fernandezpablo85/scribe-java	26792c063045e9557e79c9e84c3709f5ada22395
https://github.com/fernandezpablo85/scribe-java	479bfe6a425bd4b66f018417c247d52cc91216b8
https://github.com/fernandezpablo85/scribe-java	0222f08f40c96263aa8ee7180215fa7030fbd3f6
https://github.com/fernandezpablo85/scribe-java	6ae769e35e8319747a702a4962df31650303a98e
https://github.com/fernandezpablo85/scribe-java	ca7950004b17251129b5bfad07df46d412a15a9
https://github.com/fernandezpablo85/scribe-java	d8ab4ba404ec0a6ee797bf7aa36d7f6e1d186be2
https://github.com/notnoop/java-apns	557ab33839fc46f684f34191b37c9065cc2ea1d9
https://github.com/notnoop/java-apns	2665ef235f4a52da54a0571c2c576061f9212cbe
https://github.com/notnoop/java-apns	153e3548ce25ff27947072ac2b7edc3f859953c5
https://github.com/notnoop/java-apns	88d5be31c3db05e85b5988594eff6fcc3f0277ed
https://github.com/notnoop/java-apns	bb618b107307790ab8a73b2431aefe8c5f2a26f2
https://github.com/notnoop/java-apns	0c13a8626967d4b4cfacab4afbcd840ee714ead8
https://github.com/notnoop/java-apns	18710d3120a4bf1be1353ed9c67d28fa4a78bc6a
https://github.com/notnoop/java-apns	2ba921ad34420f16bc8f2a221b2ee4e7565ea156
https://github.com/caelum/vraptor	71f96307611936e5fddbb684f5a4ab7767b2e4ec
https://github.com/caelum/vraptor	443cf0ed1deb44fefe8b3279b814cf8db38df550
https://github.com/caelum/vraptor	585f32ceca718e54c34da6d5680b1ba0524327b2
https://github.com/caelum/vraptor	f5097d544ae191661da713983f5f570b024cccea
https://github.com/caelum/vraptor	6a4f5e9df9a5d481cc4e44b820e19ad4617bc227
https://github.com/msgpack/msgpack-java	83f125635f27332bedd2dc0e60e9635d6ed33e8d
https://github.com/msgpack/msgpack-java	9f48d2f80a29a63cd7b7142ee61e64f167f7d402
https://github.com/msgpack/msgpack-java	bae63baa3d3b38095477d111cbf8a9eea5317e06
https://github.com/msgpack/msgpack-java	411896a30cb171d1f93450aa89c6df4b037ddd2a
https://github.com/msgpack/msgpack-java	31bd64b1b46e68c8e42b0eb29019c187745f89d4
https://github.com/msgpack/msgpack-java	39c7fa7f5e5a0899cc088af87c2902447f7fb00
https://github.com/msgpack/msgpack-java	f15805d0f8f285a9d52d671e41d813400afc7335
https://github.com/msgpack/msgpack-java	356eb3636f9e4a31b1bbb746b26eaf84b06596ca8
https://github.com/msgpack/msgpack-java	7d0155dde9eea60239abe5d8cf92ac2f900f663b
https://github.com/msgpack/msgpack-java	64816074241cab0ae2106450f768dec747180255
https://github.com/apache/commons-lang	0ce1a4db98e3ea909f52cf3408f579758b0216a5
https://github.com/apache/commons-lang	cff0cab205af6bf3447cd26d1663f505f80e5b5a
https://github.com/apache/commons-lang	e87740260f6fd4bd8987e7ea31512d71ba44a6ae
https://github.com/apache/commons-lang	9599482b7dd827f0149f9e63aa733ed420bc3541
https://github.com/apache/commons-lang	95141029791c6f6382915e10a615d3b4734081f9
https://github.com/apache/commons-lang	72435a13ed239f8c228d32e3d487862c293fd4d5

Table 1: Project and sha numbers used in our evaluation.

Project URL	SHA
https://github.com/apache/commons-lang	c89b875018cb35c4907e053a48a2937bc10cb381
https://github.com/apache/commons-lang	0d9b8cb7a7cc5a9ebd3c08029f2d53fa9bcd9a70
https://github.com/apache/commons-lang	29495a6dd4088f6f8766699f180a6f9f72c8d8ca
https://github.com/apache/commons-lang	e0917c7bac5853a6e568fd8ab42d3ce7e92bbc87
https://github.com/FoundationDB/sql-parser	2f6f0bd59c9cc4f98ef37cd79974ccedf4df063c
https://github.com/FoundationDB/sql-parser	e1ecb403c4fa549ad39d513c06bef1e0eb5e2d16
https://github.com/FoundationDB/sql-parser	a1ddf59b7c1a067b6be2d7da407d400d477ea14c
https://github.com/FoundationDB/sql-parser	98f6a04e5670f69f2f0ea30b6512022ae696fb08
https://github.com/FoundationDB/sql-parser	d969dd4a76cb21c9b908d0fe6732dd158c3d1220
https://github.com/FoundationDB/sql-parser	0f7dd23cfd9c5643941174b633943ce94a2d9f2
https://github.com/pholser/jopt-simple	a216ef1d697dbf71a5f608180423f55043b6fae1
https://github.com/pholser/jopt-simple	98313cc0d271c17f1d6c60199ae6b04e2a484b13
https://github.com/pholser/jopt-simple	0d308ab96e39254e42a8f9359760b91ab8e414d8
https://github.com/pholser/jopt-simple	e4c251d66dd612f9adfdd609dcf3c24019c7dee7
https://github.com/pholser/jopt-simple	e999104ab1aef5372a072a9c9d9ddffa329b4bb3
https://github.com/goldmansachs/gs-collections	6554a14bc3d61783dd451a9115c4cfd5974e8fec
https://github.com/goldmansachs/gs-collections	7d63a55165c3509e7747c774ce2659a5e3d361df
https://github.com/goldmansachs/gs-collections	bded88839f36a3ab91d21546fed1017ea818db21
https://github.com/goldmansachs/gs-collections	db3ed532b244cff4e2ad8dca313feafbc22dba0
https://github.com/goldmansachs/gs-collections	3871505146789e12fa009cf2660ba526fa54b83
https://github.com/goldmansachs/gs-collections	6270110e2b095c096007f9b3edbf900b6f4b8a82
https://github.com/goldmansachs/gs-collections	d35260d6e46d9105d88e71909379a03cd662a82c
https://github.com/goldmansachs/gs-collections	a21c80a7b9df48faa7836ec32b256b3d8bc5583
https://github.com/goldmansachs/gs-collections	a20da64047095ed5da0e14a90c9f2ffb8e9c40a2
https://github.com/goldmansachs/gs-collections	8cc248b4969de2e3bf26d5270f11615f3a63edc3
https://github.com/cloudfoundry/uaa	76cb4b8c23be92081eb67fb95e40513609a74ff0
https://github.com/cloudfoundry/uaa	4018d7f576bed443a869909b04d1972223677658
https://github.com/cloudfoundry/uaa	92b22ac0c473d0688683fb1387e5147a77d13907
https://github.com/cloudfoundry/uaa	05f39ead8122b80b70c77fd921367f099f52df0d
https://github.com/cloudfoundry/uaa	9c2008cb4e656fe62ec3546310d63507b90ecbaf
https://github.com/cloudfoundry/uaa	abe8e5c5cd9536744773592c370325531feb7644
https://github.com/joel-costigliola/assertj-core	a6b29b89154042f260f8ec48ba4bc3c27ea86c25
https://github.com/joel-costigliola/assertj-core	8594d83d9aece3174bd6370153c9369c26ed1d9a
https://github.com/joel-costigliola/assertj-core	dd048158fccbc46e7aab9f8d22b582d92bcb8f78
https://github.com/joel-costigliola/assertj-core	302749391bd489fd9803824b814bd3842b5c0111
https://github.com/joel-costigliola/assertj-core	dd1322636590a74cb00d1f9b1c1f5014f4487086
https://github.com/joel-costigliola/assertj-core	eee3ad92ce3ba261cd99435254b0c8574711f5b8
https://github.com/joel-costigliola/assertj-core	0f78d7e2ccbeb7bb39ebc5f0510ba84d7c52a5a
https://github.com/joel-costigliola/assertj-core	df1adedd6404e675a39cf35ad819394a9f5e8110
https://github.com/JodaOrg/joda-time	639c9657af7ff013e64ccfcce6d17a8817330351
https://github.com/JodaOrg/joda-time	c3ef36272bddbb08854a4a5939a611668ea68450
https://github.com/JodaOrg/joda-time	714c53e2af8fe894fda54eb805958ced0ce08532
https://github.com/JodaOrg/joda-time	f1266986177fc75583e07a518734c1bf0df295bc
https://github.com/JodaOrg/joda-time	0700250167244fa2883162d44dedb64aa75b4c6f
https://github.com/JodaOrg/joda-time	6d3a272c0ace74604b29e11b9850853b0b03bf34
https://github.com/JodaOrg/joda-time	1adb1e69863dcd1ff282692bf1452c422528eeb9
https://github.com/caelum/caelum-stella	8999463ab4ada363f106a62754807a8ac61c2814
https://github.com/caelum/caelum-stella	a295627c47f32d97d95404edc21381af39c44684
https://github.com/caelum/caelum-stella	9ab9370c9b5a1616899fbbcf2d67a1282ca62121
https://github.com/caelum/caelum-stella	9166d1e737c16dc15b2bb0a9bc90ddeb69ff204
https://github.com/caelum/caelum-stella	39e50b7f5b7f7a9cac6d9acdfe4c798257420b2e
https://github.com/caelum/caelum-stella	27f7a8d420eef128d16de65005af8b1e79ee6710
https://github.com/caelum/caelum-stella	c4da0f1ca4c7d5910dc36c5d10b9fd98a014bb5d
https://github.com/caelum/caelum-stella	b83b2ced7a902eac5fa8b01735e4f02bf176240
https://github.com/caelum/caelum-stella	165695d22155071e608c3bf5b7329ccb113533a
https://github.com/searls/jasmine-maven-plugin	af8a78b659465bf402065e05996680c6d53f4f46
https://github.com/searls/jasmine-maven-plugin	936c8793063423e91c2de9ec4456d6c83c4e5b24

Table 1: Project and sha numbers used in our evaluation.

Project URL	SHA
<a href="https://github.com/searls/jasmine-maven-plugin">https://github.com/searls/jasmine-maven-plugin</a>	f405865c78714da01749af8d7e8bb01ff72d34b5
<a href="https://github.com/searls/jasmine-maven-plugin">https://github.com/searls/jasmine-maven-plugin</a>	6f4c1e2fbad073969bb3622d8262604c4867bb87
<a href="https://github.com/searls/jasmine-maven-plugin">https://github.com/searls/jasmine-maven-plugin</a>	954904576a0f99cab9e2b0c4573c51c832ae9835
<a href="https://github.com/searls/jasmine-maven-plugin">https://github.com/searls/jasmine-maven-plugin</a>	8d9121abae38c9acadc1cc1048c48d54ec6602a9
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	be9f966c60b06c4b949336b34cb8c95e041f3205
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	be139ac02eed3260a404ecc6c256417e81dc27e3
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	ecf6b63e657be23543a422c44ac0ee3ce10695a8
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	c8e61571c878b5957832a35d4a11d1e042d7aeed
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	5bf8a3b08baee80b97b497f1881e2932643f3e6f
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	92cd8506d6e3232aaff588b7347941a01cf059f4
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	7bd1091083e7440831d1eab75be76d1b41acf7a6
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	e4e80c471bb9df413f0ffe0c32c9b56a6190b311
<a href="https://github.com/vkostyukov/la4j">https://github.com/vkostyukov/la4j</a>	d7e6129e796b87bd8f25a1eb38197a50dde52c08
<a href="https://github.com/cloudera/ml">https://github.com/cloudera/ml</a>	d498f1712932789ee629ab75f6ac8e22a0d1c3ed
<a href="https://github.com/cloudera/ml">https://github.com/cloudera/ml</a>	03992ca0ecb2ad613da2ed86515ce4807281db34
<a href="https://github.com/cloudera/ml">https://github.com/cloudera/ml</a>	d6c914547545a5f96d191a7363eaa75cfcf058db
<a href="https://github.com/cloudera/ml">https://github.com/cloudera/ml</a>	e9b46e618fc77c55360cd6958f4438d626a6ccbc

		Rand <sub>SAR</sub>	Rand <sub>MAR</sub>	Rand <sub>SMAR</sub>	SAR	MAR	SMAR	SIR <sub>MAR</sub>	MIR <sub>SAR</sub>
SizRed	Min	29.2	10.5	10.5	29.2	10.5	10.5	31.6	39.6
	Med	62.9	51.0	48.3	62.9	51.0	48.3	74.5	73.8
	Max	92.9	91.5	91.0	92.9	91.5	91.0	96.9	97.5
StmtLoss	Min	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.4
	Med	23.8	19.8	18.2	0.0	2.1	0.0	2.6	7.6
	Max	55.2	49.5	34.5	0.0	14.9	0.0	21.1	28.1
MutLoss	Min	2.4	0.3	1.3	0.2	0.0	0.0	0.6	0.5
	Med	28.1	23.2	21.4	3.5	0.0	0.0	11.9	4.6
	Max	55.7	45.6	45.7	20.5	0.0	0.0	33.1	37.3

Figure 1: SizRed, StmtLoss, and MutLoss for different requirements using Greedy algorithm

		Rand <sub>SAR</sub>	Rand <sub>MAR</sub>	Rand <sub>SMAR</sub>	SAR	MAR	SMAR	SIR <sub>MAR</sub>	MIR <sub>SAR</sub>
SizRed	Min	29.2	15.8	15.8	29.2	15.8	15.8	31.6	39.6
	Med	66.2	61.0	58.4	63.1	51.2	48.8	74.2	74.5
	Max	93.2	91.5	91.2	93.2	91.5	91.2	96.5	97.5
StmtLoss	Min	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4
	Med	24.4	20.8	18.1	0.0	2.0	0.0	2.6	7.9
	Max	72.5	38.7	42.9	0.0	14.7	0.0	22.0	28.1
MutLoss	Min	4.0	0.8	0.5	0.3	0.0	0.0	0.6	0.5
	Med	29.7	23.7	21.5	3.8	0.0	0.0	11.7	5.0
	Max	77.6	55.7	62.0	20.9	0.0	0.0	35.8	37.3

Figure 2: SizRed, StmtLoss, and MutLoss for different requirements using GE algorithm

		Rand <sub>SAR</sub>	Rand <sub>MAR</sub>	Rand <sub>SMAR</sub>	SAR	MAR	SMAR	SIR <sub>MAR</sub>	MIR <sub>SAR</sub>
SizRed	Min	29.2	15.8	15.8	29.2	15.8	15.8	31.6	39.6
	Med	66.4	61.0	58.5	63.1	51.2	48.8	74.4	74.6
	Max	93.3	91.6	91.4	93.3	91.6	91.4	96.8	97.5
StmtLoss	Min	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4
	Med	23.9	19.3	17.8	0.0	2.0	0.0	2.6	7.9
	Max	47.1	35.7	44.0	0.0	16.8	0.0	21.3	28.1
MutLoss	Min	2.9	0.4	1.7	0.3	0.0	0.0	0.6	0.6
	Med	29.9	21.4	22.3	3.7	0.0	0.0	11.9	5.0
	Max	63.3	57.0	48.8	20.9	0.0	0.0	33.4	37.3

Figure 3: SizRed, StmtLoss, and MutLoss for different requirements using GRE algorithm

		Rand <sub>SAR</sub>	Rand <sub>MAR</sub>	Rand <sub>SMAR</sub>	SAR	MAR	SMAR	SIR <sub>MAR</sub>	MIR <sub>SAR</sub>
SizRed	Min	29.2	15.8	15.8	29.2	15.8	15.8	31.6	39.6
	Med	66.4	61.0	58.5	63.1	51.2	48.8	74.4	75.6
	Max	93.4	91.7	91.4	93.4	91.7	91.4	96.8	97.5
StmtLoss	Min	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
	Med	23.7	19.1	18.8	0.0	1.8	0.0	2.6	7.9
	Max	46.0	38.1	39.6	0.0	16.0	0.0	23.1	28.1
MutLoss	Min	4.0	2.0	0.8	0.6	0.0	0.0	0.6	0.7
	Med	28.7	23.6	21.3	3.8	0.0	0.0	11.5	4.5
	Max	57.0	57.0	53.2	20.5	0.0	0.0	35.8	37.3

Figure 4: SizRed, StmtLoss, and MutLoss for different requirements using HGS algorithm

		Rand <sub>SAR</sub>	Rand <sub>MAR</sub>	Rand <sub>SMAR</sub>	SAR	MAR	SMAR	SIR <sub>MAR</sub>	MIR <sub>SAR</sub>
SizRed	Min	29.2	15.8	15.8	29.2	15.8	15.8	31.6	39.6
	Med	66.4	61.0	58.5	63.1	51.2	48.8	74.2	74.3
	Max	93.4	91.7	91.4	93.4	91.7	91.4	96.6	97.5
StmtLoss	Min	4.4	1.9	1.3	0.0	0.0	0.0	0.0	0.4
	Med	22.7	20.3	17.2	0.0	1.9	0.0	2.8	8.1
	Max	70.6	36.8	37.6	0.0	16.7	0.0	21.1	28.1
MutLoss	Min	4.6	2.5	0.6	0.6	0.0	0.0	0.6	0.6
	Med	28.7	23.7	22.7	3.8	0.0	0.0	11.5	4.8
	Max	72.4	54.4	53.2	21.2	0.0	0.0	33.1	37.3

Figure 5: SizRed, StmtLoss, and MutLoss for different requirements using ILP algorithm

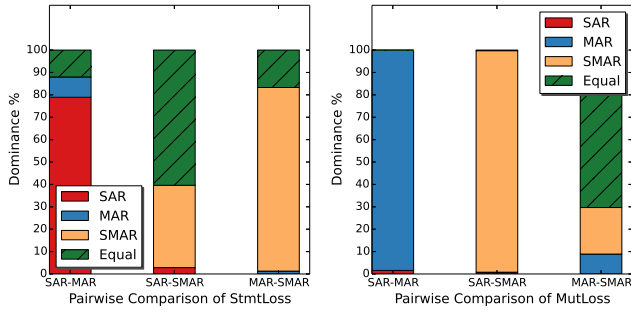


Figure 6: Pairwise value comparison for statement coverage(left) and mutants(right) over versions for Greedy reduced test suites

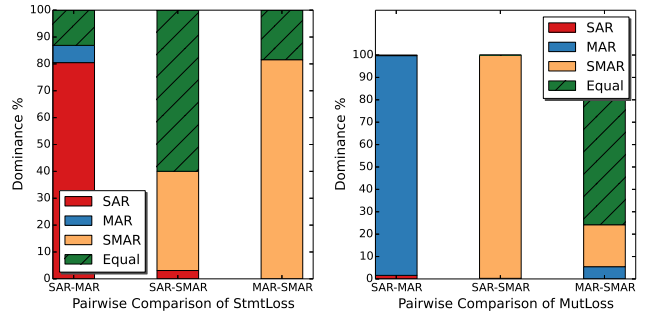


Figure 9: Pairwise value comparison for statement coverage(left) and mutants(right) over versions for HGS reduced test suites

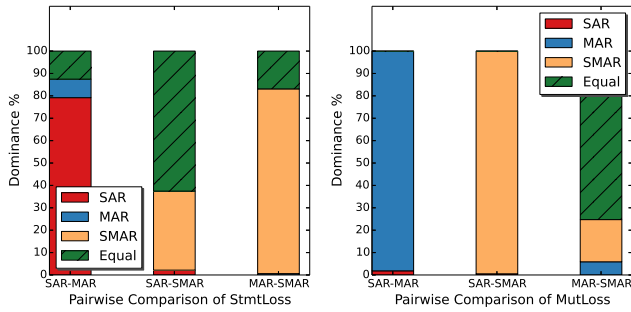


Figure 7: Pairwise value comparison for statement coverage(left) and mutants(right) over versions for GE reduced test suites

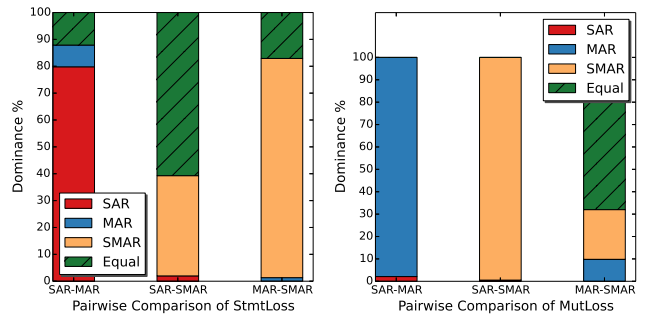


Figure 10: Pairwise value comparison for statement coverage(left) and mutants(right) over versions for ILP reduced test suites

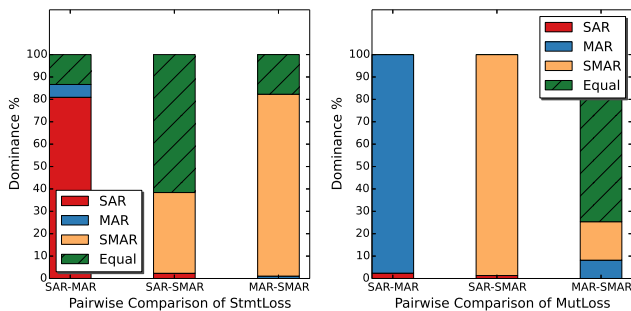


Figure 8: Pairwise value comparison for statement coverage(left) and mutants(right) over versions for GRE reduced test suites

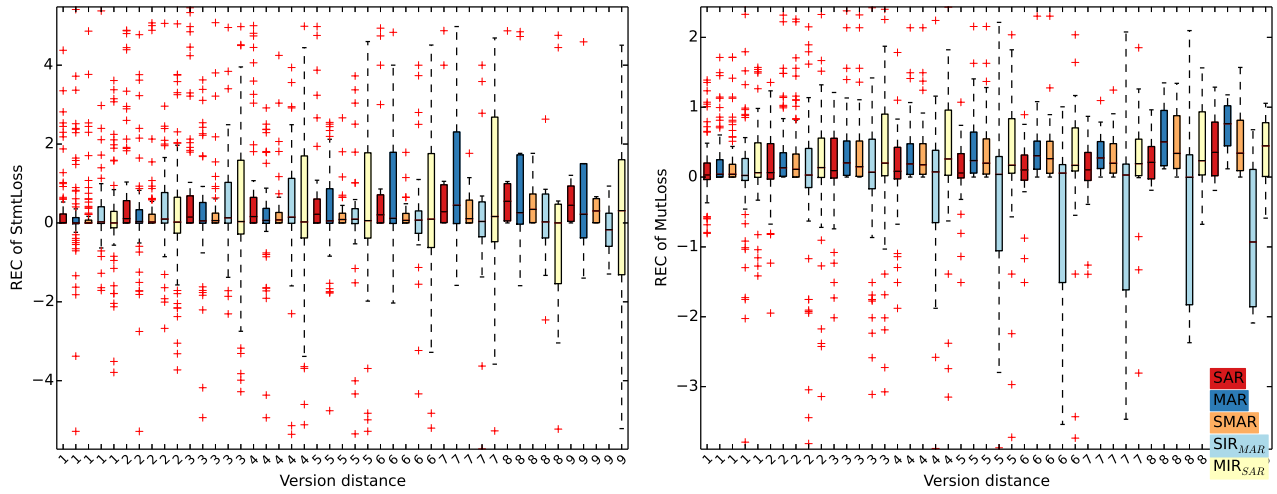


Figure 11: REC for StmtLoss (left) and MutLoss (right) for suites reduced using Greedy

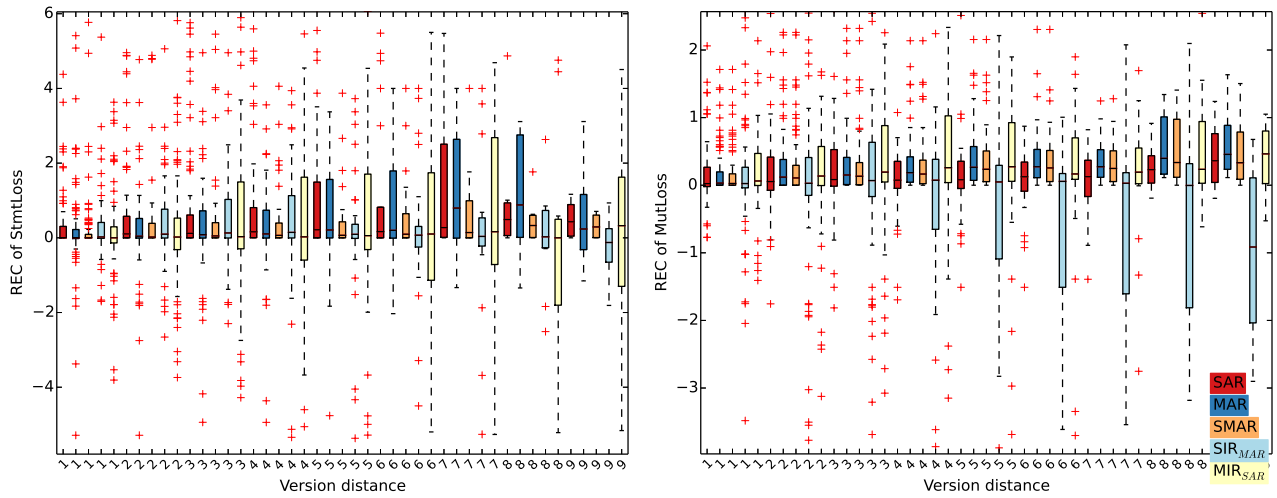


Figure 12: REC for StmtLoss (left) and MutLoss (right) for suites reduced using GE

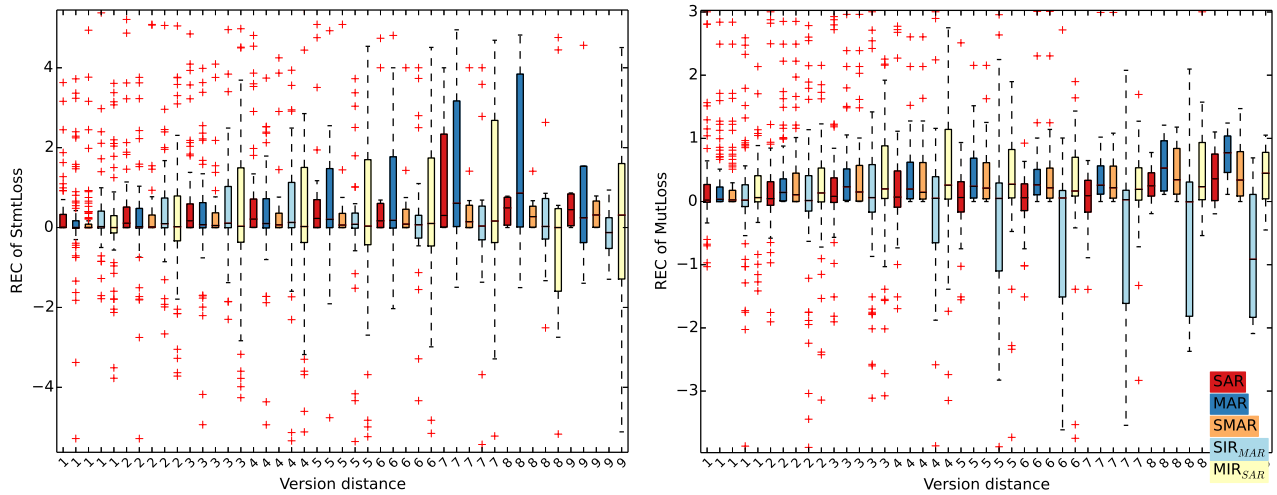


Figure 13: REC for StmtLoss (left) and MutLoss (right) for suites reduced using GRE



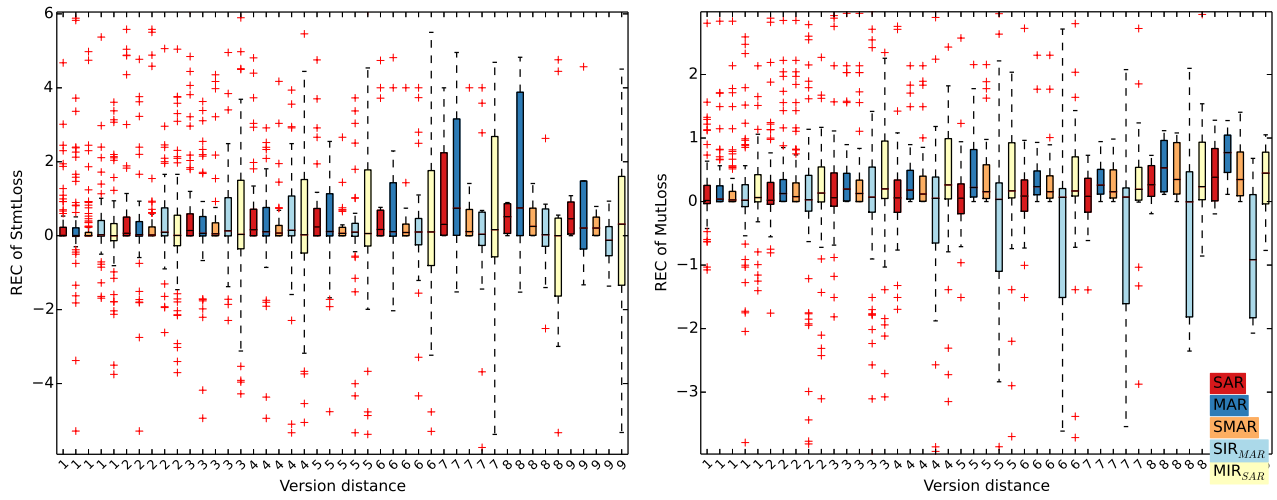


Figure 14: REC for StmtLoss (left) and MutLoss (right) for suites reduced using HGS

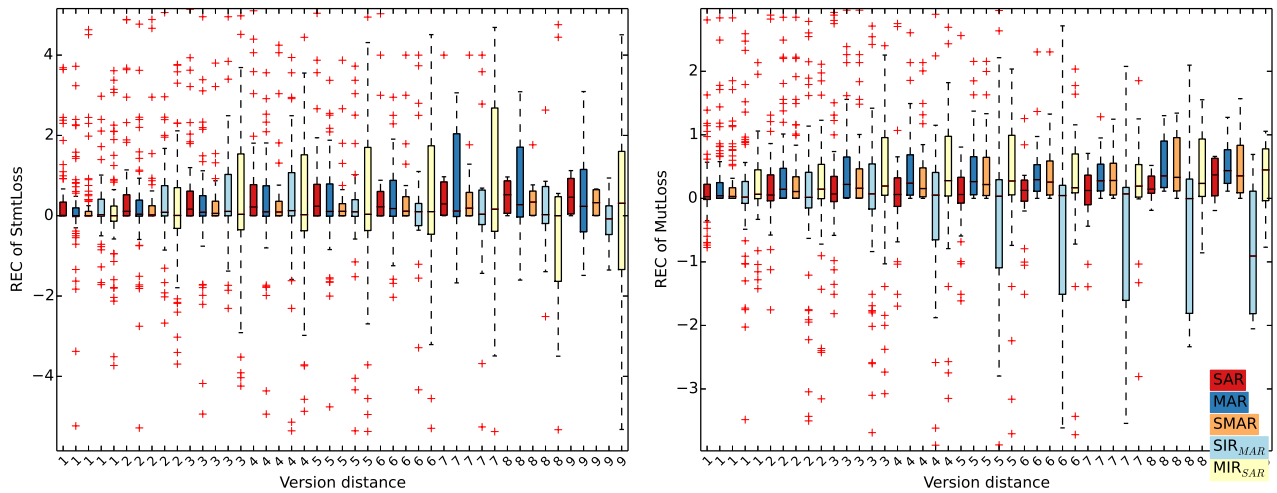


Figure 15: REC for StmtLoss (left) and MutLoss (right) for suites reduced using ILP

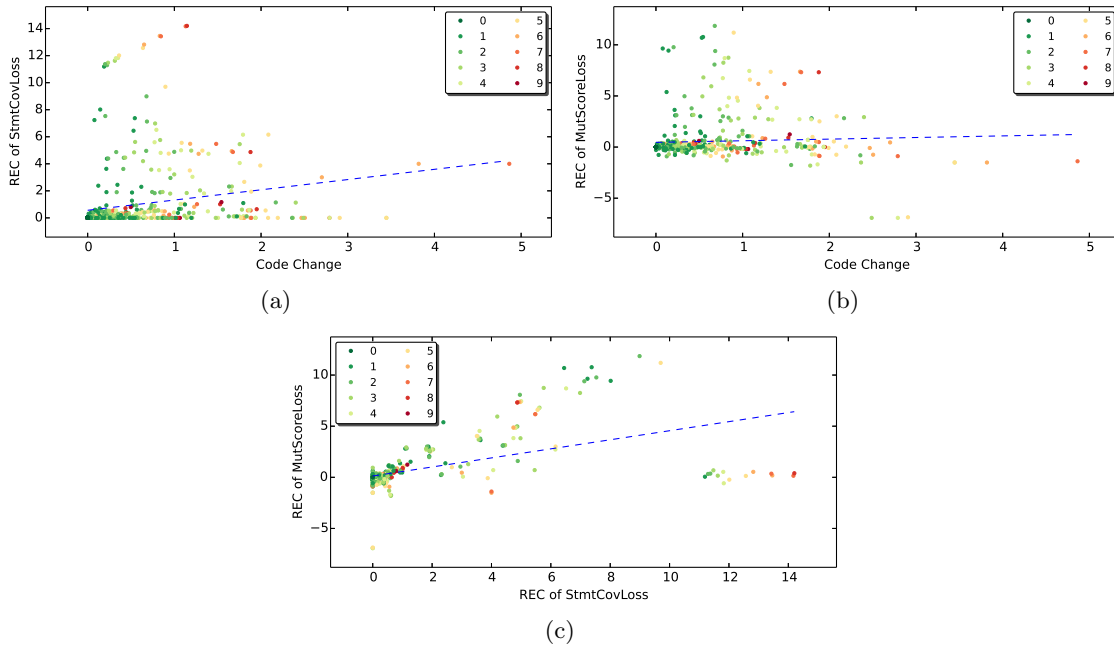


Figure 16: Correlation for GE SAR algorithm : statement-change, mutants-change, statement-mutants

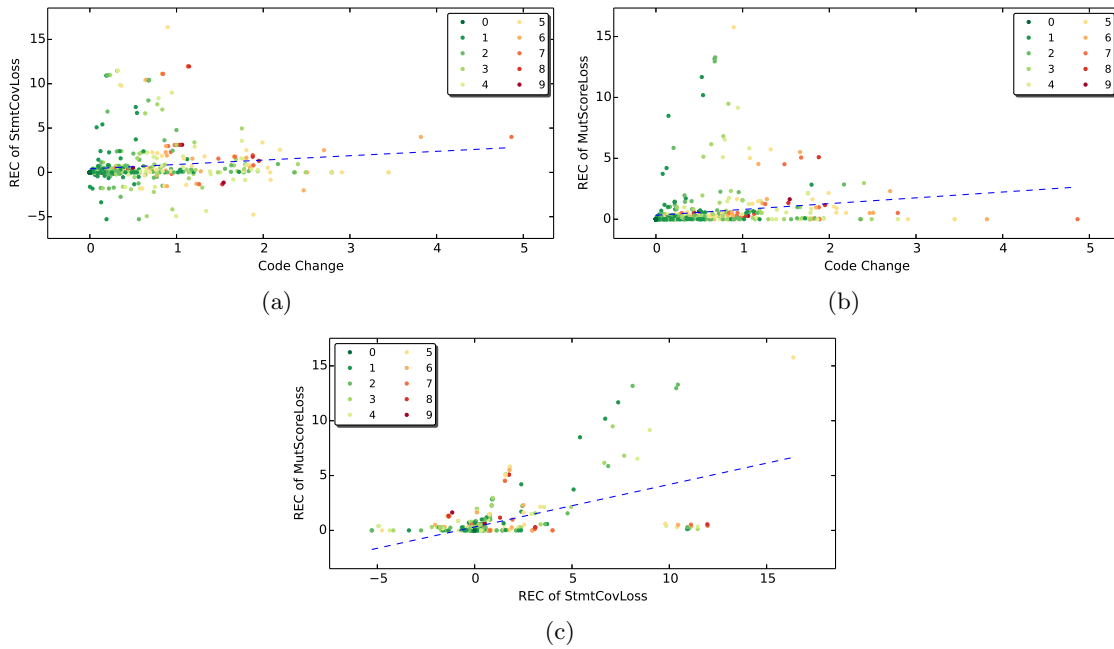


Figure 17: Correlation for GE MAR algorithm : statement-change, mutants-change, statement-mutants

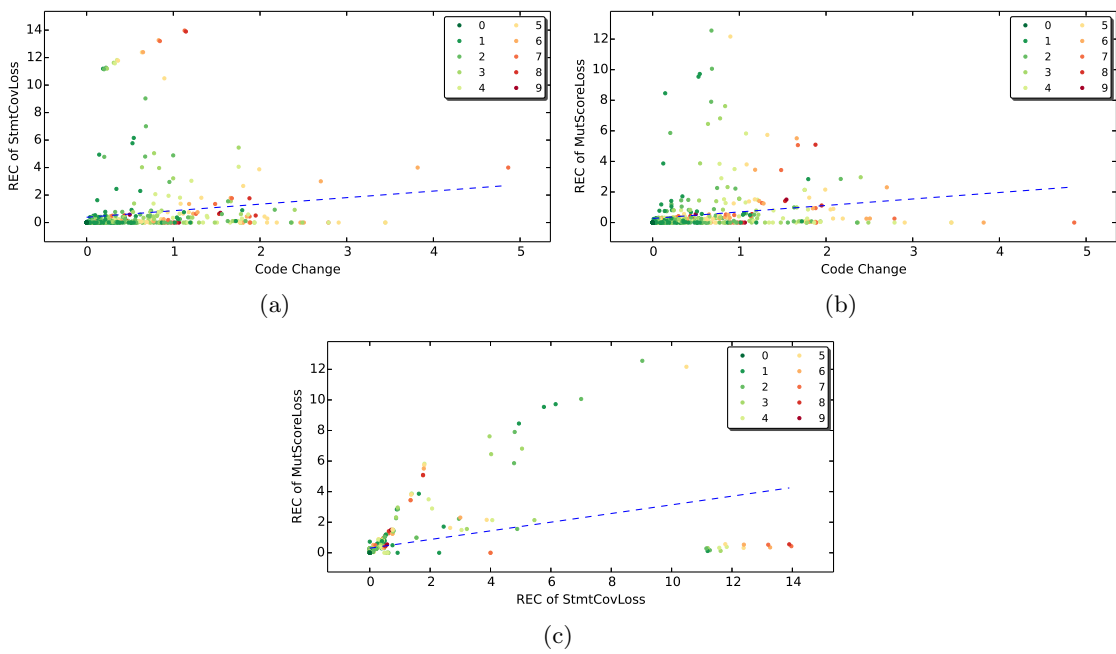


Figure 18: Correlation for GE SMAR algorithm : statement-change, mutants-change, statement-mutants

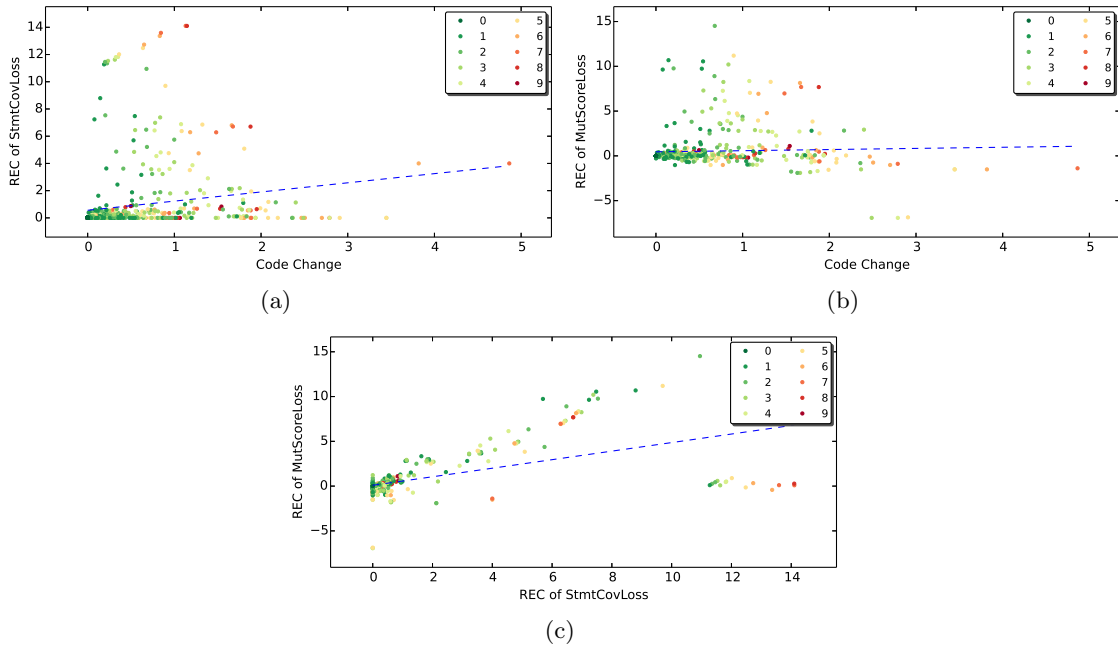


Figure 19: Correlation for GRE SAR algorithm : statement-change, mutants-change, statement-mutants

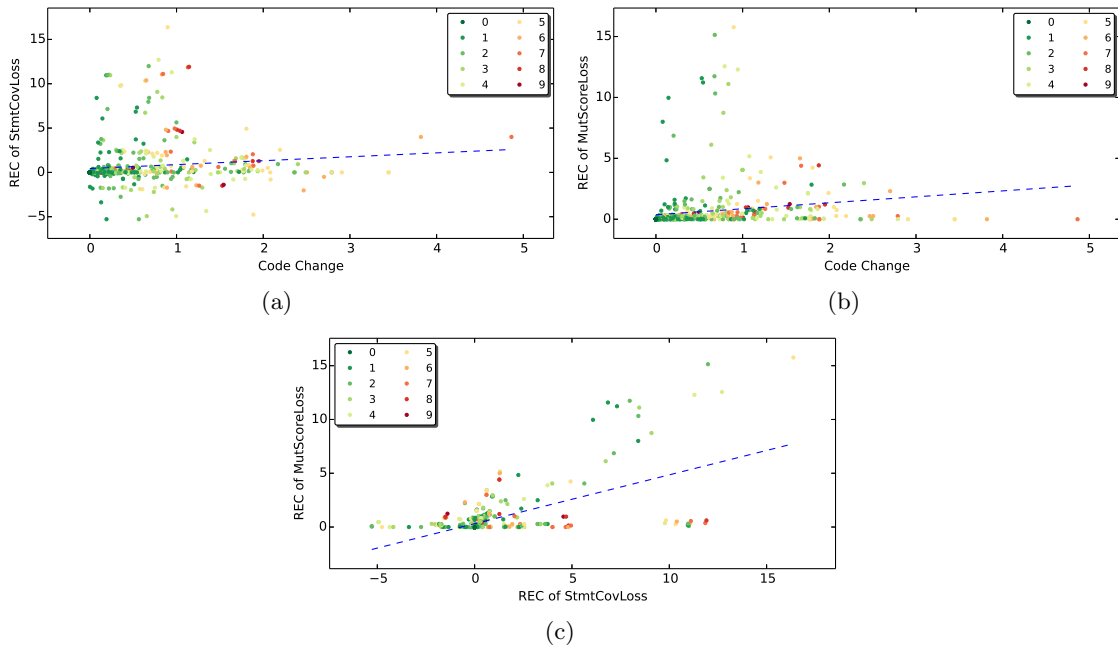


Figure 20: Correlation for GRE MAR algorithm : statement-change, mutants-change, statement-mutants

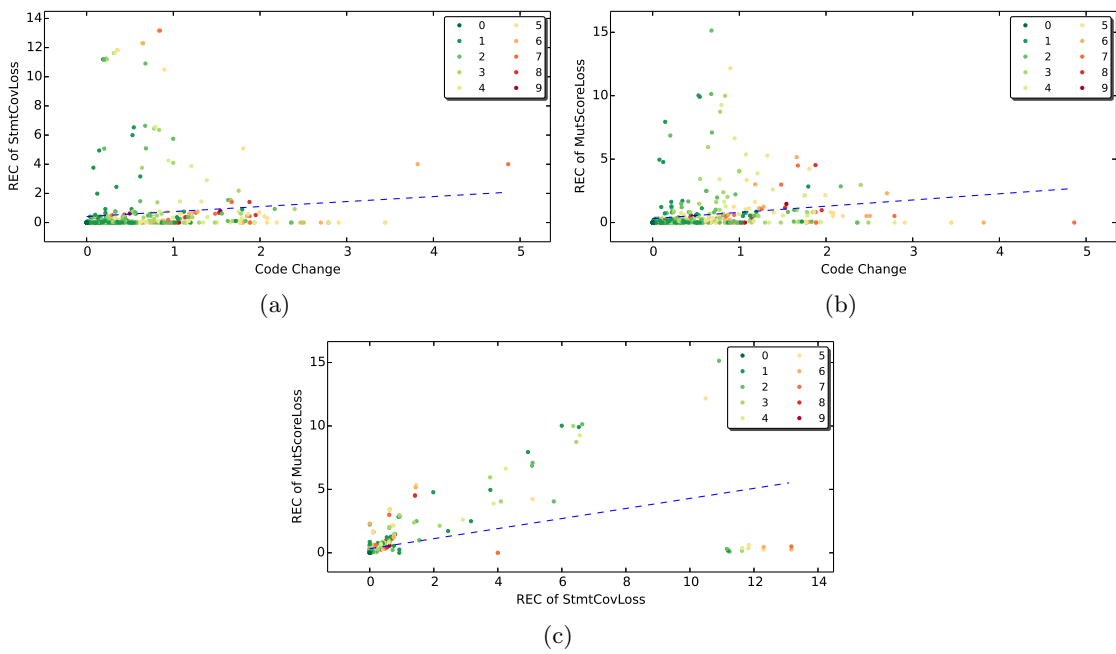


Figure 21: Correlation for GRE SMAR algorithm : statement-change, mutants-change, statement-mutants

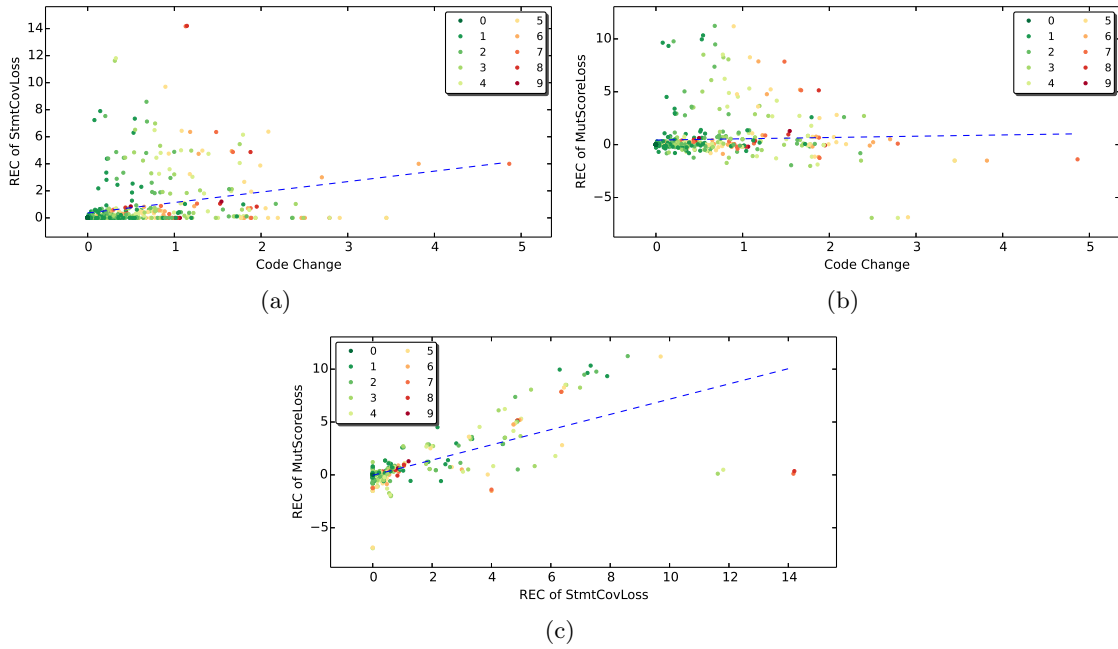


Figure 22: Correlation for Greedy SAR algorithm : statement-change, mutants-change, statement-mutants

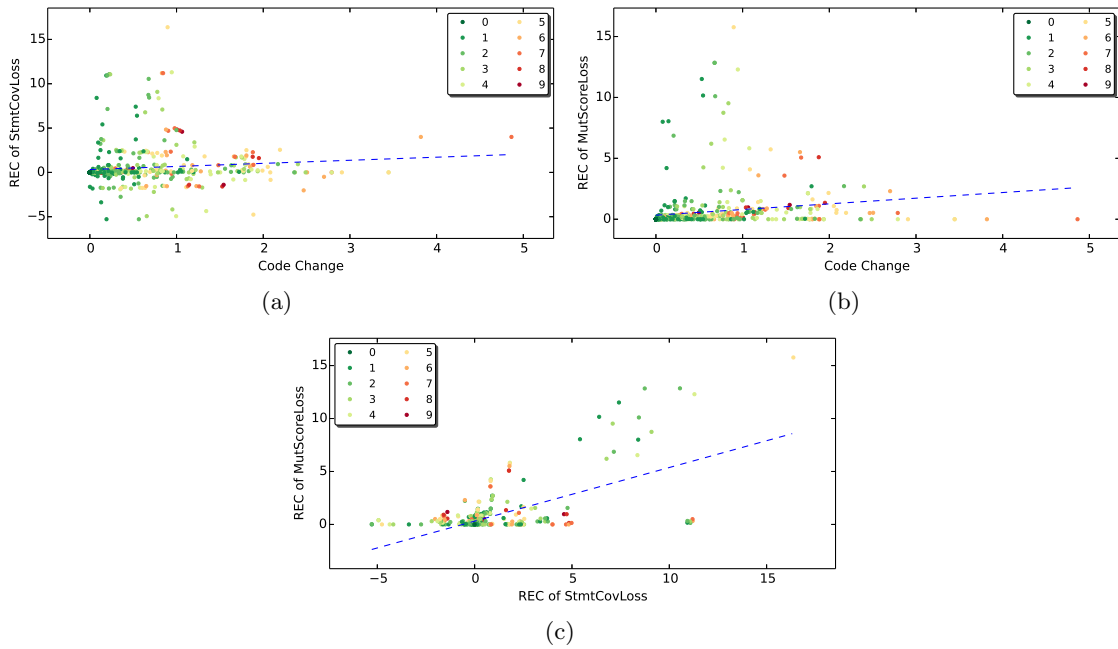


Figure 23: Correlation for Greedy MAR algorithm : statement-change, mutants-change, statement-mutants

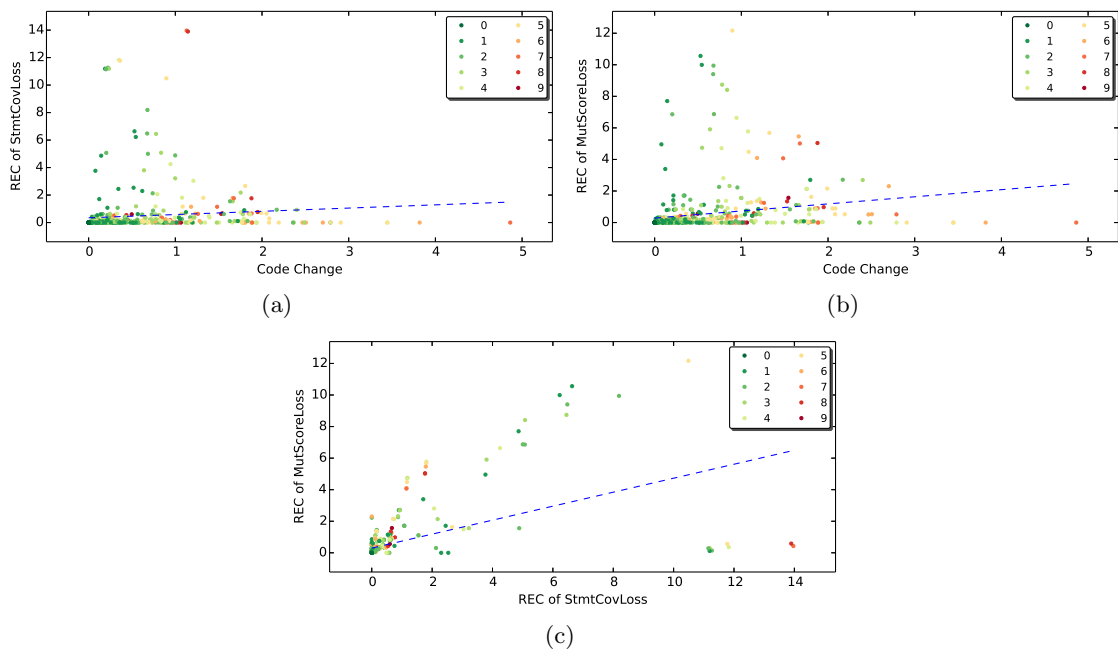


Figure 24: Correlation for Greedy SMAR algorithm : statement-change, mutants-change, statement-mutants

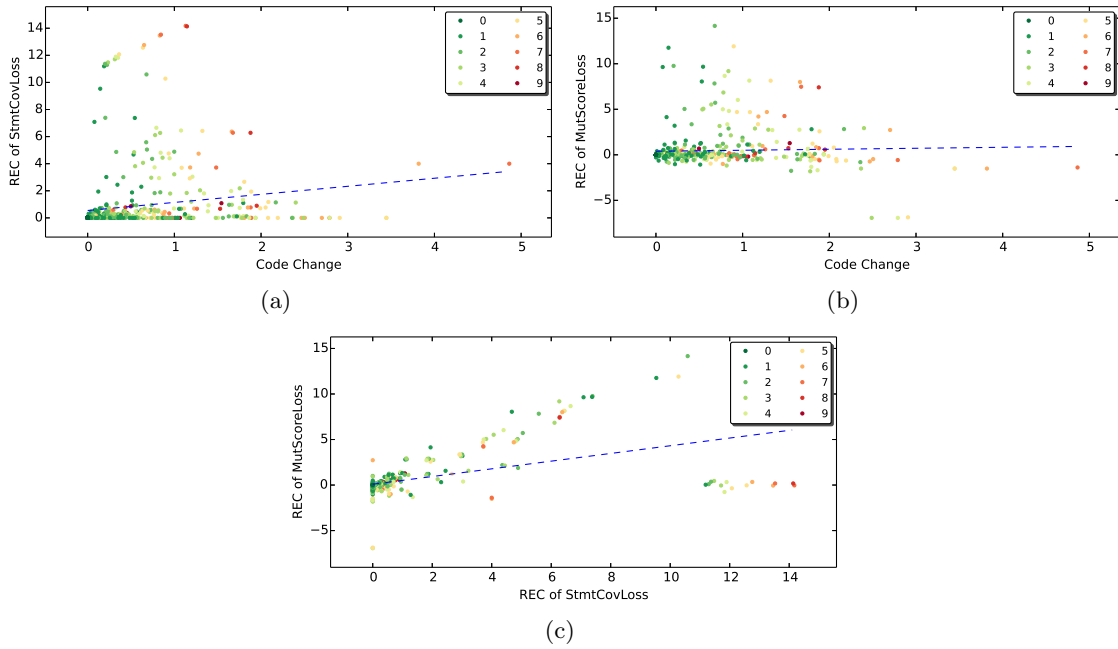


Figure 25: Correlation for HGS SAR algorithm : statement-change, mutants-change, statement-mutants

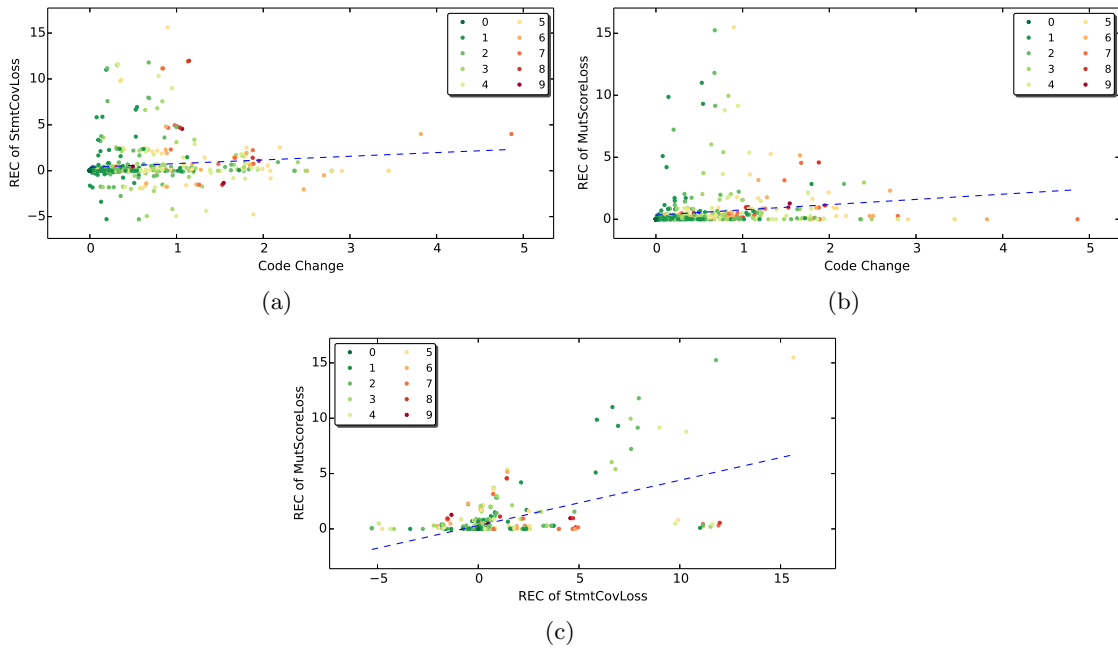


Figure 26: Correlation for HGS MAR algorithm : statement-change, mutants-change, statement-mutants



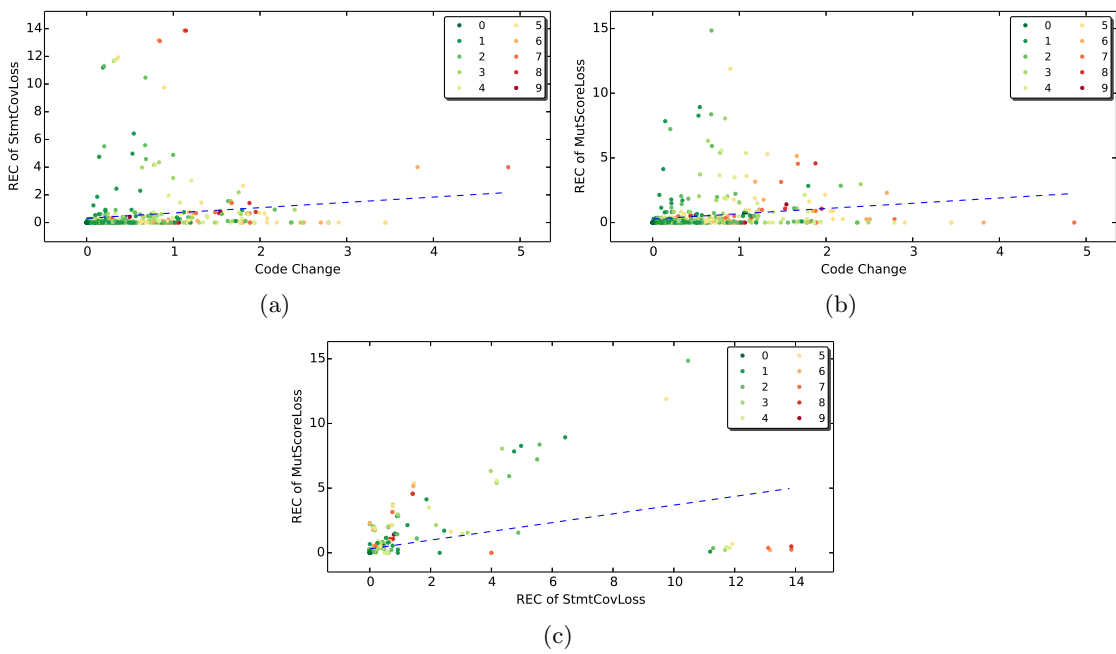


Figure 27: Correlation for HGS SMAR algorithm : statement-change, mutants-change, statement-mutants

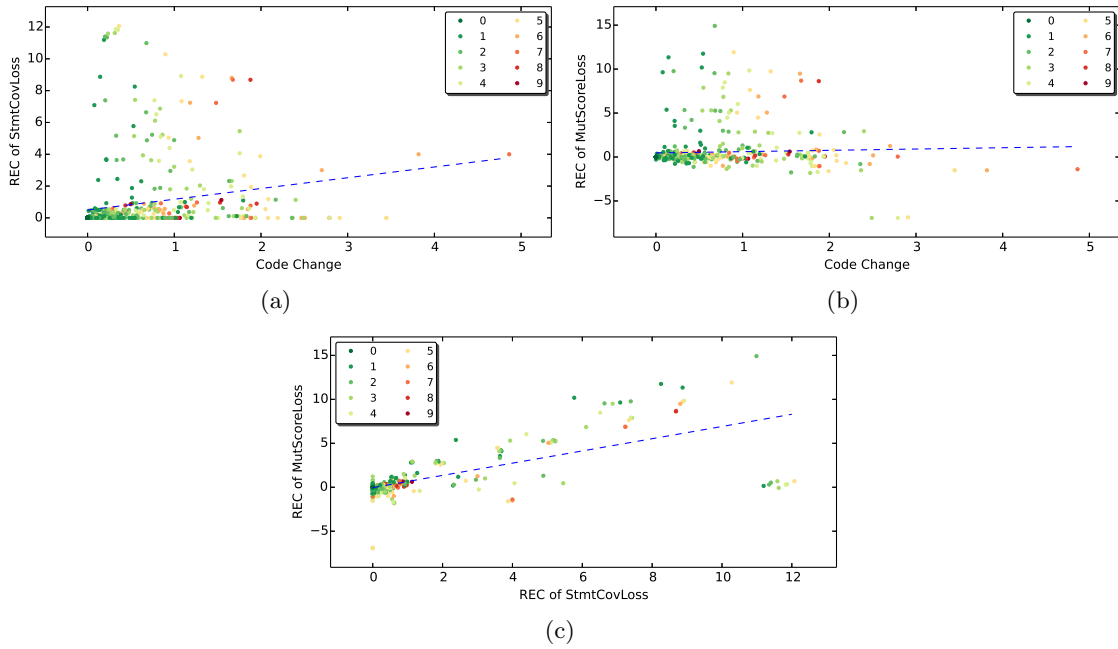


Figure 28: Correlation for ILP SAR algorithm : statement-change, mutants-change, statement-mutants

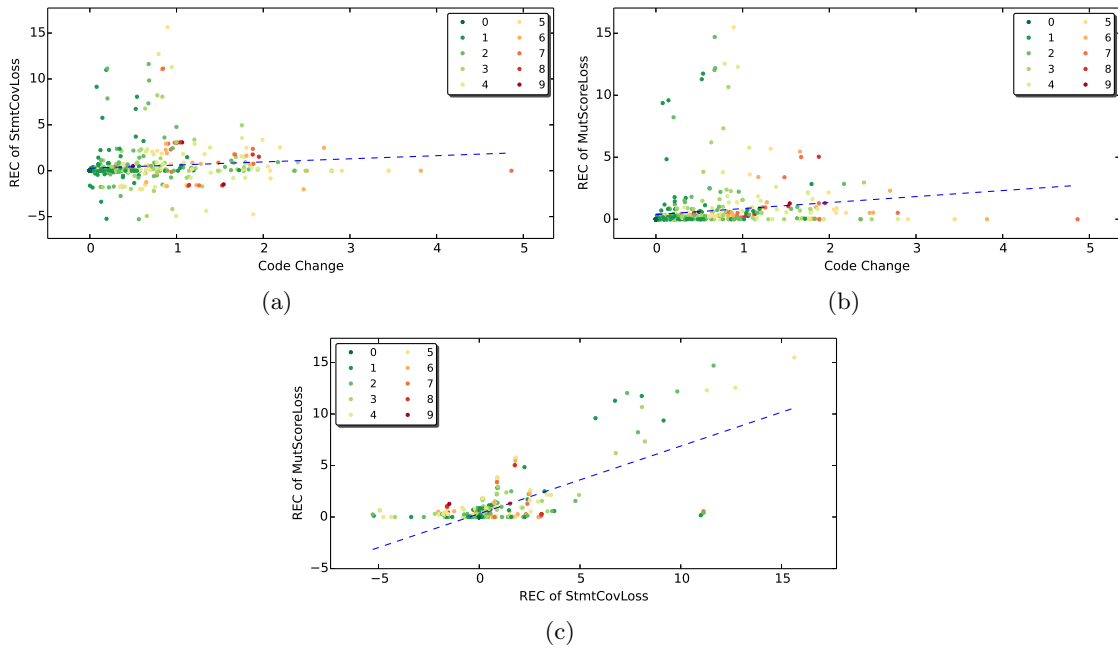


Figure 29: Correlation for ILP MAR algorithm : statement-change, mutants-change, statement-mutants

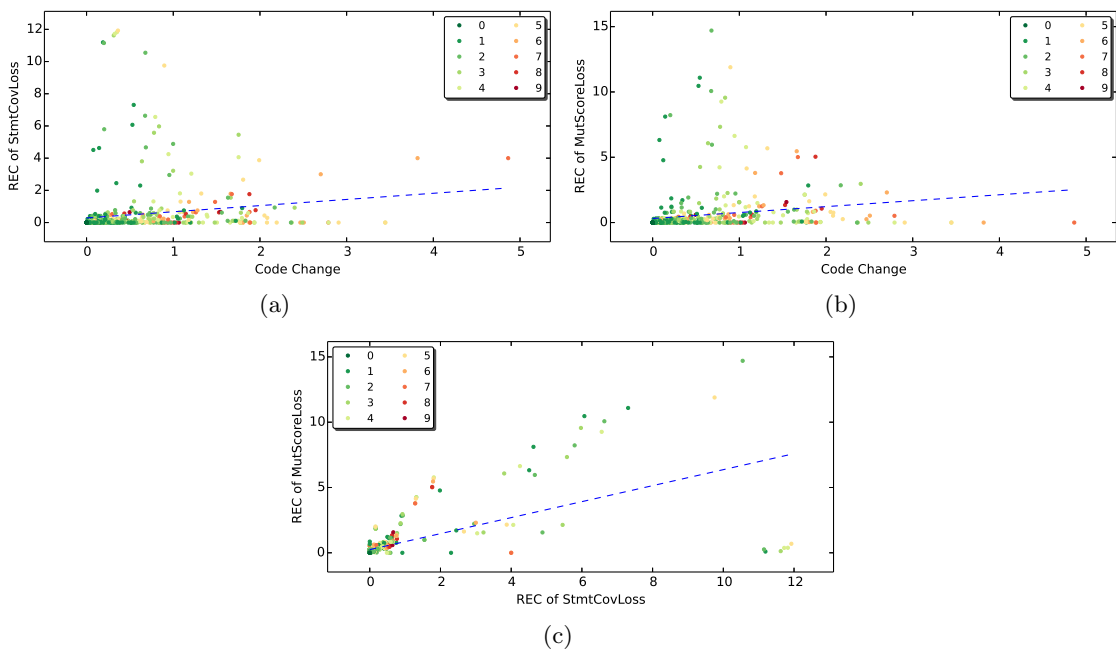


Figure 30: Correlation for ILP SMAR algorithm : statement-change, mutants-change, statement-mutants

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	46.09	46.09	46.09	46.09	46.09	46.09	46.09	46.09	46.09	46.09
	3618	-	47.05	47.05	47.05	47.05	47.05	47.05	47.05	47.05	47.05
	3648	-	-	46.81	46.81	46.81	46.81	46.81	46.81	46.81	46.81
	3678	-	-	-	46.89	46.89	46.89	46.89	46.89	46.89	46.89
	3708	-	-	-	-	46.89	46.89	46.89	46.89	46.89	46.89
	3738	-	-	-	-	-	46.89	46.89	46.89	46.89	46.89
	3768	-	-	-	-	-	-	47.25	47.25	47.25	47.25
	3798	-	-	-	-	-	-	-	47.22	47.22	47.22
	3828	-	-	-	-	-	-	-	-	46.81	46.81
	3858	-	-	-	-	-	-	-	-	-	46.85

Figure 31: Commons-Lang Greedy SizRed matrix for SAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.02	0.05	0.05
	3618	-	0.00	0.01	0.00	0.00	0.00	0.01	0.02	0.05	0.05
	3648	-	-	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.05
	3678	-	-	-	0.00	0.00	0.00	0.01	0.02	0.05	0.05
	3708	-	-	-	-	0.00	0.00	0.01	0.02	0.05	0.05
	3738	-	-	-	-	-	0.00	0.01	0.02	0.05	0.05
	3768	-	-	-	-	-	-	0.00	0.01	0.05	0.05
	3798	-	-	-	-	-	-	-	0.00	0.04	0.04
	3828	-	-	-	-	-	-	-	-	0.00	0.00
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 32: Commons-Lang Greedy StmtLoss matrix for SAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	3.19	3.18	3.18	3.17	3.19	3.17	3.21	3.28	3.28	3.28
	3618	-	3.31	3.31	3.30	3.32	3.30	3.34	3.41	3.41	3.41
	3648	-	-	3.26	3.26	3.26	3.25	3.29	3.37	3.37	3.36
	3678	-	-	-	3.47	3.49	3.47	3.51	3.58	3.58	3.58
	3708	-	-	-	-	3.49	3.47	3.51	3.58	3.58	3.58
	3738	-	-	-	-	-	3.47	3.51	3.58	3.58	3.58
	3768	-	-	-	-	-	-	3.51	3.59	3.59	3.58
	3798	-	-	-	-	-	-	-	3.59	3.59	3.59
	3828	-	-	-	-	-	-	-	-	3.53	3.54
	3858	-	-	-	-	-	-	-	-	-	3.56

Figure 33: Commons-Lang Greedy MutLoss matrix for SAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53
	3618	-	47.48	47.48	47.48	47.48	47.48	47.48	47.48	47.48	47.48
	3648	-	-	47.24	47.24	47.24	47.24	47.24	47.24	47.24	47.24
	3678	-	-	-	47.32	47.32	47.32	47.32	47.32	47.32	47.32
	3708	-	-	-	-	47.32	47.32	47.32	47.32	47.32	47.32
	3738	-	-	-	-	-	47.32	47.32	47.32	47.32	47.32
	3768	-	-	-	-	-	-	47.54	47.54	47.54	47.54
	3798	-	-	-	-	-	-	-	47.51	47.51	47.51
	3828	-	-	-	-	-	-	-	-	47.05	47.05
	3858	-	-	-	-	-	-	-	-	-	47.10

Figure 34: Commons-Lang GE SizRed matrix for SAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.06	0.06
	3618	-	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.06	0.06
	3648	-	-	0.00	0.00	0.00	0.00	0.01	0.02	0.06	0.06
	3678	-	-	-	0.00	0.00	0.00	0.02	0.03	0.06	0.06
	3708	-	-	-	-	0.00	0.00	0.02	0.03	0.06	0.06
	3738	-	-	-	-	-	0.00	0.02	0.03	0.06	0.06
	3768	-	-	-	-	-	-	0.00	0.01	0.05	0.05
	3798	-	-	-	-	-	-	-	0.00	0.04	0.04
	3828	-	-	-	-	-	-	-	-	0.00	0.00
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 35: Commons-Lang GE StmtLoss matrix for SAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	3.58	3.57	3.57	3.56	3.58	3.56	3.63	3.70	3.70	3.70
	3618	-	3.68	3.68	3.67	3.69	3.67	3.73	3.81	3.81	3.80
	3648	-	-	3.63	3.63	3.63	3.62	3.68	3.76	3.76	3.75
	3678	-	-	-	3.82	3.84	3.82	3.88	3.95	3.95	3.95
	3708	-	-	-	-	3.85	3.83	3.89	3.96	3.96	3.96
	3738	-	-	-	-	-	3.83	3.89	3.96	3.96	3.96
	3768	-	-	-	-	-	-	3.76	3.78	3.81	3.80
	3798	-	-	-	-	-	-	-	3.74	3.76	3.76
	3828	-	-	-	-	-	-	-	-	3.69	3.70
	3858	-	-	-	-	-	-	-	-	-	3.70

Figure 36: Commons-Lang GE MutLoss matrix for SAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53
	3618	-	47.48	47.48	47.48	47.48	47.48	47.48	47.48	47.48	47.48
	3648	-	-	47.24	47.24	47.24	47.24	47.24	47.24	47.24	47.24
	3678	-	-	-	47.32	47.32	47.32	47.32	47.32	47.32	47.32
	3708	-	-	-	-	47.32	47.32	47.32	47.32	47.32	47.32
	3738	-	-	-	-	-	47.32	47.32	47.32	47.32	47.32
	3768	-	-	-	-	-	-	47.54	47.54	47.54	47.54
	3798	-	-	-	-	-	-	-	47.51	47.51	47.51
	3828	-	-	-	-	-	-	-	-	47.05	47.05
	3858	-	-	-	-	-	-	-	-	-	47.10

Figure 37: Commons-Lang GRE SizRed matrix for SAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.06	0.06
	3618	-	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.06	0.06
	3648	-	-	0.00	0.00	0.00	0.00	0.01	0.02	0.06	0.06
	3678	-	-	-	0.00	0.00	0.00	0.02	0.03	0.06	0.06
	3708	-	-	-	-	0.00	0.00	0.02	0.03	0.06	0.06
	3738	-	-	-	-	-	0.00	0.02	0.03	0.06	0.06
	3768	-	-	-	-	-	-	0.00	0.01	0.05	0.05
	3798	-	-	-	-	-	-	-	0.00	0.04	0.04
	3828	-	-	-	-	-	-	-	-	0.00	0.00
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 38: Commons-Lang GRE StmtLoss matrix for SAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	3.45	3.44	3.44	3.43	3.45	3.44	3.46	3.53	3.53	3.53
	3618	-	3.57	3.57	3.56	3.58	3.57	3.59	3.66	3.66	3.66
	3648	-	-	3.52	3.52	3.52	3.51	3.55	3.62	3.62	3.61
	3678	-	-	-	3.69	3.71	3.69	3.72	3.79	3.79	3.79
	3708	-	-	-	-	3.71	3.70	3.72	3.79	3.79	3.79
	3738	-	-	-	-	-	3.70	3.72	3.79	3.79	3.79
	3768	-	-	-	-	-	-	3.63	3.65	3.68	3.67
	3798	-	-	-	-	-	-	-	3.62	3.64	3.64
	3828	-	-	-	-	-	-	-	-	3.58	3.58
	3858	-	-	-	-	-	-	-	-	-	3.63

Figure 39: Commons-Lang GRE MutLoss matrix for SAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53	
	3618	-	47.48	47.48	47.48	47.48	47.48	47.48	47.48	47.48	
	3648	-	-	47.24	47.24	47.24	47.24	47.24	47.24	47.24	
	3678	-	-	-	47.32	47.32	47.32	47.32	47.32	47.32	
	3708	-	-	-	-	47.32	47.32	47.32	47.32	47.32	
	3738	-	-	-	-	-	47.32	47.32	47.32	47.32	
	3768	-	-	-	-	-	-	47.54	47.54	47.54	
	3798	-	-	-	-	-	-	-	47.51	47.51	
	3828	-	-	-	-	-	-	-	-	47.05	
	3858	-	-	-	-	-	-	-	-	-	47.10

Figure 40: Commons-Lang HGS SizRed matrix for SAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.06	
	3618	-	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.06	
	3648	-	-	0.00	0.00	0.00	0.00	0.01	0.02	0.06	
	3678	-	-	-	0.00	0.00	0.00	0.02	0.03	0.06	
	3708	-	-	-	-	0.00	0.00	0.02	0.03	0.06	
	3738	-	-	-	-	-	0.00	0.02	0.03	0.06	
	3768	-	-	-	-	-	-	0.00	0.01	0.05	
	3798	-	-	-	-	-	-	-	0.00	0.04	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 41: Commons-Lang HGS StmtLoss matrix for SAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	3.42	3.42	3.42	3.41	3.43	3.41	3.43	3.50	3.50	
	3618	-	3.53	3.53	3.52	3.54	3.52	3.54	3.61	3.62	
	3648	-	-	3.49	3.49	3.49	3.48	3.51	3.58	3.59	
	3678	-	-	-	3.71	3.73	3.71	3.73	3.81	3.81	
	3708	-	-	-	-	3.73	3.71	3.73	3.81	3.81	
	3738	-	-	-	-	-	3.73	3.75	3.82	3.82	
	3768	-	-	-	-	-	-	3.66	3.73	3.73	
	3798	-	-	-	-	-	-	-	3.71	3.71	
	3828	-	-	-	-	-	-	-	-	3.64	
	3858	-	-	-	-	-	-	-	-	-	3.67

Figure 42: Commons-Lang HGS MutLoss matrix for SAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53	46.53	
	3618	-	47.48	47.48	47.48	47.48	47.48	47.48	47.48	47.48	
	3648	-	-	47.24	47.24	47.24	47.24	47.24	47.24	47.24	
	3678	-	-	-	47.32	47.32	47.32	47.32	47.32	47.32	
	3708	-	-	-	-	47.32	47.32	47.32	47.32	47.32	
	3738	-	-	-	-	-	47.32	47.32	47.32	47.32	
	3768	-	-	-	-	-	-	47.54	47.54	47.54	
	3798	-	-	-	-	-	-	-	47.51	47.51	
	3828	-	-	-	-	-	-	-	-	47.05	
	3858	-	-	-	-	-	-	-	-	-	47.10

Figure 43: Commons-Lang ILP SizRed matrix for SAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.06	
	3618	-	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.06	
	3648	-	-	0.00	0.00	0.00	0.00	0.01	0.02	0.06	
	3678	-	-	-	0.00	0.00	0.00	0.02	0.03	0.06	
	3708	-	-	-	-	0.00	0.00	0.02	0.03	0.06	
	3738	-	-	-	-	-	0.00	0.02	0.03	0.06	
	3768	-	-	-	-	-	-	0.00	0.01	0.05	
	3798	-	-	-	-	-	-	-	0.00	0.04	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 44: Commons-Lang ILP StmtLoss matrix for SAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	3.46	3.46	3.46	3.45	3.47	3.45	3.51	3.59	3.58	
	3618	-	3.55	3.55	3.54	3.56	3.55	3.60	3.68	3.68	
	3648	-	-	3.54	3.53	3.54	3.53	3.59	3.66	3.67	
	3678	-	-	-	3.56	3.58	3.56	3.61	3.69	3.69	
	3708	-	-	-	-	3.79	3.77	3.82	3.90	3.90	
	3738	-	-	-	-	-	3.82	3.87	3.95	3.95	
	3768	-	-	-	-	-	-	3.53	3.60	3.63	
	3798	-	-	-	-	-	-	-	3.69	3.72	
	3828	-	-	-	-	-	-	-	-	3.55	
	3858	-	-	-	-	-	-	-	-	-	3.80

Figure 45: Commons-Lang ILP MutLoss matrix for SAR



Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	40.24	40.24	40.24	40.24	40.24	40.24	40.24	40.24	40.24	
	3618	-	41.08	41.08	41.08	41.08	41.08	41.08	41.08	41.08	
	3648	-	-	40.86	40.86	40.86	40.86	40.86	40.86	40.86	
	3678	-	-	-	40.89	40.89	40.89	40.89	40.89	40.89	
	3708	-	-	-	-	40.89	40.89	40.89	40.89	40.89	
	3738	-	-	-	-	-	40.93	40.93	40.93	40.93	
	3768	-	-	-	-	-	-	40.88	40.88	40.88	
	3798	-	-	-	-	-	-	-	41.01	41.01	
	3828	-	-	-	-	-	-	-	-	40.70	
	3858	-	-	-	-	-	-	-	-	-	40.73

Figure 46: Commons-Lang Greedy SizRed matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	1.63	1.61	1.61	1.60	1.60	1.60	1.60	1.59	1.59	
	3618	-	1.61	1.60	1.60	1.60	1.60	1.60	1.60	1.59	
	3648	-	-	1.60	1.60	1.60	1.60	1.60	1.60	1.59	
	3678	-	-	-	1.61	1.61	1.61	1.61	1.61	1.60	
	3708	-	-	-	-	1.61	1.61	1.61	1.61	1.60	
	3738	-	-	-	-	-	1.61	1.61	1.61	1.60	
	3768	-	-	-	-	-	-	1.62	1.62	1.61	
	3798	-	-	-	-	-	-	-	1.63	1.62	
	3828	-	-	-	-	-	-	-	-	1.58	
	3858	-	-	-	-	-	-	-	-	-	1.58

Figure 47: Commons-Lang Greedy StmtLoss matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.12	
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.13	
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.12	
	3678	-	-	-	0.00	0.01	0.00	0.06	0.11	0.13	
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.12	
	3738	-	-	-	-	-	0.00	0.06	0.11	0.13	
	3768	-	-	-	-	-	-	0.00	0.01	0.02	
	3798	-	-	-	-	-	-	-	0.00	0.02	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 48: Commons-Lang Greedy MutLoss matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	40.68	40.68	40.68	40.68	40.68	40.68	40.68	40.68	40.68	
	3618	-	41.50	41.50	41.50	41.50	41.50	41.50	41.50	41.50	
	3648	-	-	41.33	41.33	41.33	41.33	41.33	41.33	41.33	
	3678	-	-	-	41.35	41.35	41.35	41.35	41.35	41.35	
	3708	-	-	-	-	41.35	41.35	41.35	41.35	41.35	
	3738	-	-	-	-	-	41.40	41.40	41.40	41.40	
	3768	-	-	-	-	-	-	41.38	41.38	41.38	
	3798	-	-	-	-	-	-	-	41.51	41.51	
	3828	-	-	-	-	-	-	-	-	41.15	
	3858	-	-	-	-	-	-	-	-	-	41.13

Figure 49: Commons-Lang GE SizRed matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	1.60	1.58	1.58	1.58	1.58	1.58	1.58	1.57	1.57	
	3618	-	1.58	1.58	1.58	1.58	1.57	1.57	1.57	1.56	
	3648	-	-	1.58	1.58	1.58	1.58	1.58	1.58	1.57	
	3678	-	-	-	1.59	1.59	1.59	1.59	1.59	1.58	
	3708	-	-	-	-	1.59	1.59	1.59	1.59	1.58	
	3738	-	-	-	-	-	1.59	1.59	1.59	1.58	
	3768	-	-	-	-	-	-	1.60	1.60	1.59	
	3798	-	-	-	-	-	-	-	1.62	1.61	
	3828	-	-	-	-	-	-	-	-	1.56	
	3858	-	-	-	-	-	-	-	-	-	1.56

Figure 50: Commons-Lang GE StmtLoss matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.11	
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.12	
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.11	
	3678	-	-	-	0.00	0.01	0.00	0.06	0.10	0.12	
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.11	
	3738	-	-	-	-	-	0.00	0.06	0.11	0.12	
	3768	-	-	-	-	-	-	0.00	0.01	0.02	
	3798	-	-	-	-	-	-	-	0.00	0.02	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 51: Commons-Lang GE MutLoss matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	40.77	40.77	40.77	40.77	40.77	40.77	40.77	40.77	40.77	
	3618	-	41.59	41.59	41.59	41.59	41.59	41.59	41.59	41.59	
	3648	-	-	41.41	41.41	41.41	41.41	41.41	41.41	41.41	
	3678	-	-	-	41.44	41.44	41.44	41.44	41.44	41.44	
	3708	-	-	-	-	41.44	41.44	41.44	41.44	41.44	
	3738	-	-	-	-	-	41.48	41.48	41.48	41.48	
	3768	-	-	-	-	-	-	41.46	41.46	41.46	
	3798	-	-	-	-	-	-	-	41.59	41.59	
	3828	-	-	-	-	-	-	-	-	41.23	
	3858	-	-	-	-	-	-	-	-	-	41.25

Figure 52: Commons-Lang GRE SizRed matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	1.63	1.61	1.61	1.60	1.60	1.60	1.60	1.59	1.59	
	3618	-	1.61	1.60	1.60	1.60	1.60	1.60	1.60	1.59	
	3648	-	-	1.61	1.61	1.61	1.61	1.61	1.61	1.60	
	3678	-	-	-	1.62	1.62	1.62	1.62	1.62	1.61	
	3708	-	-	-	-	1.62	1.62	1.62	1.62	1.61	
	3738	-	-	-	-	-	1.62	1.62	1.62	1.61	
	3768	-	-	-	-	-	-	1.64	1.64	1.63	
	3798	-	-	-	-	-	-	-	1.65	1.64	
	3828	-	-	-	-	-	-	-	-	1.61	
	3858	-	-	-	-	-	-	-	-	-	1.60

Figure 53: Commons-Lang GRE StmtLoss matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.11	
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.12	
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.11	
	3678	-	-	-	0.00	0.01	0.00	0.06	0.10	0.12	
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.11	
	3738	-	-	-	-	-	0.00	0.06	0.11	0.12	
	3768	-	-	-	-	-	-	0.00	0.01	0.02	
	3798	-	-	-	-	-	-	-	0.00	0.02	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 54: Commons-Lang GRE MutLoss matrix for MAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	40.77	40.77	40.77	40.77	40.77	40.77	40.77	40.77	40.77	40.77
	3618	-	41.59	41.59	41.59	41.59	41.59	41.59	41.59	41.59	41.59
	3648	-	-	41.41	41.41	41.41	41.41	41.41	41.41	41.41	41.41
	3678	-	-	-	41.44	41.44	41.44	41.44	41.44	41.44	41.44
	3708	-	-	-	-	41.44	41.44	41.44	41.44	41.44	41.44
	3738	-	-	-	-	-	41.48	41.48	41.48	41.48	41.48
	3768	-	-	-	-	-	-	41.46	41.46	41.46	41.46
	3798	-	-	-	-	-	-	-	41.59	41.59	41.59
	3828	-	-	-	-	-	-	-	-	41.23	41.23
	3858	-	-	-	-	-	-	-	-	-	41.25

Figure 55: Commons-Lang HGS SizRed matrix for MAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	1.61	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.58	1.57
	3618	-	1.59	1.59	1.58	1.58	1.58	1.58	1.58	1.57	1.57
	3648	-	-	1.59	1.59	1.59	1.59	1.59	1.59	1.58	1.58
	3678	-	-	-	1.60	1.60	1.60	1.60	1.60	1.59	1.59
	3708	-	-	-	-	1.60	1.60	1.60	1.60	1.59	1.59
	3738	-	-	-	-	-	1.60	1.60	1.60	1.59	1.59
	3768	-	-	-	-	-	-	1.62	1.62	1.61	1.61
	3798	-	-	-	-	-	-	-	1.63	1.62	1.62
	3828	-	-	-	-	-	-	-	-	1.60	1.60
	3858	-	-	-	-	-	-	-	-	-	1.59

Figure 56: Commons-Lang HGS StmtLoss matrix for MAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.11	0.11
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.12	0.11
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.11	0.11
	3678	-	-	-	0.00	0.01	0.00	0.06	0.10	0.12	0.11
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.12	0.12
	3738	-	-	-	-	-	0.00	0.06	0.11	0.13	0.12
	3768	-	-	-	-	-	-	0.00	0.01	0.02	0.02
	3798	-	-	-	-	-	-	-	0.00	0.02	0.01
	3828	-	-	-	-	-	-	-	-	0.00	0.00
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 57: Commons-Lang HGS MutLoss matrix for MAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	40.77	40.77	40.77	40.77	40.77	40.77	40.77	40.77	40.77	40.77
	3618	-	41.59	41.59	41.59	41.59	41.59	41.59	41.59	41.59	41.59
	3648	-	-	41.41	41.41	41.41	41.41	41.41	41.41	41.41	41.41
	3678	-	-	-	41.44	41.44	41.44	41.44	41.44	41.44	41.44
	3708	-	-	-	-	41.44	41.44	41.44	41.44	41.44	41.44
	3738	-	-	-	-	-	41.48	41.48	41.48	41.48	41.48
	3768	-	-	-	-	-	-	41.46	41.46	41.46	41.46
	3798	-	-	-	-	-	-	-	41.59	41.59	41.59
	3828	-	-	-	-	-	-	-	-	41.23	41.23
	3858	-	-	-	-	-	-	-	-	-	41.21

Figure 58: Commons-Lang ILP SizRed matrix for MAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	1.65	1.64	1.63	1.63	1.63	1.63	1.63	1.63	1.62	1.62
	3618	-	1.62	1.61	1.61	1.61	1.61	1.61	1.61	1.60	1.60
	3648	-	-	1.61	1.61	1.61	1.61	1.61	1.61	1.59	1.59
	3678	-	-	-	1.63	1.63	1.63	1.63	1.63	1.62	1.62
	3708	-	-	-	-	1.64	1.64	1.64	1.64	1.62	1.62
	3738	-	-	-	-	-	1.64	1.64	1.64	1.63	1.63
	3768	-	-	-	-	-	-	1.66	1.66	1.64	1.64
	3798	-	-	-	-	-	-	-	1.67	1.66	1.66
	3828	-	-	-	-	-	-	-	-	1.61	1.61
	3858	-	-	-	-	-	-	-	-	-	1.62

Figure 59: Commons-Lang ILP StmtLoss matrix for MAR

	Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.11	0.11
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.13	0.12
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.11	0.11
	3678	-	-	-	0.00	0.01	0.00	0.06	0.10	0.12	0.11
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.10	0.10
	3738	-	-	-	-	-	0.00	0.06	0.11	0.12	0.11
	3768	-	-	-	-	-	-	0.00	0.01	0.01	0.01
	3798	-	-	-	-	-	-	-	0.00	0.02	0.01
	3828	-	-	-	-	-	-	-	-	0.00	0.00
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 60: Commons-Lang ILP MutLoss matrix for MAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	37.32	37.32	37.32	37.32	37.32	37.32	37.32	37.32	37.32
	3618	-	38.26	38.26	38.26	38.26	38.26	38.26	38.26	38.26
	3648	-	-	38.05	38.05	38.05	38.05	38.05	38.05	38.05
	3678	-	-	-	38.05	38.05	38.05	38.05	38.05	38.05
	3708	-	-	-	-	38.05	38.05	38.05	38.05	38.05
	3738	-	-	-	-	-	38.10	38.10	38.10	38.10
	3768	-	-	-	-	-	-	37.99	37.99	37.99
	3798	-	-	-	-	-	-	-	38.09	38.09
	3828	-	-	-	-	-	-	-	-	37.83
	3858	-	-	-	-	-	-	-	-	-

Figure 61: Commons-Lang Greedy SizRed matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
	3618	-	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
	3648	-	-	0.00	0.00	0.00	0.00	0.00	0.01	0.01
	3678	-	-	-	0.00	0.00	0.00	0.00	0.01	0.01
	3708	-	-	-	-	0.00	0.00	0.00	0.01	0.01
	3738	-	-	-	-	-	0.00	0.00	0.01	0.01
	3768	-	-	-	-	-	-	0.00	0.01	0.01
	3798	-	-	-	-	-	-	-	0.00	0.01
	3828	-	-	-	-	-	-	-	-	0.00
	3858	-	-	-	-	-	-	-	-	-

Figure 62: Commons-Lang Greedy StmtLoss matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.12	0.12
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.13
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.12
	3678	-	-	-	0.00	0.01	0.00	0.06	0.11	0.13
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.12
	3738	-	-	-	-	-	0.00	0.06	0.11	0.13
	3768	-	-	-	-	-	-	0.00	0.01	0.02
	3798	-	-	-	-	-	-	-	0.00	0.02
	3828	-	-	-	-	-	-	-	-	0.00
	3858	-	-	-	-	-	-	-	-	-

Figure 63: Commons-Lang Greedy MutLoss matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	37.71	
	3618	-	38.68	38.68	38.68	38.68	38.68	38.68	38.68	38.68	
	3648	-	-	38.48	38.48	38.48	38.48	38.48	38.48	38.48	
	3678	-	-	-	38.48	38.48	38.48	38.48	38.48	38.48	
	3708	-	-	-	-	38.48	38.48	38.48	38.48	38.48	
	3738	-	-	-	-	-	38.52	38.52	38.52	38.52	
	3768	-	-	-	-	-	-	38.45	38.45	38.45	
	3798	-	-	-	-	-	-	-	38.54	38.54	
	3828	-	-	-	-	-	-	-	-	38.24	
	3858	-	-	-	-	-	-	-	-	-	38.27

Figure 64: Commons-Lang GE SizRed matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3618	-	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3648	-	-	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3678	-	-	-	0.00	0.00	0.00	0.00	0.01	0.01	
	3708	-	-	-	-	0.00	0.00	0.00	0.01	0.01	
	3738	-	-	-	-	-	0.00	0.00	0.01	0.01	
	3768	-	-	-	-	-	-	0.00	0.01	0.01	
	3798	-	-	-	-	-	-	-	0.00	0.01	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 65: Commons-Lang GE StmtLoss matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.12	0.12	
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.13	
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.12	
	3678	-	-	-	0.00	0.01	0.00	0.06	0.10	0.13	
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.12	
	3738	-	-	-	-	-	0.00	0.06	0.11	0.13	
	3768	-	-	-	-	-	-	0.00	0.01	0.02	
	3798	-	-	-	-	-	-	-	0.00	0.02	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 66: Commons-Lang GE MutLoss matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	37.76	37.76	37.76	37.76	37.76	37.76	37.76	37.76	37.76	
	3618	-	38.68	38.68	38.68	38.68	38.68	38.68	38.68	38.68	
	3648	-	-	38.48	38.48	38.48	38.48	38.48	38.48	38.48	
	3678	-	-	-	38.48	38.48	38.48	38.48	38.48	38.48	
	3708	-	-	-	-	38.48	38.48	38.48	38.48	38.48	
	3738	-	-	-	-	-	38.52	38.52	38.52	38.52	
	3768	-	-	-	-	-	-	38.45	38.45	38.45	
	3798	-	-	-	-	-	-	-	38.54	38.54	
	3828	-	-	-	-	-	-	-	-	38.24	
	3858	-	-	-	-	-	-	-	-	-	38.27

Figure 67: Commons-Lang GRE SizRed matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3618	-	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3648	-	-	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3678	-	-	-	0.00	0.00	0.00	0.00	0.01	0.01	
	3708	-	-	-	-	0.00	0.00	0.00	0.01	0.01	
	3738	-	-	-	-	-	0.00	0.00	0.01	0.01	
	3768	-	-	-	-	-	-	0.00	0.01	0.01	
	3798	-	-	-	-	-	-	-	0.00	0.01	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 68: Commons-Lang GRE StmtLoss matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.12	0.12	
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.13	
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.12	
	3678	-	-	-	0.00	0.01	0.00	0.06	0.10	0.13	
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.12	
	3738	-	-	-	-	-	0.00	0.06	0.11	0.13	
	3768	-	-	-	-	-	-	0.00	0.01	0.02	
	3798	-	-	-	-	-	-	-	0.00	0.02	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 69: Commons-Lang GRE MutLoss matrix for SMAR



Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	37.76	37.76	37.76	37.76	37.76	37.76	37.76	37.76	37.76	
	3618	-	38.68	38.68	38.68	38.68	38.68	38.68	38.68	38.68	
	3648	-	-	38.48	38.48	38.48	38.48	38.48	38.48	38.48	
	3678	-	-	-	38.48	38.48	38.48	38.48	38.48	38.48	
	3708	-	-	-	-	38.48	38.48	38.48	38.48	38.48	
	3738	-	-	-	-	-	38.52	38.52	38.52	38.52	
	3768	-	-	-	-	-	-	38.45	38.45	38.45	
	3798	-	-	-	-	-	-	-	38.54	38.54	
	3828	-	-	-	-	-	-	-	-	38.24	
	3858	-	-	-	-	-	-	-	-	-	38.27

Figure 70: Commons-Lang HGS SizRed matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3618	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	
	3648	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.01	
	3678	-	-	-	0.00	0.00	0.00	0.00	0.00	0.01	
	3708	-	-	-	-	0.00	0.00	0.00	0.00	0.01	
	3738	-	-	-	-	-	0.00	0.00	0.00	0.01	
	3768	-	-	-	-	-	-	0.00	0.00	0.01	
	3798	-	-	-	-	-	-	-	0.00	0.01	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 71: Commons-Lang HGS StmtLoss matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.12	0.12	
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.13	
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.12	
	3678	-	-	-	0.00	0.01	0.00	0.06	0.10	0.13	
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.12	
	3738	-	-	-	-	-	0.00	0.06	0.11	0.13	
	3768	-	-	-	-	-	-	0.00	0.01	0.02	
	3798	-	-	-	-	-	-	-	0.00	0.02	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 72: Commons-Lang HGS MutLoss matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	37.76	37.76	37.76	37.76	37.76	37.76	37.76	37.76	37.76	
	3618	-	38.68	38.68	38.68	38.68	38.68	38.68	38.68	38.68	
	3648	-	-	38.48	38.48	38.48	38.48	38.48	38.48	38.48	
	3678	-	-	-	38.48	38.48	38.48	38.48	38.48	38.48	
	3708	-	-	-	-	38.48	38.48	38.48	38.48	38.48	
	3738	-	-	-	-	-	38.52	38.52	38.52	38.52	
	3768	-	-	-	-	-	-	38.45	38.45	38.45	
	3798	-	-	-	-	-	-	-	38.54	38.54	
	3828	-	-	-	-	-	-	-	-	38.24	
	3858	-	-	-	-	-	-	-	-	-	38.27

Figure 73: Commons-Lang ILP SizRed matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3618	-	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3648	-	-	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
	3678	-	-	-	0.00	0.00	0.00	0.00	0.01	0.01	
	3708	-	-	-	-	0.00	0.00	0.00	0.01	0.01	
	3738	-	-	-	-	-	0.00	0.00	0.01	0.01	
	3768	-	-	-	-	-	-	0.00	0.01	0.01	
	3798	-	-	-	-	-	-	-	0.00	0.01	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 74: Commons-Lang ILP StmtLoss matrix for SMAR

Version	3588	3618	3648	3678	3708	3738	3768	3798	3828	3858	
Commons-Lang	3588	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.12	0.12	
	3618	-	0.00	0.01	0.00	0.01	0.00	0.06	0.11	0.13	
	3648	-	-	0.00	0.00	0.00	0.00	0.05	0.11	0.12	
	3678	-	-	-	0.00	0.01	0.00	0.06	0.10	0.13	
	3708	-	-	-	-	0.00	0.00	0.05	0.11	0.12	
	3738	-	-	-	-	-	0.00	0.06	0.11	0.13	
	3768	-	-	-	-	-	-	0.00	0.01	0.02	
	3798	-	-	-	-	-	-	-	0.00	0.02	
	3828	-	-	-	-	-	-	-	-	0.00	
	3858	-	-	-	-	-	-	-	-	-	0.00

Figure 75: Commons-Lang ILP MutLoss matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	50.65	50.65	50.65	50.65	50.65	50.65	50.65	50.65	50.65
	807	-	52.73	52.73	52.73	52.73	52.73	52.73	52.73	52.73
	839	-	-	62.69	62.69	62.69	62.69	62.69	62.69	62.69
	867	-	-	-	62.69	62.69	62.69	62.69	62.69	62.69
	899	-	-	-	-	62.40	62.40	62.40	62.40	62.40
	929	-	-	-	-	-	62.87	62.87	62.87	62.87
	959	-	-	-	-	-	-	65.15	65.15	65.15
	989	-	-	-	-	-	-	-	66.09	66.09
	1019	-	-	-	-	-	-	-	-	66.36

Figure 76: Caelum Stella Greedy SizRed matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00	0.83
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.71
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00	0.71
	867	-	-	-	0.00	0.11	0.11	0.00	0.00	0.71
	899	-	-	-	-	0.00	0.00	0.55	0.00	0.71
	929	-	-	-	-	-	0.00	0.53	0.00	0.69
	959	-	-	-	-	-	-	0.00	0.00	0.67
	989	-	-	-	-	-	-	-	0.00	0.65
	1019	-	-	-	-	-	-	-	-	0.00

Figure 77: Caelum Stella Greedy StmtLoss matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	1.97	1.40	0.74	0.74	0.83	0.83	0.80	0.71	1.91
	807	-	2.20	2.06	2.06	2.12	2.13	2.05	2.03	2.87
	839	-	-	3.04	3.08	3.14	3.15	3.05	3.04	3.80
	867	-	-	-	3.08	3.14	3.15	3.05	3.04	3.80
	899	-	-	-	-	2.99	3.05	4.13	3.00	3.75
	929	-	-	-	-	-	3.13	4.20	3.08	3.82
	959	-	-	-	-	-	-	2.90	2.84	3.58
	989	-	-	-	-	-	-	-	2.71	3.43
	1019	-	-	-	-	-	-	-	-	3.31

Figure 78: Caelum Stella Greedy MutLoss matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	51.16	51.16	51.16	51.16	51.16	51.16	51.16	51.16	51.16
	807	-	53.12	53.12	53.12	53.12	53.12	53.12	53.12	53.12
	839	-	-	63.08	63.08	63.08	63.08	63.08	63.08	63.08
	867	-	-	-	63.08	63.08	63.08	63.08	63.08	63.08
	899	-	-	-	-	62.79	62.79	62.79	62.79	62.79
	929	-	-	-	-	-	63.05	63.05	63.05	63.05
	959	-	-	-	-	-	-	65.32	65.32	65.32
	989	-	-	-	-	-	-	-	66.09	66.09
	1019	-	-	-	-	-	-	-	-	66.21

Figure 79: Caelum Stella GE SizRed matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00	0.64
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.55
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00	0.55
	867	-	-	-	0.00	0.11	0.11	0.00	0.00	0.55
	899	-	-	-	-	0.00	0.00	0.55	0.00	0.54
	929	-	-	-	-	-	0.00	0.53	0.00	0.53
	959	-	-	-	-	-	-	0.00	0.00	0.52
	989	-	-	-	-	-	-	-	0.00	0.70
	1019	-	-	-	-	-	-	-	-	0.00

Figure 80: Caelum Stella GE StmtLoss matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	2.04	1.76	1.23	1.23	1.32	1.33	1.21	1.17	2.05
	807	-	2.53	2.41	2.41	2.48	2.49	2.41	2.39	3.02
	839	-	-	3.63	3.62	3.68	3.69	3.64	3.64	4.17
	867	-	-	-	3.62	3.68	3.69	3.64	3.64	4.17
	899	-	-	-	-	3.37	3.43	4.56	3.43	3.97
	929	-	-	-	-	-	3.54	4.66	3.54	4.07
	959	-	-	-	-	-	-	3.57	3.52	4.04
	989	-	-	-	-	-	-	-	3.00	3.64
	1019	-	-	-	-	-	-	-	-	3.41

Figure 81: Caelum Stella GE MutLoss matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	51.16	51.16	51.16	51.16	51.16	51.16	51.16	51.16	51.16
	807	-	53.12	53.12	53.12	53.12	53.12	53.12	53.12	53.12
	839	-	-	63.08	63.08	63.08	63.08	63.08	63.08	63.08
	867	-	-	-	63.08	63.08	63.08	63.08	63.08	63.08
	899	-	-	-	-	62.79	62.79	62.79	62.79	62.79
	929	-	-	-	-	-	63.05	63.05	63.05	63.05
	959	-	-	-	-	-	-	65.32	65.32	65.32
	989	-	-	-	-	-	-	-	66.25	66.25
	1019	-	-	-	-	-	-	-	-	66.36

Figure 82: Caelum Stella GRE SizRed matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00	0.64
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.55
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00	0.55
	867	-	-	-	0.00	0.11	0.11	0.00	0.00	0.55
	899	-	-	-	-	0.00	0.00	0.55	0.00	0.54
	929	-	-	-	-	-	0.00	0.53	0.00	0.53
	959	-	-	-	-	-	-	0.00	0.00	0.52
	989	-	-	-	-	-	-	-	0.00	0.70
	1019	-	-	-	-	-	-	-	-	0.00

Figure 83: Caelum Stella GRE StmtLoss matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	1.68	1.56	1.04	1.03	1.08	1.08	1.06	1.07	1.91
	807	-	1.91	1.66	1.66	1.73	1.74	1.73	1.74	2.38
	839	-	-	3.20	3.23	3.29	3.30	3.29	3.32	3.83
	867	-	-	-	3.23	3.29	3.30	3.29	3.32	3.83
	899	-	-	-	-	2.99	3.05	4.21	3.12	3.64
	929	-	-	-	-	-	3.17	4.32	3.23	3.74
	959	-	-	-	-	-	-	3.05	3.03	3.54
	989	-	-	-	-	-	-	-	3.00	3.57
	1019	-	-	-	-	-	-	-	-	3.37

Figure 84: Caelum Stella GRE MutLoss matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	51.16	51.16	51.16	51.16	51.16	51.16	51.16	51.16	51.16
	807	-	53.12	53.12	53.12	53.12	53.12	53.12	53.12	53.12
	839	-	-	63.08	63.08	63.08	63.08	63.08	63.08	63.08
	867	-	-	-	63.08	63.08	63.08	63.08	63.08	63.08
	899	-	-	-	-	62.79	62.79	62.79	62.79	62.79
	929	-	-	-	-	-	63.05	63.05	63.05	63.05
	959	-	-	-	-	-	-	65.32	65.32	65.32
	989	-	-	-	-	-	-	-	66.25	66.25
	1019	-	-	-	-	-	-	-	-	66.36

Figure 85: Caelum Stella HGS SizRed matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00	0.90
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.77
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00	0.77
	867	-	-	-	0.00	0.11	0.11	0.00	0.00	0.77
	899	-	-	-	-	0.00	0.00	0.55	0.00	0.76
	929	-	-	-	-	-	0.00	0.53	0.00	0.74
	959	-	-	-	-	-	-	0.00	0.00	0.73
	989	-	-	-	-	-	-	-	0.00	0.70
	1019	-	-	-	-	-	-	-	-	0.00

Figure 86: Caelum Stella HGS StmtLoss matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	1.94	1.84	1.38	1.38	1.42	1.47	1.41	1.32	2.51
	807	-	2.63	2.45	2.45	2.52	2.56	2.53	2.47	3.36
	839	-	-	3.82	3.86	3.91	3.96	3.92	3.88	4.65
	867	-	-	-	3.86	3.91	3.96	3.92	3.88	4.65
	899	-	-	-	-	3.74	3.85	4.98	3.83	4.60
	929	-	-	-	-	-	3.81	4.93	3.78	4.54
	959	-	-	-	-	-	-	3.79	3.71	4.50
	989	-	-	-	-	-	-	-	3.59	4.32
	1019	-	-	-	-	-	-	-	-	3.95

Figure 87: Caelum Stella HGS MutLoss matrix for SAR

Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	51.16	51.16	51.16	51.16	51.16	51.16	51.16	51.16
	807	-	53.12	53.12	53.12	53.12	53.12	53.12	53.12
	839	-	-	63.08	63.08	63.08	63.08	63.08	63.08
	867	-	-	-	63.08	63.08	63.08	63.08	63.08
	899	-	-	-	-	62.79	62.79	62.79	62.79
	929	-	-	-	-	-	63.05	63.05	63.05
	959	-	-	-	-	-	-	65.32	65.32
	989	-	-	-	-	-	-	-	66.25
	1019	-	-	-	-	-	-	-	-

Figure 88: Caelum Stella ILP SizRed matrix for SAR

Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00
	867	-	-	-	0.00	0.11	0.11	0.00	0.00
	899	-	-	-	-	0.00	0.00	0.55	0.00
	929	-	-	-	-	-	0.00	0.53	0.00
	959	-	-	-	-	-	-	0.00	0.52
	989	-	-	-	-	-	-	-	0.00
	1019	-	-	-	-	-	-	-	-

Figure 89: Caelum Stella ILP StmtLoss matrix for SAR

Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	2.26	1.52	1.13	1.13	1.22	1.23	1.21	1.22
	807	-	2.24	2.06	2.06	2.08	2.09	2.09	2.11
	839	-	-	2.73	2.77	2.83	2.84	2.81	2.84
	867	-	-	-	2.77	2.83	2.84	2.81	2.84
	899	-	-	-	-	2.66	2.71	3.86	2.76
	929	-	-	-	-	-	2.75	3.90	2.80
	959	-	-	-	-	-	-	2.75	2.73
	989	-	-	-	-	-	-	-	2.56
	1019	-	-	-	-	-	-	-	-

Figure 90: Caelum Stella ILP MutLoss matrix for SAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19
	807	-	50.98	50.98	50.98	50.98	50.98	50.98	50.98	50.98
	839	-	-	60.96	60.96	60.96	60.96	60.96	60.96	60.96
	867	-	-	-	60.96	60.96	60.96	60.96	60.96	60.96
	899	-	-	-	-	60.69	60.69	60.69	60.69	60.69
	929	-	-	-	-	-	61.03	61.03	61.03	61.03
	959	-	-	-	-	-	-	63.13	63.13	63.13
	989	-	-	-	-	-	-	-	64.20	64.20
	1019	-	-	-	-	-	-	-	-	63.33

Figure 91: Caelum Stella Greedy SizRed matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	2.17	2.52	2.94	2.94	3.05	3.08	2.98	3.02	3.78
	807	-	9.59	11.24	11.24	11.29	11.39	11.38	11.50	11.87
	839	-	-	10.54	10.54	10.60	10.68	10.67	10.79	11.17
	867	-	-	-	10.21	10.27	10.36	10.34	10.45	10.84
	899	-	-	-	-	9.96	10.11	10.74	10.37	10.75
	929	-	-	-	-	-	10.16	10.77	10.39	10.77
	959	-	-	-	-	-	-	9.45	9.59	9.97
	989	-	-	-	-	-	-	-	10.20	10.56
	1019	-	-	-	-	-	-	-	-	9.78

Figure 92: Caelum Stella Greedy StmtLoss matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.12	0.00	0.00	0.05	0.05	0.00	0.00	1.35
	807	-	0.00	0.00	0.00	0.04	0.04	0.00	0.00	1.09
	839	-	-	0.00	0.00	0.04	0.04	0.00	0.00	1.08
	867	-	-	-	0.00	0.04	0.04	0.00	0.00	1.08
	899	-	-	-	-	0.00	0.00	1.16	0.00	1.07
	929	-	-	-	-	-	0.00	1.15	0.00	1.05
	959	-	-	-	-	-	-	0.00	0.00	1.03
	989	-	-	-	-	-	-	-	0.00	0.99
	1019	-	-	-	-	-	-	-	-	0.00

Figure 93: Caelum Stella Greedy MutLoss matrix for MAR



	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	45.99	45.99	45.99	45.99	45.99	45.99	45.99	45.99	45.99
	807	-	50.98	50.98	50.98	50.98	50.98	50.98	50.98	50.98
	839	-	-	60.96	60.96	60.96	60.96	60.96	60.96	60.96
	867	-	-	-	60.96	60.96	60.96	60.96	60.96	60.96
	899	-	-	-	-	60.69	60.69	60.69	60.69	60.69
	929	-	-	-	-	-	61.03	61.03	61.03	61.03
	959	-	-	-	-	-	-	63.30	63.30	63.30
	989	-	-	-	-	-	-	-	64.35	64.35
	1019	-	-	-	-	-	-	-	-	63.48

Figure 94: Caelum Stella GE SizRed matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	2.02	2.36	2.75	2.75	2.86	2.88	2.78	2.82	3.33
	807	-	8.33	9.76	9.76	9.82	9.90	9.88	9.99	10.27
	839	-	-	9.39	9.39	9.46	9.53	9.51	9.61	9.91
	867	-	-	-	10.87	10.92	11.01	11.00	11.12	11.38
	899	-	-	-	-	10.60	10.76	11.40	11.03	11.29
	929	-	-	-	-	-	11.11	11.73	11.36	11.61
	959	-	-	-	-	-	-	10.08	10.22	10.59
	989	-	-	-	-	-	-	-	9.89	10.26
	1019	-	-	-	-	-	-	-	-	9.49

Figure 95: Caelum Stella GE StmtLoss matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.12	0.00	0.00	0.05	0.05	0.05	0.00	1.16
	807	-	0.00	0.00	0.00	0.08	0.08	0.08	0.04	0.98
	839	-	-	0.00	0.00	0.08	0.08	0.08	0.04	0.97
	867	-	-	-	0.00	0.08	0.08	0.08	0.04	1.04
	899	-	-	-	-	0.00	0.00	1.20	0.00	0.99
	929	-	-	-	-	-	0.00	1.18	0.00	0.98
	959	-	-	-	-	-	-	0.00	0.00	1.03
	989	-	-	-	-	-	-	-	0.00	0.99
	1019	-	-	-	-	-	-	-	-	0.00

Figure 96: Caelum Stella GE MutLoss matrix for MAR

Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	45.99	45.99	45.99	45.99	45.99	45.99	45.99	45.99
	807	-	50.98	50.98	50.98	50.98	50.98	50.98	50.98
	839	-	-	60.96	60.96	60.96	60.96	60.96	60.96
	867	-	-	-	60.96	60.96	60.96	60.96	60.96
	899	-	-	-	-	60.69	60.69	60.69	60.69
	929	-	-	-	-	-	61.03	61.03	61.03
	959	-	-	-	-	-	-	63.30	63.30
	989	-	-	-	-	-	-	-	64.35
	1019	-	-	-	-	-	-	-	-

Figure 97: Caelum Stella GRE SizRed matrix for MAR

Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	1.93	2.25	2.62	2.62	2.73	2.76	2.66	2.69
	807	-	8.89	10.42	10.42	10.47	10.56	10.54	10.66
	839	-	-	10.05	10.05	10.11	10.19	10.17	10.29
	867	-	-	-	11.03	11.09	11.18	11.17	11.29
	899	-	-	-	-	10.12	10.28	10.91	10.53
	929	-	-	-	-	-	10.64	11.25	10.88
	959	-	-	-	-	-	-	9.50	9.64
	989	-	-	-	-	-	-	-	10.30
	1019	-	-	-	-	-	-	-	-

Figure 98: Caelum Stella GRE StmtLoss matrix for MAR

Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.12	0.00	0.00	0.05	0.05	0.00	0.00
	807	-	0.00	0.00	0.00	0.08	0.08	0.04	0.04
	839	-	-	0.00	0.00	0.08	0.08	0.04	0.04
	867	-	-	-	0.00	0.08	0.08	0.04	0.04
	899	-	-	-	-	0.00	0.00	1.16	0.00
	929	-	-	-	-	-	0.00	1.22	0.04
	959	-	-	-	-	-	-	0.00	0.00
	989	-	-	-	-	-	-	-	0.00
	1019	-	-	-	-	-	-	-	-

Figure 99: Caelum Stella GRE MutLoss matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	45.99	45.99	45.99	45.99	45.99	45.99	45.99	45.99	45.99
	807	-	50.98	50.98	50.98	50.98	50.98	50.98	50.98	50.98
	839	-	-	60.96	60.96	60.96	60.96	60.96	60.96	60.96
	867	-	-	-	60.96	60.96	60.96	60.96	60.96	60.96
	899	-	-	-	-	60.69	60.69	60.69	60.69	60.69
	929	-	-	-	-	-	61.03	61.03	61.03	61.03
	959	-	-	-	-	-	-	63.30	63.30	63.30
	989	-	-	-	-	-	-	-	64.35	64.35
	1019	-	-	-	-	-	-	-	-	63.48

Figure 100: Caelum Stella HGS SizRed matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	1.93	2.25	2.62	2.62	2.73	2.76	2.66	2.69	3.01
	807	-	9.69	11.35	11.35	11.40	11.50	11.49	11.62	11.92
	839	-	-	11.31	11.31	11.36	11.45	11.44	11.57	11.88
	867	-	-	-	11.31	11.36	11.45	11.44	11.57	11.88
	899	-	-	-	-	11.67	11.84	12.49	12.14	12.43
	929	-	-	-	-	-	12.22	12.85	12.49	12.77
	959	-	-	-	-	-	-	11.80	11.97	12.25
	989	-	-	-	-	-	-	-	12.75	13.01
	1019	-	-	-	-	-	-	-	-	12.75

Figure 101: Caelum Stella HGS StmtLoss matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.12	0.00	0.00	0.05	0.10	0.00	0.00	1.12
	807	-	0.00	0.00	0.00	0.08	0.12	0.04	0.04	0.94
	839	-	-	0.00	0.00	0.08	0.12	0.04	0.04	0.93
	867	-	-	-	0.00	0.08	0.12	0.04	0.04	0.93
	899	-	-	-	-	0.00	0.04	1.16	0.00	0.88
	929	-	-	-	-	-	0.00	1.15	0.00	0.87
	959	-	-	-	-	-	-	0.00	0.00	0.85
	989	-	-	-	-	-	-	-	0.00	0.82
	1019	-	-	-	-	-	-	-	-	0.00

Figure 102: Caelum Stella HGS MutLoss matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	45.99	45.99	45.99	45.99	45.99	45.99	45.99	45.99	45.99
	807	-	50.98	50.98	50.98	50.98	50.98	50.98	50.98	50.98
	839	-	-	60.96	60.96	60.96	60.96	60.96	60.96	60.96
	867	-	-	-	60.96	60.96	60.96	60.96	60.96	60.96
	899	-	-	-	-	60.69	60.69	60.69	60.69	60.69
	929	-	-	-	-	-	61.03	61.03	61.03	61.03
	959	-	-	-	-	-	-	63.30	63.30	63.30
	989	-	-	-	-	-	-	-	64.35	64.35
	1019	-	-	-	-	-	-	-	-	63.48

Figure 103: Caelum Stella ILP SizRed matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	1.93	2.25	2.62	2.62	2.73	2.76	2.66	2.69	3.46
	807	-	8.33	9.76	9.76	9.82	9.90	9.88	9.99	10.71
	839	-	-	10.16	10.16	10.22	10.30	10.28	10.40	10.84
	867	-	-	-	10.27	10.33	10.41	10.39	10.51	10.73
	899	-	-	-	-	9.75	9.90	10.52	10.14	10.59
	929	-	-	-	-	-	9.37	9.98	9.59	9.82
	959	-	-	-	-	-	-	9.56	9.69	9.92
	989	-	-	-	-	-	-	-	10.81	11.01
	1019	-	-	-	-	-	-	-	-	9.88

Figure 104: Caelum Stella ILP StmtLoss matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.04	0.00	0.00	0.05	0.05	0.00	0.00	1.30
	807	-	0.00	0.00	0.00	0.08	0.08	0.04	0.04	1.28
	839	-	-	0.00	0.00	0.08	0.08	0.04	0.04	0.97
	867	-	-	-	0.00	0.04	0.04	0.00	0.00	0.78
	899	-	-	-	-	0.00	0.00	1.20	0.00	0.96
	929	-	-	-	-	-	0.00	1.18	0.00	0.87
	959	-	-	-	-	-	-	0.00	0.00	0.81
	989	-	-	-	-	-	-	-	0.00	0.82
	1019	-	-	-	-	-	-	-	-	0.00

Figure 105: Caelum Stella ILP MutLoss matrix for MAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	43.15	43.15	43.15	43.15	43.15	43.15	43.15	43.15	43.15
	807	-	47.85	47.85	47.85	47.85	47.85	47.85	47.85	47.85
	839	-	-	58.27	58.27	58.27	58.27	58.27	58.27	58.27
	867	-	-	-	58.27	58.27	58.27	58.27	58.27	58.27
	899	-	-	-	-	57.82	57.82	57.82	57.82	57.82
	929	-	-	-	-	-	58.27	58.27	58.27	58.27
	959	-	-	-	-	-	-	60.77	60.77	60.77
	989	-	-	-	-	-	-	-	62.15	62.15
	1019	-	-	-	-	-	-	-	-	60.91

Figure 106: Caelum Stella Greedy SizRed matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00	0.77
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.66
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00	0.66
	867	-	-	-	0.00	0.11	0.11	0.00	0.00	0.66
	899	-	-	-	-	0.00	0.00	0.55	0.00	0.65
	929	-	-	-	-	-	0.00	0.53	0.00	0.63
	959	-	-	-	-	-	-	0.00	0.00	0.62
	989	-	-	-	-	-	-	-	0.00	0.60
	1019	-	-	-	-	-	-	-	-	0.00

Figure 107: Caelum Stella Greedy StmtLoss matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.20	0.00	0.00	0.05	0.05	0.00	0.00	0.98
	807	-	0.00	0.00	0.00	0.08	0.08	0.04	0.04	0.91
	839	-	-	0.00	0.00	0.08	0.08	0.04	0.04	0.89
	867	-	-	-	0.00	0.08	0.08	0.04	0.04	0.89
	899	-	-	-	-	0.00	0.00	1.16	0.00	0.85
	929	-	-	-	-	-	0.00	1.15	0.00	0.84
	959	-	-	-	-	-	-	0.00	0.00	0.81
	989	-	-	-	-	-	-	-	0.00	0.79
	1019	-	-	-	-	-	-	-	-	0.00

Figure 108: Caelum Stella Greedy MutLoss matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19
	807	-	48.63	48.63	48.63	48.63	48.63	48.63	48.63	48.63
	839	-	-	58.65	58.65	58.65	58.65	58.65	58.65	58.65
	867	-	-	-	58.65	58.65	58.65	58.65	58.65	58.65
	899	-	-	-	-	58.21	58.21	58.21	58.21	58.21
	929	-	-	-	-	-	58.64	58.64	58.64	58.64
	959	-	-	-	-	-	-	61.11	61.11	61.11
	989	-	-	-	-	-	-	-	62.15	62.15
	1019	-	-	-	-	-	-	-	-	60.76

Figure 109: Caelum Stella GE SizRed matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00	0.51
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.44
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00	0.44
	867	-	-	-	0.00	0.11	0.11	0.00	0.00	0.44
	899	-	-	-	-	0.00	0.00	0.55	0.00	0.43
	929	-	-	-	-	-	0.00	0.53	0.00	0.42
	959	-	-	-	-	-	-	0.00	0.00	0.42
	989	-	-	-	-	-	-	-	0.00	0.40
	1019	-	-	-	-	-	-	-	-	0.00

Figure 110: Caelum Stella GE StmtLoss matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.12	0.00	0.00	0.05	0.05	0.05	0.00	1.12
	807	-	0.00	0.00	0.00	0.08	0.08	0.08	0.04	0.94
	839	-	-	0.00	0.00	0.08	0.08	0.08	0.04	0.93
	867	-	-	-	0.00	0.08	0.08	0.08	0.04	0.86
	899	-	-	-	-	0.00	0.00	1.20	0.00	0.81
	929	-	-	-	-	-	0.00	1.18	0.00	0.80
	959	-	-	-	-	-	-	0.00	0.00	0.74
	989	-	-	-	-	-	-	-	0.00	0.75
	1019	-	-	-	-	-	-	-	-	0.00

Figure 111: Caelum Stella GE MutLoss matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19
	807	-	48.63	48.63	48.63	48.63	48.63	48.63	48.63	48.63
	839	-	-	58.65	58.65	58.65	58.65	58.65	58.65	58.65
	867	-	-	-	58.65	58.65	58.65	58.65	58.65	58.65
	899	-	-	-	-	58.21	58.21	58.21	58.21	58.21
	929	-	-	-	-	-	58.64	58.64	58.64	58.64
	959	-	-	-	-	-	-	61.11	61.11	61.11
	989	-	-	-	-	-	-	-	62.30	62.30
	1019	-	-	-	-	-	-	-	-	60.91

Figure 112: Caelum Stella GRE SizRed matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00	0.51
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.44
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00	0.44
	867	-	-	-	0.00	0.11	0.11	0.00	0.00	0.44
	899	-	-	-	-	0.00	0.00	0.55	0.00	0.43
	929	-	-	-	-	-	0.00	0.53	0.00	0.42
	959	-	-	-	-	-	-	0.00	0.00	0.42
	989	-	-	-	-	-	-	-	0.00	0.40
	1019	-	-	-	-	-	-	-	-	0.00

Figure 113: Caelum Stella GRE StmtLoss matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.12	0.00	0.00	0.05	0.05	0.00	0.00	0.98
	807	-	0.00	0.00	0.00	0.08	0.08	0.04	0.04	0.83
	839	-	-	0.00	0.00	0.08	0.08	0.04	0.04	0.82
	867	-	-	-	0.00	0.08	0.08	0.04	0.04	0.82
	899	-	-	-	-	0.00	0.00	1.16	0.00	0.77
	929	-	-	-	-	-	0.00	1.22	0.04	0.87
	959	-	-	-	-	-	-	0.00	0.00	0.74
	989	-	-	-	-	-	-	-	0.00	0.72
	1019	-	-	-	-	-	-	-	-	0.00

Figure 114: Caelum Stella GRE MutLoss matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19
	807	-	48.63	48.63	48.63	48.63	48.63	48.63	48.63	48.63
	839	-	-	58.65	58.65	58.65	58.65	58.65	58.65	58.65
	867	-	-	-	58.65	58.65	58.65	58.65	58.65	58.65
	899	-	-	-	-	58.21	58.21	58.21	58.21	58.21
	929	-	-	-	-	-	58.64	58.64	58.64	58.64
	959	-	-	-	-	-	-	61.11	61.11	61.11
	989	-	-	-	-	-	-	-	62.30	62.30
	1019	-	-	-	-	-	-	-	-	60.91

Figure 115: Caelum Stella HGS SizRed matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00	0.77
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.66
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00	0.66
	867	-	-	-	0.00	0.11	0.11	0.00	0.00	0.66
	899	-	-	-	-	0.00	0.00	0.55	0.00	0.65
	929	-	-	-	-	-	0.00	0.53	0.00	0.63
	959	-	-	-	-	-	-	0.00	0.00	0.62
	989	-	-	-	-	-	-	-	0.00	0.60
	1019	-	-	-	-	-	-	-	-	0.00

Figure 116: Caelum Stella HGS StmtLoss matrix for SMAR

	Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.12	0.00	0.00	0.05	0.10	0.00	0.00	1.07
	807	-	0.00	0.00	0.00	0.08	0.12	0.04	0.04	0.91
	839	-	-	0.00	0.00	0.08	0.12	0.04	0.04	0.89
	867	-	-	-	0.00	0.08	0.12	0.04	0.04	0.89
	899	-	-	-	-	0.00	0.04	1.16	0.00	0.85
	929	-	-	-	-	-	0.00	1.15	0.00	0.84
	959	-	-	-	-	-	-	0.00	0.00	0.81
	989	-	-	-	-	-	-	-	0.00	0.79
	1019	-	-	-	-	-	-	-	-	0.00

Figure 117: Caelum Stella HGS MutLoss matrix for SMAR



Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	44.19	44.19	44.19	44.19	44.19	44.19	44.19	44.19
	807	-	48.63	48.63	48.63	48.63	48.63	48.63	48.63
	839	-	-	58.65	58.65	58.65	58.65	58.65	58.65
	867	-	-	-	58.65	58.65	58.65	58.65	58.65
	899	-	-	-	-	58.21	58.21	58.21	58.21
	929	-	-	-	-	-	58.64	58.64	58.64
	959	-	-	-	-	-	-	61.11	61.11
	989	-	-	-	-	-	-	-	62.30
	1019	-	-	-	-	-	-	-	-
									60.91

Figure 118: Caelum Stella ILP SizRed matrix for SMAR

Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.05	0.00	0.00	0.13	0.13	0.00	0.00
	807	-	0.00	0.00	0.00	0.11	0.11	0.00	0.00
	839	-	-	0.00	0.00	0.11	0.11	0.00	0.00
	867	-	-	-	0.00	0.11	0.11	0.00	0.00
	899	-	-	-	-	0.00	0.00	0.55	0.00
	929	-	-	-	-	-	0.00	0.53	0.00
	959	-	-	-	-	-	-	0.00	0.42
	989	-	-	-	-	-	-	-	0.00
	1019	-	-	-	-	-	-	-	-
									0.00

Figure 119: Caelum Stella ILP StmtLoss matrix for SMAR

Version	779	807	839	867	899	929	959	989	1019
Caelum Stella	779	0.00	0.04	0.00	0.00	0.05	0.05	0.00	0.00
	807	-	0.00	0.00	0.00	0.08	0.08	0.04	0.04
	839	-	-	0.00	0.00	0.08	0.08	0.04	0.04
	867	-	-	-	0.00	0.08	0.08	0.04	0.04
	899	-	-	-	-	0.00	0.00	1.16	0.00
	929	-	-	-	-	-	0.00	1.15	0.00
	959	-	-	-	-	-	-	0.00	0.00
	989	-	-	-	-	-	-	-	0.00
	1019	-	-	-	-	-	-	-	-
									0.00

Figure 120: Caelum Stella ILP MutLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	58.68	58.68	58.68	58.68	58.68
	2323	-	58.44	58.44	58.44	58.44
	2383	-	-	60.22	60.22	60.22
	2413	-	-	-	60.36	60.36
	2443	-	-	-	-	60.32

Figure 121: Caelum V|raptor Greedy SizRed matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.20	0.23
	2323	-	0.00	0.04	0.20	0.22
	2383	-	-	0.00	0.11	0.10
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 122: Caelum V|raptor Greedy StmtLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	6.82	6.84	6.93	7.01	7.09
	2323	-	6.82	6.95	7.02	7.11
	2383	-	-	6.76	6.81	6.83
	2413	-	-	-	6.95	6.95
	2443	-	-	-	-	6.96

Figure 123: Caelum V|raptor Greedy MutLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	59.80	59.80	59.80	59.80	59.80
	2323	-	59.54	59.54	59.54	59.54
	2383	-	-	61.15	61.15	61.15
	2413	-	-	-	61.16	61.16
	2443	-	-	-	-	61.12

Figure 124: Caelum V|raptor GE SizRed matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.20	0.23
	2323	-	0.00	0.04	0.20	0.22
	2383	-	-	0.00	0.11	0.10
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 125: Caelum V|raptor GE StmtLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	7.12	7.13	7.29	7.36	7.45
	2323	-	7.16	7.34	7.42	7.50
	2383	-	-	6.94	6.98	7.00
	2413	-	-	-	7.12	7.12
	2443	-	-	-	-	7.12

Figure 126: Caelum V|raptor GE MutLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	59.80	59.80	59.80	59.80	59.80
	2323	-	59.54	59.54	59.54	59.54
	2383	-	-	61.15	61.15	61.15
	2413	-	-	-	61.16	61.16
	2443	-	-	-	-	61.12

Figure 127: Caelum V|raptor GRE SizRed matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.27	0.29
	2323	-	0.00	0.04	0.27	0.29
	2383	-	-	0.00	0.34	0.34
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 128: Caelum V|raptor GRE StmtLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	7.50	7.51	7.67	7.74	7.83
	2323	-	7.53	7.73	7.80	7.88
	2383	-	-	7.34	7.46	7.47
	2413	-	-	-	7.46	7.46
	2443	-	-	-	-	7.51

Figure 129: Caelum V|raptor GRE MutLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	59.80	59.80	59.80	59.80	59.80
	2323	-	59.54	59.54	59.54	59.54
	2383	-	-	61.15	61.15	61.15
	2413	-	-	-	61.16	61.16
	2443	-	-	-	-	61.12

Figure 130: Caelum V|raptor HGS SizRed matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.20	0.23
	2323	-	0.00	0.04	0.20	0.22
	2383	-	-	0.00	0.19	0.19
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 131: Caelum V|raptor HGS StmtLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	7.00	7.01	7.16	7.24	7.31
	2323	-	7.04	7.22	7.29	7.37
	2383	-	-	6.91	7.17	7.17
	2413	-	-	-	7.16	7.15
	2443	-	-	-	-	7.10

Figure 132: Caelum V|raptor HGS MutLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	59.80	59.80	59.80	59.80	59.80
	2323	-	59.54	59.54	59.54	59.54
	2383	-	-	61.15	61.15	61.15
	2413	-	-	-	61.16	61.16
	2443	-	-	-	-	61.12

Figure 133: Caelum V|raptor ILP SizRed matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.27	0.29
	2323	-	0.00	0.04	0.27	0.29
	2383	-	-	0.00	0.34	0.34
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 134: Caelum V|raptor ILP StmtLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	7.69	7.71	7.81	7.88	7.97
	2323	-	7.67	7.80	7.87	7.96
	2383	-	-	7.70	7.81	7.83
	2413	-	-	-	7.66	7.66
	2443	-	-	-	-	7.25

Figure 135: Caelum V|raptor ILP MutLoss matrix for SAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	49.14	49.14	49.14	49.14	49.14
	2323	-	48.35	48.35	48.35	48.35
	2383	-	-	50.69	50.69	50.69
	2413	-	-	-	50.80	50.80
	2443	-	-	-	-	50.62

Figure 136: Caelum V|raptor Greedy SizRed matrix for MAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	1.88	1.85	1.83	1.89	1.98
	2323	-	1.85	1.83	1.89	1.98
	2383	-	-	2.11	2.23	2.29
	2413	-	-	-	2.10	2.15
	2443	-	-	-	-	2.04

Figure 137: Caelum V|raptor Greedy StmtLoss matrix for MAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.11	0.25	0.35	0.43
	2323	-	0.00	0.15	0.26	0.33
	2383	-	-	0.00	0.26	0.27
	2413	-	-	-	0.00	0.01
	2443	-	-	-	-	0.00

Figure 138: Caelum V|raptor Greedy MutLoss matrix for MAR

Version	2293	2323	2383	2413	2443
2293	49.64	49.64	49.64	49.64	49.64
2323	-	48.85	48.85	48.85	48.85
2383	-	-	51.25	51.25	51.25
2413	-	-	-	51.16	51.16
2443	-	-	-	-	50.98

Figure 139: Caelum V|raptor GE SizRed matrix for MAR

Version	2293	2323	2383	2413	2443
2293	1.88	1.85	1.83	1.89	1.98
2323	-	1.85	1.83	1.89	1.98
2383	-	-	2.09	2.12	2.18
2413	-	-	-	1.99	2.05
2443	-	-	-	-	1.94

Figure 140: Caelum V|raptor GE StmtLoss matrix for MAR

Version	2293	2323	2383	2413	2443
2293	0.00	0.11	0.25	0.35	0.43
2323	-	0.00	0.15	0.26	0.33
2383	-	-	0.00	0.40	0.41
2413	-	-	-	0.00	0.01
2443	-	-	-	-	0.00

Figure 141: Caelum V|raptor GE MutLoss matrix for MAR



	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	49.64	49.64	49.64	49.64	49.64
	2323	-	48.85	48.85	48.85	48.85
	2383	-	-	51.25	51.25	51.25
	2413	-	-	-	51.16	51.16
	2443	-	-	-	-	50.98

Figure 142: Caelum V|raptor GRE SizRed matrix for MAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	1.92	1.90	1.88	2.01	2.09
	2323	-	1.92	1.90	2.03	2.11
	2383	-	-	2.16	2.25	2.31
	2413	-	-	-	2.12	2.17
	2443	-	-	-	-	2.07

Figure 143: Caelum V|raptor GRE StmtLoss matrix for MAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.20	0.34	0.44	0.52
	2323	-	0.00	0.15	0.26	0.33
	2383	-	-	0.00	0.26	0.27
	2413	-	-	-	0.00	0.01
	2443	-	-	-	-	0.00

Figure 144: Caelum V|raptor GRE MutLoss matrix for MAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	49.64	49.64	49.64	49.64	49.64
	2323	-	48.85	48.85	48.85	48.85
	2383	-	-	51.25	51.25	51.25
	2413	-	-	-	51.16	51.16
	2443	-	-	-	-	50.98

Figure 145: Caelum V|raptor HGS SizRed matrix for MAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	1.56	1.54	1.49	1.62	1.71
	2323	-	1.56	1.52	1.65	1.73
	2383	-	-	1.79	1.89	1.95
	2413	-	-	-	1.83	1.88
	2443	-	-	-	-	1.76

Figure 146: Caelum V|raptor HGS StmtLoss matrix for MAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.20	0.34	0.44	0.52
	2323	-	0.00	0.15	0.26	0.33
	2383	-	-	0.00	0.26	0.27
	2413	-	-	-	0.00	0.01
	2443	-	-	-	-	0.00

Figure 147: Caelum V|raptor HGS MutLoss matrix for MAR

Version	2293	2323	2383	2413	2443
2293	49.64	49.64	49.64	49.64	49.64
2323	-	48.85	48.85	48.85	48.85
2383	-	-	51.25	51.25	51.25
2413	-	-	-	51.16	51.16
2443	-	-	-	-	50.98

Figure 148: Caelum V|raptor ILP SizRed matrix for MAR

Version	2293	2323	2383	2413	2443
2293	1.94	1.92	1.90	1.96	2.05
2323	-	1.94	1.92	1.98	2.07
2383	-	-	1.86	1.98	2.03
2413	-	-	-	2.24	2.29
2443	-	-	-	-	1.82

Figure 149: Caelum V|raptor ILP StmtLoss matrix for MAR

Version	2293	2323	2383	2413	2443
2293	0.00	0.11	0.25	0.35	0.43
2323	-	0.00	0.15	0.26	0.33
2383	-	-	0.00	0.26	0.27
2413	-	-	-	0.00	0.01
2443	-	-	-	-	0.00

Figure 150: Caelum V|raptor ILP MutLoss matrix for MAR

Version	2293	2323	2383	2413	2443
2293	46.90	46.90	46.90	46.90	46.90
2323	-	46.15	46.15	46.15	46.15
2383	-	-	48.29	48.29	48.29
2413	-	-	-	48.12	48.12
2443	-	-	-	-	48.04

Figure 151: Caelum V|raptor Greedy SizRed matrix for SMAR

Version	2293	2323	2383	2413	2443
2293	0.00	0.00	0.05	0.16	0.18
2323	-	0.00	0.04	0.16	0.18
2383	-	-	0.00	0.11	0.10
2413	-	-	-	0.00	0.00
2443	-	-	-	-	0.00

Figure 152: Caelum V|raptor Greedy StmtLoss matrix for SMAR

Version	2293	2323	2383	2413	2443
2293	0.00	0.09	0.23	0.34	0.41
2323	-	0.00	0.15	0.26	0.33
2383	-	-	0.00	0.14	0.16
2413	-	-	-	0.00	0.01
2443	-	-	-	-	0.00

Figure 153: Caelum V|raptor Greedy MutLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	47.31	47.31	47.31	47.31	47.31
	2323	-	46.65	46.65	46.65	46.65
	2383	-	-	48.75	48.75	48.75
	2413	-	-	-	48.66	48.66
	2443	-	-	-	-	48.58

Figure 154: Caelum V|raptor GE SizRed matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.23	0.25
	2323	-	0.00	0.04	0.22	0.24
	2383	-	-	0.00	0.11	0.10
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 155: Caelum V|raptor GE StmtLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.09	0.23	0.34	0.41
	2323	-	0.00	0.15	0.26	0.33
	2383	-	-	0.00	0.14	0.16
	2413	-	-	-	0.00	0.01
	2443	-	-	-	-	0.00

Figure 156: Caelum V|raptor GE MutLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	47.31	47.31	47.31	47.31	47.31
	2323	-	46.65	46.65	46.65	46.65
	2383	-	-	48.75	48.75	48.75
	2413	-	-	-	48.66	48.66
	2443	-	-	-	-	48.58

Figure 157: Caelum V|raptor GRE SizRed matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.16	0.18
	2323	-	0.00	0.04	0.16	0.18
	2383	-	-	0.00	0.17	0.17
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 158: Caelum V|raptor GRE StmtLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.09	0.23	0.34	0.41
	2323	-	0.00	0.15	0.26	0.33
	2383	-	-	0.00	0.14	0.16
	2413	-	-	-	0.00	0.01
	2443	-	-	-	-	0.00

Figure 159: Caelum V|raptor GRE MutLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	47.31	47.31	47.31	47.31	47.31
	2323	-	46.65	46.65	46.65	46.65
	2383	-	-	48.75	48.75	48.75
	2413	-	-	-	48.66	48.66
	2443	-	-	-	-	48.58

Figure 160: Caelum V|raptor HGS SizRed matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.16	0.18
	2323	-	0.00	0.04	0.16	0.18
	2383	-	-	0.00	0.11	0.10
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 161: Caelum V|raptor HGS StmtLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.09	0.23	0.34	0.41
	2323	-	0.00	0.15	0.26	0.33
	2383	-	-	0.00	0.14	0.16
	2413	-	-	-	0.00	0.01
	2443	-	-	-	-	0.00

Figure 162: Caelum V|raptor HGS MutLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	47.31	47.31	47.31	47.31	47.31
	2323	-	46.65	46.65	46.65	46.65
	2383	-	-	48.75	48.75	48.75
	2413	-	-	-	48.66	48.66
	2443	-	-	-	-	48.58

Figure 163: Caelum V|raptor ILP SizRed matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.00	0.05	0.23	0.25
	2323	-	0.00	0.04	0.16	0.18
	2383	-	-	0.00	0.19	0.19
	2413	-	-	-	0.00	0.00
	2443	-	-	-	-	0.00

Figure 164: Caelum V|raptor ILP StmtLoss matrix for SMAR

	Version	2293	2323	2383	2413	2443
Caelum V raptor	2293	0.00	0.09	0.23	0.34	0.41
	2323	-	0.00	0.15	0.26	0.33
	2383	-	-	0.00	0.14	0.16
	2413	-	-	-	0.00	0.01
	2443	-	-	-	-	0.00

Figure 165: Caelum V|raptor ILP MutLoss matrix for SMAR



	Version	27	57	87	117
Cloudera ML	27	42.86	42.86	42.86	42.86
	57	-	40.00	40.00	40.00
	87	-	-	41.18	41.18
	117	-	-	-	48.72

Figure 166: Cloudera ML Greedy SizRed matrix for SAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 167: Cloudera ML Greedy StmtLoss matrix for SAR

	Version	27	57	87	117
Cloudera ML	27	0.27	0.35	0.26	0.25
	57	-	0.35	0.26	0.25
	87	-	-	0.24	0.16
	117	-	-	-	2.88

Figure 168: Cloudera ML Greedy MutLoss matrix for SAR

Version		27	57	87	117
Cloudera ML	27	42.86	42.86	42.86	42.86
	57	-	40.00	40.00	40.00
	87	-	-	41.18	41.18
	117	-	-	-	48.72

Figure 169: Cloudera ML GE SizRed matrix for SAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 170: Cloudera ML GE StmtLoss matrix for SAR

Version		27	57	87	117
Cloudera ML	27	0.27	0.35	0.26	0.25
	57	-	0.35	0.26	0.25
	87	-	-	0.33	0.32
	117	-	-	-	1.98

Figure 171: Cloudera ML GE MutLoss matrix for SAR

Version		27	57	87	117
Cloudera ML	27	42.86	42.86	42.86	42.86
	57	-	40.00	40.00	40.00
	87	-	-	41.18	41.18
	117	-	-	-	48.72

Figure 172: Cloudera ML GRE SizRed matrix for SAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 173: Cloudera ML GRE StmtLoss matrix for SAR

Version		27	57	87	117
Cloudera ML	27	0.27	0.35	0.26	0.25
	57	-	0.35	0.26	0.25
	87	-	-	0.33	0.32
	117	-	-	-	2.88

Figure 174: Cloudera ML GRE MutLoss matrix for SAR

Version		27	57	87	117
Cloudera ML	27	42.86	42.86	42.86	42.86
	57	-	40.00	40.00	40.00
	87	-	-	41.18	41.18
	117	-	-	-	48.72

Figure 175: Cloudera ML HGS SizRed matrix for SAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 176: Cloudera ML HGS StmtLoss matrix for SAR

Version		27	57	87	117
Cloudera ML	27	0.62	0.70	0.61	0.42
	57	-	0.69	0.60	0.42
	87	-	-	0.65	0.47
	117	-	-	-	2.88

Figure 177: Cloudera ML HGS MutLoss matrix for SAR

Version		27	57	87	117
Cloudera ML	27	42.86	42.86	42.86	42.86
	57	-	40.00	40.00	40.00
	87	-	-	41.18	41.18
	117	-	-	-	48.72

Figure 178: Cloudera ML ILP SizRed matrix for SAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 179: Cloudera ML ILP StmtLoss matrix for SAR

Version		27	57	87	117
Cloudera ML	27	0.62	0.70	0.61	0.42
	57	-	0.69	0.60	0.42
	87	-	-	0.65	0.47
	117	-	-	-	3.11

Figure 180: Cloudera ML ILP MutLoss matrix for SAR

	Version	27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 181: Cloudera ML Greedy SizRed matrix for MAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.17

Figure 182: Cloudera ML Greedy StmtLoss matrix for MAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 183: Cloudera ML Greedy MutLoss matrix for MAR

	Version	27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 184: Cloudera ML GE SizRed matrix for MAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.17

Figure 185: Cloudera ML GE StmtLoss matrix for MAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 186: Cloudera ML GE MutLoss matrix for MAR

Version		27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 187: Cloudera ML GRE SizRed matrix for MAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 188: Cloudera ML GRE StmtLoss matrix for MAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 189: Cloudera ML GRE MutLoss matrix for MAR



Version		27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 190: Cloudera ML HGS SizRed matrix for MAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 191: Cloudera ML HGS StmtLoss matrix for MAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 192: Cloudera ML HGS MutLoss matrix for MAR

Version		27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 193: Cloudera ML ILP SizRed matrix for MAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.17

Figure 194: Cloudera ML ILP StmtLoss matrix for MAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 195: Cloudera ML ILP MutLoss matrix for MAR

	Version	27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 196: Cloudera ML Greedy SizRed matrix for SMAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 197: Cloudera ML Greedy StmtLoss matrix for SMAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 198: Cloudera ML Greedy MutLoss matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 199: Cloudera ML GE SizRed matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 200: Cloudera ML GE StmtLoss matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 201: Cloudera ML GE MutLoss matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 202: Cloudera ML GRE SizRed matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 203: Cloudera ML GRE StmtLoss matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 204: Cloudera ML GRE MutLoss matrix for SMAR

	Version	27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 205: Cloudera ML HGS SizRed matrix for SMAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 206: Cloudera ML HGS StmtLoss matrix for SMAR

	Version	27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 207: Cloudera ML HGS MutLoss matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	28.57	28.57	28.57	28.57
	57	-	26.67	26.67	26.67
	87	-	-	23.53	23.53
	117	-	-	-	33.33

Figure 208: Cloudera ML ILP SizRed matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 209: Cloudera ML ILP StmtLoss matrix for SMAR

Version		27	57	87	117
Cloudera ML	27	0.00	0.00	0.00	0.00
	57	-	0.00	0.00	0.00
	87	-	-	0.00	0.00
	117	-	-	-	0.00

Figure 210: Cloudera ML ILP MutLoss matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA	418	37.86	37.86	37.86	37.86	37.86
	478	-	38.68	38.68	38.68	38.68
	508	-	-	39.01	39.01	39.01
	538	-	-	-	39.01	39.01
	568	-	-	-	-	50.30
	598	-	-	-	-	-
						54.51

Figure 211: Cloudfoundry UAA Greedy SizRed matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA	418	0.00	0.00	4.44	4.46	4.74
	478	-	0.00	4.38	4.39	4.98
	508	-	-	0.00	0.00	0.42
	538	-	-	-	0.00	0.42
	568	-	-	-	-	0.00
	598	-	-	-	-	-
						1.03
						0.00

Figure 212: Cloudfoundry UAA Greedy StmtLoss matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA	418	8.61	9.40	12.11	12.13	12.76
	478	-	9.11	12.03	12.05	12.77
	508	-	-	5.32	5.32	6.68
	538	-	-	-	5.32	6.68
	568	-	-	-	-	4.91
	598	-	-	-	-	-
						4.79

Figure 213: Cloudfoundry UAA Greedy MutLoss matrix for SAR



Version	418	478	508	538	568	598
Cloudfoundry UAA	418	37.86	37.86	37.86	37.86	37.86
	478	-	38.68	38.68	38.68	38.68
	508	-	-	39.01	39.01	39.01
	538	-	-	-	39.01	39.01
	568	-	-	-	-	50.30
	598	-	-	-	-	-

Figure 214: Cloudfoundry UAA GE SizRed matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA	418	0.00	0.00	4.44	4.46	4.74
	478	-	0.00	4.38	4.39	4.98
	508	-	-	0.00	0.00	0.67
	538	-	-	-	0.00	0.67
	568	-	-	-	-	0.00
	598	-	-	-	-	-

Figure 215: Cloudfoundry UAA GE StmtLoss matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA	418	7.79	8.07	10.92	10.94	11.62
	478	-	7.39	10.49	10.51	11.21
	508	-	-	4.95	4.95	6.00
	538	-	-	-	4.95	6.00
	568	-	-	-	-	4.68
	598	-	-	-	-	-

Figure 216: Cloudfoundry UAA GE MutLoss matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	37.86	37.86	37.86	37.86	37.86	37.86
Cloudfoundry UAA 478	-	38.68	38.68	38.68	38.68	38.68
Cloudfoundry UAA 508	-	-	39.01	39.01	39.01	39.01
Cloudfoundry UAA 538	-	-	-	39.01	39.01	39.01
Cloudfoundry UAA 568	-	-	-	-	50.30	50.30
Cloudfoundry UAA 598	-	-	-	-	-	55.14

Figure 217: Cloudfoundry UAA GRE SizRed matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.51	0.51	0.93	1.17
Cloudfoundry UAA 478	-	0.00	0.50	0.50	1.20	1.34
Cloudfoundry UAA 508	-	-	0.00	0.00	0.42	2.13
Cloudfoundry UAA 538	-	-	-	0.00	0.42	2.13
Cloudfoundry UAA 568	-	-	-	-	0.00	0.99
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 218: Cloudfoundry UAA GRE StmtLoss matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	5.23	5.21	5.50	5.51	6.34	4.88
Cloudfoundry UAA 478	-	6.38	6.78	6.79	7.56	5.64
Cloudfoundry UAA 508	-	-	6.97	6.97	6.00	5.07
Cloudfoundry UAA 538	-	-	-	6.97	6.00	5.07
Cloudfoundry UAA 568	-	-	-	-	4.54	5.04
Cloudfoundry UAA 598	-	-	-	-	-	5.05

Figure 219: Cloudfoundry UAA GRE MutLoss matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	37.86	37.86	37.86	37.86	37.86	37.86
Cloudfoundry UAA 478	-	38.68	38.68	38.68	38.68	38.68
Cloudfoundry UAA 508	-	-	39.01	39.01	39.01	39.01
Cloudfoundry UAA 538	-	-	-	39.01	39.01	39.01
Cloudfoundry UAA 568	-	-	-	-	50.30	50.30
Cloudfoundry UAA 598	-	-	-	-	-	55.14

Figure 220: Cloudfoundry UAA HGS SizRed matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.51	0.51	0.93	1.17
Cloudfoundry UAA 478	-	0.00	0.50	0.50	1.20	1.34
Cloudfoundry UAA 508	-	-	0.00	0.00	0.67	0.97
Cloudfoundry UAA 538	-	-	-	0.00	0.67	0.97
Cloudfoundry UAA 568	-	-	-	-	0.00	0.27
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 221: Cloudfoundry UAA HGS StmtLoss matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	6.76	7.25	7.34	7.35	8.19	6.05
Cloudfoundry UAA 478	-	7.49	7.78	7.79	8.60	6.17
Cloudfoundry UAA 508	-	-	6.67	6.67	7.80	6.17
Cloudfoundry UAA 538	-	-	-	6.67	7.80	6.17
Cloudfoundry UAA 568	-	-	-	-	4.79	5.23
Cloudfoundry UAA 598	-	-	-	-	-	5.03

Figure 222: Cloudfoundry UAA HGS MutLoss matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	37.86	37.86	37.86	37.86	37.86	37.86
Cloudfoundry UAA 478	-	38.68	38.68	38.68	38.68	38.68
Cloudfoundry UAA 508	-	-	39.01	39.01	39.01	39.01
Cloudfoundry UAA 538	-	-	-	39.01	39.01	39.01
Cloudfoundry UAA 568	-	-	-	-	50.30	50.30
Cloudfoundry UAA 598	-	-	-	-	-	55.14

Figure 223: Cloudfoundry UAA ILP SizRed matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.51	0.51	0.93	1.17
Cloudfoundry UAA 478	-	0.00	0.50	0.50	1.20	1.34
Cloudfoundry UAA 508	-	-	0.00	0.00	0.67	2.32
Cloudfoundry UAA 538	-	-	-	0.00	0.67	2.32
Cloudfoundry UAA 568	-	-	-	-	0.00	0.99
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 224: Cloudfoundry UAA ILP StmtLoss matrix for SAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	5.53	5.52	5.78	5.79	6.60	5.09
Cloudfoundry UAA 478	-	5.47	5.97	5.98	6.78	5.05
Cloudfoundry UAA 508	-	-	5.02	5.02	6.08	5.30
Cloudfoundry UAA 538	-	-	-	5.02	6.08	5.30
Cloudfoundry UAA 568	-	-	-	-	4.39	5.01
Cloudfoundry UAA 598	-	-	-	-	-	4.81

Figure 225: Cloudfoundry UAA ILP MutLoss matrix for SAR

Version	418	478	508	538	568	598
418	30.10	30.10	30.10	30.10	30.10	30.10
478	-	30.19	30.19	30.19	30.19	30.19
508	-	-	31.91	31.91	31.91	31.91
538	-	-	-	31.91	31.91	31.91
568	-	-	-	-	41.27	41.27
598	-	-	-	-	-	45.07

Figure 226: Cloudfoundry UAA Greedy SizRed matrix for MAR

Version	418	478	508	538	568	598
418	3.19	3.14	3.23	3.24	2.97	2.35
478	-	3.12	3.18	3.19	2.95	2.26
508	-	-	2.76	2.74	2.84	3.54
538	-	-	-	2.74	2.84	3.54
568	-	-	-	-	0.74	2.22
598	-	-	-	-	-	2.52

Figure 227: Cloudfoundry UAA Greedy StmtLoss matrix for MAR

Version	418	478	508	538	568	598
418	0.00	0.00	0.83	0.83	0.79	0.76
478	-	0.00	0.81	0.82	0.78	0.85
508	-	-	0.00	0.00	0.60	0.99
538	-	-	-	0.00	0.60	0.99
568	-	-	-	-	0.00	0.60
598	-	-	-	-	-	0.00

Figure 228: Cloudfoundry UAA Greedy MutLoss matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	30.10	30.10	30.10	30.10	30.10	30.10
Cloudfoundry UAA 478	-	30.19	30.19	30.19	30.19	30.19
Cloudfoundry UAA 508	-	-	31.91	31.91	31.91	31.91
Cloudfoundry UAA 538	-	-	-	31.91	31.91	31.91
Cloudfoundry UAA 568	-	-	-	-	41.87	41.87
Cloudfoundry UAA 598	-	-	-	-	-	45.49

Figure 229: Cloudfoundry UAA GE SizRed matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	3.19	3.14	3.23	3.24	2.97	2.35
Cloudfoundry UAA 478	-	3.12	3.18	3.19	2.95	2.26
Cloudfoundry UAA 508	-	-	2.76	2.74	2.84	3.54
Cloudfoundry UAA 538	-	-	-	2.74	2.84	3.54
Cloudfoundry UAA 568	-	-	-	-	0.70	2.19
Cloudfoundry UAA 598	-	-	-	-	-	2.10

Figure 230: Cloudfoundry UAA GE StmtLoss matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.83	0.83	0.79	0.89
Cloudfoundry UAA 478	-	0.00	0.81	0.82	0.78	0.85
Cloudfoundry UAA 508	-	-	0.00	0.00	0.60	0.99
Cloudfoundry UAA 538	-	-	-	0.00	0.60	0.99
Cloudfoundry UAA 568	-	-	-	-	0.00	0.66
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 231: Cloudfoundry UAA GE MutLoss matrix for MAR

Version	418	478	508	538	568	598
418	30.10	30.10	30.10	30.10	30.10	30.10
478	-	30.19	30.19	30.19	30.19	30.19
508	-	-	31.91	31.91	31.91	31.91
538	-	-	-	31.91	31.91	31.91
568	-	-	-	-	41.87	41.87
598	-	-	-	-	-	45.49

Figure 232: Cloudfoundry UAA GRE SizRed matrix for MAR

Version	418	478	508	538	568	598
418	3.08	3.02	3.13	3.14	2.88	2.27
478	-	4.12	4.08	4.09	4.33	3.39
508	-	-	3.57	3.54	4.09	4.57
538	-	-	-	3.54	4.09	4.57
568	-	-	-	-	1.37	2.84
598	-	-	-	-	-	2.52

Figure 233: Cloudfoundry UAA GRE StmtLoss matrix for MAR

Version	418	478	508	538	568	598
418	0.00	0.00	0.83	0.83	0.79	0.76
478	-	0.00	0.81	0.82	0.78	0.72
508	-	-	0.00	0.00	0.75	0.99
538	-	-	-	0.00	0.75	0.99
568	-	-	-	-	0.00	0.71
598	-	-	-	-	-	0.00

Figure 234: Cloudfoundry UAA GRE MutLoss matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	30.10	30.10	30.10	30.10	30.10	30.10
Cloudfoundry UAA 478	-	30.19	30.19	30.19	30.19	30.19
Cloudfoundry UAA 508	-	-	31.91	31.91	31.91	31.91
Cloudfoundry UAA 538	-	-	-	31.91	31.91	31.91
Cloudfoundry UAA 568	-	-	-	-	41.87	41.87
Cloudfoundry UAA 598	-	-	-	-	-	45.49

Figure 235: Cloudfoundry UAA HGS SizRed matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	3.19	3.14	3.23	3.24	2.97	2.35
Cloudfoundry UAA 478	-	3.12	3.18	3.19	2.95	2.26
Cloudfoundry UAA 508	-	-	2.76	2.74	2.67	3.41
Cloudfoundry UAA 538	-	-	-	2.74	2.67	3.41
Cloudfoundry UAA 568	-	-	-	-	1.37	2.84
Cloudfoundry UAA 598	-	-	-	-	-	1.49

Figure 236: Cloudfoundry UAA HGS StmtLoss matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.83	0.83	0.79	0.89
Cloudfoundry UAA 478	-	0.00	0.81	0.82	0.78	0.85
Cloudfoundry UAA 508	-	-	0.00	0.00	0.38	0.82
Cloudfoundry UAA 538	-	-	-	0.00	0.38	0.82
Cloudfoundry UAA 568	-	-	-	-	0.00	0.66
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 237: Cloudfoundry UAA HGS MutLoss matrix for MAR



Version	418	478	508	538	568	598
Cloudfoundry UAA 418	30.10	30.10	30.10	30.10	30.10	30.10
Cloudfoundry UAA 478	-	30.19	30.19	30.19	30.19	30.19
Cloudfoundry UAA 508	-	-	31.91	31.91	31.91	31.91
Cloudfoundry UAA 538	-	-	-	31.91	31.91	31.91
Cloudfoundry UAA 568	-	-	-	-	41.87	41.87
Cloudfoundry UAA 598	-	-	-	-	-	45.49

Figure 238: Cloudfoundry UAA ILP SizRed matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	3.19	3.14	3.23	3.24	2.97	2.35
Cloudfoundry UAA 478	-	4.24	4.18	4.19	4.42	3.47
Cloudfoundry UAA 508	-	-	3.57	3.54	3.92	4.45
Cloudfoundry UAA 538	-	-	-	3.27	3.84	4.38
Cloudfoundry UAA 568	-	-	-	-	1.30	2.77
Cloudfoundry UAA 598	-	-	-	-	-	2.41

Figure 239: Cloudfoundry UAA ILP StmtLoss matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.83	0.83	0.79	0.89
Cloudfoundry UAA 478	-	0.00	0.81	0.82	0.78	0.72
Cloudfoundry UAA 508	-	-	0.00	0.00	0.38	0.70
Cloudfoundry UAA 538	-	-	-	0.00	0.75	0.99
Cloudfoundry UAA 568	-	-	-	-	0.00	0.66
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 240: Cloudfoundry UAA ILP MutLoss matrix for MAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	28.16	28.16	28.16	28.16	28.16	28.16
Cloudfoundry UAA 478	-	28.30	28.30	28.30	28.30	28.30
Cloudfoundry UAA 508	-	-	30.50	30.50	30.50	30.50
Cloudfoundry UAA 538	-	-	-	30.50	30.50	30.50
Cloudfoundry UAA 568	-	-	-	-	39.46	39.46
Cloudfoundry UAA 598	-	-	-	-	-	42.14

Figure 241: Cloudfoundry UAA Greedy SizRed matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.40	0.41	0.37	0.29
Cloudfoundry UAA 478	-	0.00	0.40	0.40	0.37	0.28
Cloudfoundry UAA 508	-	-	0.00	0.00	0.25	1.55
Cloudfoundry UAA 538	-	-	-	0.00	0.25	1.55
Cloudfoundry UAA 568	-	-	-	-	0.00	0.75
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 242: Cloudfoundry UAA Greedy StmtLoss matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.83	0.83	0.79	0.89
Cloudfoundry UAA 478	-	0.00	0.81	0.82	0.78	0.85
Cloudfoundry UAA 508	-	-	0.00	0.00	0.75	1.11
Cloudfoundry UAA 538	-	-	-	0.00	0.75	1.11
Cloudfoundry UAA 568	-	-	-	-	0.00	0.44
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 243: Cloudfoundry UAA Greedy MutLoss matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	28.16	28.16	28.16	28.16	28.16	28.16
Cloudfoundry UAA 478	-	28.30	28.30	28.30	28.30	28.30
Cloudfoundry UAA 508	-	-	30.50	30.50	30.50	30.50
Cloudfoundry UAA 538	-	-	-	30.50	30.50	30.50
Cloudfoundry UAA 568	-	-	-	-	39.76	39.76
Cloudfoundry UAA 598	-	-	-	-	-	42.56

Figure 244: Cloudfoundry UAA GE SizRed matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.40	0.41	0.37	0.29
Cloudfoundry UAA 478	-	0.00	0.40	0.40	0.37	0.28
Cloudfoundry UAA 508	-	-	0.00	0.00	0.25	1.55
Cloudfoundry UAA 538	-	-	-	0.00	0.25	1.55
Cloudfoundry UAA 568	-	-	-	-	0.00	0.75
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 245: Cloudfoundry UAA GE StmtLoss matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.83	0.83	0.79	0.89
Cloudfoundry UAA 478	-	0.00	0.81	0.82	0.78	0.85
Cloudfoundry UAA 508	-	-	0.00	0.00	0.60	0.99
Cloudfoundry UAA 538	-	-	-	0.00	0.60	0.99
Cloudfoundry UAA 568	-	-	-	-	0.00	0.49
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 246: Cloudfoundry UAA GE MutLoss matrix for SMAR

Version		418	478	508	538	568	598
Cloudfoundry UAA	418	28.16	28.16	28.16	28.16	28.16	28.16
	478	-	28.30	28.30	28.30	28.30	28.30
	508	-	-	30.50	30.50	30.50	30.50
	538	-	-	-	30.50	30.50	30.50
	568	-	-	-	-	39.76	39.76
	598	-	-	-	-	-	42.56

Figure 247: Cloudfoundry UAA GRE SizRed matrix for SMAR

Version		418	478	508	538	568	598
Cloudfoundry UAA	418	0.00	0.00	0.40	0.41	0.37	0.29
	478	-	0.00	0.40	0.40	0.37	0.28
	508	-	-	0.00	0.00	0.25	1.55
	538	-	-	-	0.00	0.25	1.55
	568	-	-	-	-	0.00	0.75
	598	-	-	-	-	-	0.00

Figure 248: Cloudfoundry UAA GRE StmtLoss matrix for SMAR

Version		418	478	508	538	568	598
Cloudfoundry UAA	418	0.00	0.00	0.83	0.83	0.79	0.76
	478	-	0.00	0.81	0.82	0.78	0.72
	508	-	-	0.00	0.00	0.75	0.99
	538	-	-	-	0.00	0.75	0.99
	568	-	-	-	-	0.00	0.55
	598	-	-	-	-	-	0.00

Figure 249: Cloudfoundry UAA GRE MutLoss matrix for SMAR

Version		418	478	508	538	568	598
Cloudfoundry UAA	418	28.16	28.16	28.16	28.16	28.16	28.16
	478	-	28.30	28.30	28.30	28.30	28.30
	508	-	-	30.50	30.50	30.50	30.50
	538	-	-	-	30.50	30.50	30.50
	568	-	-	-	-	39.76	39.76
	598	-	-	-	-	-	42.56

Figure 250: Cloudfoundry UAA HGS SizRed matrix for SMAR

Version		418	478	508	538	568	598
Cloudfoundry UAA	418	0.00	0.00	0.40	0.41	0.37	0.29
	478	-	0.00	0.40	0.40	0.37	0.28
	508	-	-	0.00	0.00	0.25	1.55
	538	-	-	-	0.00	0.25	1.55
	568	-	-	-	-	0.00	0.75
	598	-	-	-	-	-	0.00

Figure 251: Cloudfoundry UAA HGS StmtLoss matrix for SMAR

Version		418	478	508	538	568	598
Cloudfoundry UAA	418	0.00	0.00	0.83	0.83	0.79	0.89
	478	-	0.00	0.81	0.82	0.78	0.85
	508	-	-	0.00	0.00	0.75	1.11
	538	-	-	-	0.00	0.75	1.11
	568	-	-	-	-	0.00	0.55
	598	-	-	-	-	-	0.00

Figure 252: Cloudfoundry UAA HGS MutLoss matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	28.16	28.16	28.16	28.16	28.16	28.16
Cloudfoundry UAA 478	-	28.30	28.30	28.30	28.30	28.30
Cloudfoundry UAA 508	-	-	30.50	30.50	30.50	30.50
Cloudfoundry UAA 538	-	-	-	30.50	30.50	30.50
Cloudfoundry UAA 568	-	-	-	-	39.76	39.76
Cloudfoundry UAA 598	-	-	-	-	-	42.56

Figure 253: Cloudfoundry UAA ILP SizRed matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.40	0.41	0.37	0.29
Cloudfoundry UAA 478	-	0.00	0.40	0.40	0.37	0.28
Cloudfoundry UAA 508	-	-	0.00	0.00	0.25	1.55
Cloudfoundry UAA 538	-	-	-	0.00	0.25	1.55
Cloudfoundry UAA 568	-	-	-	-	0.00	0.75
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 254: Cloudfoundry UAA ILP StmtLoss matrix for SMAR

Version	418	478	508	538	568	598
Cloudfoundry UAA 418	0.00	0.00	0.83	0.83	0.79	0.76
Cloudfoundry UAA 478	-	0.00	0.81	0.82	0.78	0.72
Cloudfoundry UAA 508	-	-	0.00	0.00	0.60	0.99
Cloudfoundry UAA 538	-	-	-	0.00	0.60	0.99
Cloudfoundry UAA 568	-	-	-	-	0.00	0.77
Cloudfoundry UAA 598	-	-	-	-	-	0.00

Figure 255: Cloudfoundry UAA ILP MutLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	42.96	42.96	42.96	42.96	42.96	42.96
755	-	42.50	42.50	42.50	42.50	42.50
785	-	-	43.40	43.40	43.40	43.40
815	-	-	-	44.07	44.07	44.07
845	-	-	-	-	46.65	46.65
875	-	-	-	-	-	44.34

Figure 256: Dropwizard Metrics Greedy SizRed matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
755	-	0.00	0.00	0.00	0.00	0.23
785	-	-	0.00	0.00	0.00	0.23
815	-	-	-	0.00	0.00	0.23
845	-	-	-	-	0.00	0.23
875	-	-	-	-	-	0.00

Figure 257: Dropwizard Metrics Greedy StmtLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	2.76	2.75	2.82	2.82	2.84	3.13
755	-	2.79	2.85	2.85	2.87	3.15
785	-	-	2.84	2.84	2.86	3.14
815	-	-	-	2.91	2.94	3.22
845	-	-	-	-	3.07	3.34
875	-	-	-	-	-	2.84

Figure 258: Dropwizard Metrics Greedy MutLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	42.96	42.96	42.96	42.96	42.96	42.96
Dropwizard Metrics 755	-	42.50	42.50	42.50	42.50	42.50
Dropwizard Metrics 785	-	-	43.40	43.40	43.40	43.40
Dropwizard Metrics 815	-	-	-	44.07	44.07	44.07
Dropwizard Metrics 845	-	-	-	-	46.65	46.65
Dropwizard Metrics 875	-	-	-	-	-	44.34

Figure 259: Dropwizard Metrics GE SizRed matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.23
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.23
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.23
Dropwizard Metrics 845	-	-	-	-	0.00	0.23
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 260: Dropwizard Metrics GE StmtLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	2.78	2.78	2.85	2.84	2.87	3.15
Dropwizard Metrics 755	-	2.76	2.82	2.82	2.84	3.12
Dropwizard Metrics 785	-	-	2.82	2.81	2.84	3.12
Dropwizard Metrics 815	-	-	-	2.91	2.94	3.22
Dropwizard Metrics 845	-	-	-	-	3.09	3.37
Dropwizard Metrics 875	-	-	-	-	-	2.87

Figure 261: Dropwizard Metrics GE MutLoss matrix for SAR



Version	725	755	785	815	845	875
Dropwizard Metrics 725	42.96	42.96	42.96	42.96	42.96	42.96
755	-	42.50	42.50	42.50	42.50	42.50
785	-	-	43.40	43.40	43.40	43.40
815	-	-	-	44.07	44.07	44.07
845	-	-	-	-	46.65	46.65
875	-	-	-	-	-	44.34

Figure 262: Dropwizard Metrics GRE SizRed matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
755	-	0.00	0.00	0.00	0.00	0.23
785	-	-	0.00	0.00	0.00	0.23
815	-	-	-	0.00	0.00	0.23
845	-	-	-	-	0.00	0.23
875	-	-	-	-	-	0.00

Figure 263: Dropwizard Metrics GRE StmtLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	2.76	2.75	2.76	2.76	2.78	3.07
755	-	2.79	2.79	2.79	2.81	3.10
785	-	-	2.82	2.81	2.84	3.12
815	-	-	-	2.91	2.94	3.22
845	-	-	-	-	3.04	3.32
875	-	-	-	-	-	2.82

Figure 264: Dropwizard Metrics GRE MutLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	42.96	42.96	42.96	42.96	42.96	42.96
Dropwizard Metrics 755	-	42.50	42.50	42.50	42.50	42.50
Dropwizard Metrics 785	-	-	43.40	43.40	43.40	43.40
Dropwizard Metrics 815	-	-	-	44.07	44.07	44.07
Dropwizard Metrics 845	-	-	-	-	46.65	46.65
Dropwizard Metrics 875	-	-	-	-	-	44.34

Figure 265: Dropwizard Metrics HGS SizRed matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.23
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.23
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.23
Dropwizard Metrics 845	-	-	-	-	0.00	0.23
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 266: Dropwizard Metrics HGS StmtLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	2.95	2.95	2.96	2.96	2.98	3.27
Dropwizard Metrics 755	-	2.92	2.93	2.93	2.95	3.23
Dropwizard Metrics 785	-	-	2.93	2.92	2.95	3.22
Dropwizard Metrics 815	-	-	-	3.02	3.05	3.32
Dropwizard Metrics 845	-	-	-	-	3.18	3.45
Dropwizard Metrics 875	-	-	-	-	-	2.95

Figure 267: Dropwizard Metrics HGS MutLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	42.96	42.96	42.96	42.96	42.96	42.96
Dropwizard Metrics 755	-	42.50	42.50	42.50	42.50	42.50
Dropwizard Metrics 785	-	-	43.40	43.40	43.40	43.40
Dropwizard Metrics 815	-	-	-	44.07	44.07	44.07
Dropwizard Metrics 845	-	-	-	-	46.65	46.65
Dropwizard Metrics 875	-	-	-	-	-	44.34

Figure 268: Dropwizard Metrics ILP SizRed matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.23
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.23
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.23
Dropwizard Metrics 845	-	-	-	-	0.00	0.23
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 269: Dropwizard Metrics ILP StmtLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	3.32	3.32	3.32	3.32	3.34	3.63
Dropwizard Metrics 755	-	3.28	3.29	3.29	3.31	3.59
Dropwizard Metrics 785	-	-	3.23	3.22	3.25	3.52
Dropwizard Metrics 815	-	-	-	3.32	3.35	3.62
Dropwizard Metrics 845	-	-	-	-	3.47	3.75
Dropwizard Metrics 875	-	-	-	-	-	3.29

Figure 270: Dropwizard Metrics ILP MutLoss matrix for SAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	35.56	35.56	35.56	35.56	35.56	35.56
Dropwizard Metrics 755	-	35.00	35.00	35.00	35.00	35.00
Dropwizard Metrics 785	-	-	35.76	35.76	35.76	35.76
Dropwizard Metrics 815	-	-	-	35.93	35.93	35.93
Dropwizard Metrics 845	-	-	-	-	37.70	37.70
Dropwizard Metrics 875	-	-	-	-	-	36.48

Figure 271: Dropwizard Metrics Greedy SizRed matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.59	0.58	0.58	0.58	0.58	0.81
Dropwizard Metrics 755	-	0.57	0.56	0.56	0.56	0.78
Dropwizard Metrics 785	-	-	0.56	0.56	0.55	0.78
Dropwizard Metrics 815	-	-	-	0.55	0.55	0.77
Dropwizard Metrics 845	-	-	-	-	0.55	0.77
Dropwizard Metrics 875	-	-	-	-	-	0.53

Figure 272: Dropwizard Metrics Greedy StmtLoss matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.06	0.06	0.06	0.36
Dropwizard Metrics 755	-	0.00	0.06	0.06	0.06	0.36
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 273: Dropwizard Metrics Greedy MutLoss matrix for MAR

Version	725	755	785	815	845	875
725	35.93	35.93	35.93	35.93	35.93	35.93
755	-	35.36	35.36	35.36	35.36	35.36
785	-	-	36.11	36.11	36.11	36.11
815	-	-	-	36.27	36.27	36.27
845	-	-	-	-	38.34	38.34
875	-	-	-	-	-	36.79

Figure 274: Dropwizard Metrics GE SizRed matrix for MAR

Version	725	755	785	815	845	875
725	0.59	0.58	0.58	0.58	0.58	0.81
755	-	0.57	0.56	0.56	0.56	0.78
785	-	-	0.56	0.56	0.55	0.78
815	-	-	-	0.55	0.55	0.77
845	-	-	-	-	0.55	0.77
875	-	-	-	-	-	0.53

Figure 275: Dropwizard Metrics GE StmtLoss matrix for MAR

Version	725	755	785	815	845	875
725	0.00	0.00	0.06	0.06	0.06	0.36
755	-	0.00	0.06	0.06	0.06	0.36
785	-	-	0.00	0.00	0.00	0.30
815	-	-	-	0.00	0.00	0.30
845	-	-	-	-	0.00	0.30
875	-	-	-	-	-	0.00

Figure 276: Dropwizard Metrics GE MutLoss matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	35.93	35.93	35.93	35.93	35.93	35.93
Dropwizard Metrics 755	-	35.36	35.36	35.36	35.36	35.36
Dropwizard Metrics 785	-	-	36.11	36.11	36.11	36.11
Dropwizard Metrics 815	-	-	-	36.27	36.27	36.27
Dropwizard Metrics 845	-	-	-	-	38.34	38.34
Dropwizard Metrics 875	-	-	-	-	-	36.79

Figure 277: Dropwizard Metrics GRE SizRed matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.59	0.58	0.58	0.58	0.58	0.81
Dropwizard Metrics 755	-	0.57	0.56	0.56	0.56	0.78
Dropwizard Metrics 785	-	-	0.56	0.56	0.55	0.78
Dropwizard Metrics 815	-	-	-	0.55	0.55	0.77
Dropwizard Metrics 845	-	-	-	-	0.55	0.77
Dropwizard Metrics 875	-	-	-	-	-	0.53

Figure 278: Dropwizard Metrics GRE StmtLoss matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.31
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.30
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 279: Dropwizard Metrics GRE MutLoss matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	35.93	35.93	35.93	35.93	35.93	35.93
Dropwizard Metrics 755	-	35.36	35.36	35.36	35.36	35.36
Dropwizard Metrics 785	-	-	36.11	36.11	36.11	36.11
Dropwizard Metrics 815	-	-	-	36.27	36.27	36.27
Dropwizard Metrics 845	-	-	-	-	38.34	38.34
Dropwizard Metrics 875	-	-	-	-	-	36.79

Figure 280: Dropwizard Metrics HGS SizRed matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.59	0.58	0.58	0.58	0.58	0.81
Dropwizard Metrics 755	-	0.57	0.56	0.56	0.56	0.78
Dropwizard Metrics 785	-	-	0.56	0.56	0.55	0.78
Dropwizard Metrics 815	-	-	-	0.55	0.55	0.77
Dropwizard Metrics 845	-	-	-	-	0.55	0.77
Dropwizard Metrics 875	-	-	-	-	-	0.53

Figure 281: Dropwizard Metrics HGS StmtLoss matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.31
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.30
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 282: Dropwizard Metrics HGS MutLoss matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	35.93	35.93	35.93	35.93	35.93	35.93
Dropwizard Metrics 755	-	35.36	35.36	35.36	35.36	35.36
Dropwizard Metrics 785	-	-	36.11	36.11	36.11	36.11
Dropwizard Metrics 815	-	-	-	36.27	36.27	36.27
Dropwizard Metrics 845	-	-	-	-	38.34	38.34
Dropwizard Metrics 875	-	-	-	-	-	36.79

Figure 283: Dropwizard Metrics ILP SizRed matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.59	0.58	0.58	0.58	0.58	0.81
Dropwizard Metrics 755	-	0.57	0.56	0.56	0.56	0.78
Dropwizard Metrics 785	-	-	0.56	0.56	0.55	0.78
Dropwizard Metrics 815	-	-	-	0.55	0.55	0.77
Dropwizard Metrics 845	-	-	-	-	0.55	0.77
Dropwizard Metrics 875	-	-	-	-	-	0.53

Figure 284: Dropwizard Metrics ILP StmtLoss matrix for MAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.06	0.06	0.06	0.36
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.30
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 285: Dropwizard Metrics ILP MutLoss matrix for MAR



Version	725	755	785	815	845	875
Dropwizard Metrics 725	33.33	33.33	33.33	33.33	33.33	33.33
Dropwizard Metrics 755	-	32.86	32.86	32.86	32.86	32.86
Dropwizard Metrics 785	-	-	33.68	33.68	33.68	33.68
Dropwizard Metrics 815	-	-	-	33.90	33.90	33.90
Dropwizard Metrics 845	-	-	-	-	36.10	36.10
Dropwizard Metrics 875	-	-	-	-	-	34.59

Figure 286: Dropwizard Metrics Greedy SizRed matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.23
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.23
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.23
Dropwizard Metrics 845	-	-	-	-	0.00	0.23
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 287: Dropwizard Metrics Greedy StmtLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.06	0.06	0.06	0.36
Dropwizard Metrics 755	-	0.00	0.06	0.06	0.06	0.36
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 288: Dropwizard Metrics Greedy MutLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	33.33	33.33	33.33	33.33	33.33	33.33
Dropwizard Metrics 755	-	32.86	32.86	32.86	32.86	32.86
Dropwizard Metrics 785	-	-	33.68	33.68	33.68	33.68
Dropwizard Metrics 815	-	-	-	33.90	33.90	33.90
Dropwizard Metrics 845	-	-	-	-	36.10	36.10
Dropwizard Metrics 875	-	-	-	-	-	34.59

Figure 289: Dropwizard Metrics GE SizRed matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.23
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.23
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.23
Dropwizard Metrics 845	-	-	-	-	0.00	0.23
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 290: Dropwizard Metrics GE StmtLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.06	0.06	0.06	0.36
Dropwizard Metrics 755	-	0.00	0.06	0.06	0.06	0.36
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 291: Dropwizard Metrics GE MutLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	33.33	33.33	33.33	33.33	33.33	33.33
Dropwizard Metrics 755	-	32.86	32.86	32.86	32.86	32.86
Dropwizard Metrics 785	-	-	33.68	33.68	33.68	33.68
Dropwizard Metrics 815	-	-	-	33.90	33.90	33.90
Dropwizard Metrics 845	-	-	-	-	36.10	36.10
Dropwizard Metrics 875	-	-	-	-	-	34.59

Figure 292: Dropwizard Metrics GRE SizRed matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.23
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.23
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.23
Dropwizard Metrics 845	-	-	-	-	0.00	0.23
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 293: Dropwizard Metrics GRE StmtLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.31
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.30
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 294: Dropwizard Metrics GRE MutLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	33.33	33.33	33.33	33.33	33.33	33.33
Dropwizard Metrics 755	-	32.86	32.86	32.86	32.86	32.86
Dropwizard Metrics 785	-	-	33.68	33.68	33.68	33.68
Dropwizard Metrics 815	-	-	-	33.90	33.90	33.90
Dropwizard Metrics 845	-	-	-	-	36.10	36.10
Dropwizard Metrics 875	-	-	-	-	-	34.59

Figure 295: Dropwizard Metrics HGS SizRed matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.23
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.23
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.23
Dropwizard Metrics 845	-	-	-	-	0.00	0.23
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 296: Dropwizard Metrics HGS StmtLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.31
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.30
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 297: Dropwizard Metrics HGS MutLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	33.33	33.33	33.33	33.33	33.33	33.33
Dropwizard Metrics 755	-	32.86	32.86	32.86	32.86	32.86
Dropwizard Metrics 785	-	-	33.68	33.68	33.68	33.68
Dropwizard Metrics 815	-	-	-	33.90	33.90	33.90
Dropwizard Metrics 845	-	-	-	-	36.10	36.10
Dropwizard Metrics 875	-	-	-	-	-	34.59

Figure 298: Dropwizard Metrics ILP SizRed matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.24
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.23
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.23
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.23
Dropwizard Metrics 845	-	-	-	-	0.00	0.23
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 299: Dropwizard Metrics ILP StmtLoss matrix for SMAR

Version	725	755	785	815	845	875
Dropwizard Metrics 725	0.00	0.00	0.00	0.00	0.00	0.31
Dropwizard Metrics 755	-	0.00	0.00	0.00	0.00	0.30
Dropwizard Metrics 785	-	-	0.00	0.00	0.00	0.30
Dropwizard Metrics 815	-	-	-	0.00	0.00	0.30
Dropwizard Metrics 845	-	-	-	-	0.00	0.30
Dropwizard Metrics 875	-	-	-	-	-	0.00

Figure 300: Dropwizard Metrics ILP MutLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	52.63	52.63	52.63	52.63	52.63	52.63	52.63
	39	-	52.50	52.50	52.50	52.50	52.50	52.50
	98	-	-	53.33	53.33	53.33	53.33	53.33
	129	-	-	-	55.36	55.36	55.36	55.36
	159	-	-	-	-	58.06	58.06	58.06
	189	-	-	-	-	-	66.67	66.67
	219	-	-	-	-	-	-	65.96
	249	-	-	-	-	-	-	-

Figure 301: Scribe-Java Greedy SizRed matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	0.00	0.00	0.00	0.00	0.00	0.00
	98	-	-	0.00	0.00	0.00	2.03	1.98
	129	-	-	-	0.00	0.00	1.89	1.84
	159	-	-	-	-	0.00	1.88	1.83
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 302: Scribe-Java Greedy StmtLoss matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	5.59	5.75	6.40	6.29	6.11	5.82	5.82
	39	-	5.71	6.36	6.25	6.08	5.76	5.76
	98	-	-	7.04	6.90	6.73	9.76	9.76
	129	-	-	-	7.08	6.92	9.95	9.95
	159	-	-	-	-	8.81	10.04	10.04
	189	-	-	-	-	-	9.52	9.52
	219	-	-	-	-	-	-	9.38
	249	-	-	-	-	-	-	-

Figure 303: Scribe-Java Greedy MutLoss matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	52.63	52.63	52.63	52.63	52.63	52.63	52.63	52.63
39	-	52.50	52.50	52.50	52.50	52.50	52.50	52.50
98	-	-	53.33	53.33	53.33	53.33	53.33	53.33
129	-	-	-	55.36	55.36	55.36	55.36	55.36
159	-	-	-	-	58.06	58.06	58.06	58.06
189	-	-	-	-	-	66.67	66.67	66.67
219	-	-	-	-	-	-	65.96	65.96
249	-	-	-	-	-	-	-	65.66

Figure 304: Scribe-Java GE SizRed matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	-	-	0.00	0.00	0.00	2.03	1.98	1.94
129	-	-	-	0.00	0.00	1.89	1.84	1.81
159	-	-	-	-	0.00	1.88	1.83	1.80
189	-	-	-	-	-	0.00	0.00	0.00
219	-	-	-	-	-	-	0.00	0.00
249	-	-	-	-	-	-	-	0.00

Figure 305: Scribe-Java GE StmtLoss matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	6.83	7.03	6.69	6.57	6.39	6.08	6.08	5.94
39	-	5.71	6.36	6.25	6.08	5.76	5.76	5.63
98	-	-	7.04	6.90	6.73	9.76	9.76	9.55
129	-	-	-	7.08	6.92	9.95	9.95	9.76
159	-	-	-	-	7.71	10.71	10.71	10.50
189	-	-	-	-	-	9.52	9.52	9.36
219	-	-	-	-	-	-	9.94	9.78
249	-	-	-	-	-	-	-	10.48

Figure 306: Scribe-Java GE MutLoss matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	52.63	52.63	52.63	52.63	52.63	52.63	52.63
	39	-	52.50	52.50	52.50	52.50	52.50	52.50
	98	-	-	53.33	53.33	53.33	53.33	53.33
	129	-	-	-	55.36	55.36	55.36	55.36
	159	-	-	-	-	58.06	58.06	58.06
	189	-	-	-	-	-	66.67	66.67
	219	-	-	-	-	-	-	65.96
	249	-	-	-	-	-	-	-

Figure 307: Scribe-Java GRE SizRed matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	0.00	0.00	0.00	0.00	0.00	0.00
	98	-	-	0.00	0.00	0.00	2.03	1.98
	129	-	-	-	0.00	0.00	1.89	1.84
	159	-	-	-	-	0.00	1.88	1.83
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 308: Scribe-Java GRE StmtLoss matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	6.83	7.03	6.69	6.57	6.39	6.08	6.08
	39	-	5.71	6.36	6.25	6.08	5.76	5.76
	98	-	-	7.04	6.90	6.73	9.76	9.76
	129	-	-	-	7.08	6.92	9.95	9.95
	159	-	-	-	-	7.49	10.49	10.49
	189	-	-	-	-	-	9.52	9.52
	219	-	-	-	-	-	-	9.57
	249	-	-	-	-	-	-	-

Figure 309: Scribe-Java GRE MutLoss matrix for SAR



Version	9	39	98	129	159	189	219	249
Scribe-Java 9	52.63	52.63	52.63	52.63	52.63	52.63	52.63	52.63
39	-	52.50	52.50	52.50	52.50	52.50	52.50	52.50
98	-	-	53.33	53.33	53.33	53.33	53.33	53.33
129	-	-	-	55.36	55.36	55.36	55.36	55.36
159	-	-	-	-	58.06	58.06	58.06	58.06
189	-	-	-	-	-	66.67	66.67	66.67
219	-	-	-	-	-	-	65.96	65.96
249	-	-	-	-	-	-	-	65.66

Figure 310: Scribe-Java HGS SizRed matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	-	-	0.00	0.00	0.00	2.03	1.98	1.94
129	-	-	-	0.00	0.00	1.89	1.84	1.81
159	-	-	-	-	0.00	1.88	1.83	1.80
189	-	-	-	-	-	0.00	0.00	0.00
219	-	-	-	-	-	-	0.00	0.00
249	-	-	-	-	-	-	-	0.00

Figure 311: Scribe-Java HGS StmtLoss matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	4.97	5.11	4.94	4.86	4.72	4.50	4.50	4.39
39	-	5.08	4.91	4.83	4.70	4.45	4.45	4.35
98	-	-	5.78	5.67	5.53	8.54	8.54	8.35
129	-	-	-	5.94	5.80	8.82	8.82	8.65
159	-	-	-	-	7.71	8.93	8.93	8.75
189	-	-	-	-	-	8.53	8.53	8.38
219	-	-	-	-	-	-	8.44	8.30
249	-	-	-	-	-	-	-	8.53

Figure 312: Scribe-Java HGS MutLoss matrix for SAR

Version		9	39	98	129	159	189	219	249
Scribe-Java	9	52.63	52.63	52.63	52.63	52.63	52.63	52.63	52.63
	39	-	52.50	52.50	52.50	52.50	52.50	52.50	52.50
	98	-	-	53.33	53.33	53.33	53.33	53.33	53.33
	129	-	-	-	55.36	55.36	55.36	55.36	55.36
	159	-	-	-	-	58.06	58.06	58.06	58.06
	189	-	-	-	-	-	66.67	66.67	66.67
	219	-	-	-	-	-	-	65.96	65.96
	249	-	-	-	-	-	-	-	65.66

Figure 313: Scribe-Java ILP SizRed matrix for SAR

Version		9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	98	-	-	0.00	0.00	0.00	2.03	1.98	1.94
	129	-	-	-	0.00	0.00	1.89	1.84	1.81
	159	-	-	-	-	0.00	1.88	1.83	1.80
	189	-	-	-	-	-	0.00	0.00	0.00
	219	-	-	-	-	-	-	0.00	0.00
	249	-	-	-	-	-	-	-	0.00

Figure 314: Scribe-Java ILP StmtLoss matrix for SAR

Version		9	39	98	129	159	189	219	249
Scribe-Java	9	5.90	6.07	6.69	6.57	6.39	6.08	6.08	5.94
	39	-	5.40	5.20	5.11	4.97	4.71	4.71	4.60
	98	-	-	6.03	5.91	5.77	8.78	8.78	8.59
	129	-	-	-	6.16	6.03	9.05	9.05	8.87
	159	-	-	-	-	6.61	9.60	9.60	9.41
	189	-	-	-	-	-	8.73	8.73	8.58
	219	-	-	-	-	-	-	9.01	8.86
	249	-	-	-	-	-	-	-	9.77

Figure 315: Scribe-Java ILP MutLoss matrix for SAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	34.21	34.21	34.21	34.21	34.21	34.21	34.21	34.21
39	-	37.50	37.50	37.50	37.50	37.50	37.50	37.50
98	-	-	33.33	33.33	33.33	33.33	33.33	33.33
129	-	-	-	33.93	33.93	33.93	33.93	33.93
159	-	-	-	-	37.10	37.10	37.10	37.10
189	-	-	-	-	-	40.74	40.74	40.74
219	-	-	-	-	-	-	42.55	42.55
249	-	-	-	-	-	-	-	40.40

Figure 316: Scribe-Java Greedy SizRed matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	-	2.03	5.75	5.65	5.42	3.54	4.58	0.00
98	-	-	4.76	4.66	4.50	3.05	3.96	0.00
129	-	-	-	4.97	4.81	3.46	4.29	0.60
159	-	-	-	-	4.78	3.44	4.27	0.60
189	-	-	-	-	-	3.33	4.14	0.58
219	-	-	-	-	-	-	4.20	0.82
249	-	-	-	-	-	-	-	0.79

Figure 317: Scribe-Java Greedy StmtLoss matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	0.00	0.00	0.58	0.57	0.56	0.53	0.53	0.52
39	-	0.00	0.58	0.57	0.55	0.52	0.52	0.51
98	-	-	0.00	0.00	0.00	0.00	0.00	0.00
129	-	-	-	0.00	0.00	0.00	0.00	0.00
159	-	-	-	-	0.00	0.00	0.00	0.00
189	-	-	-	-	-	0.00	0.00	0.00
219	-	-	-	-	-	-	0.00	0.00
249	-	-	-	-	-	-	-	0.00

Figure 318: Scribe-Java Greedy MutLoss matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	34.21	34.21	34.21	34.21	34.21	34.21	34.21
	39	-	37.50	37.50	37.50	37.50	37.50	37.50
	98	-	-	33.33	33.33	33.33	33.33	33.33
	129	-	-	-	33.93	33.93	33.93	33.93
	159	-	-	-	-	37.10	37.10	37.10
	189	-	-	-	-	-	40.74	40.74
	219	-	-	-	-	-	-	43.62
	249	-	-	-	-	-	-	-
								41.41

Figure 319: Scribe-Java GE SizRed matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	2.03	5.75	5.65	5.42	3.54	4.58
	98	-	-	4.76	4.66	4.50	3.05	3.96
	129	-	-	-	4.97	4.81	3.46	4.29
	159	-	-	-	-	4.78	3.44	4.27
	189	-	-	-	-	-	3.33	4.14
	219	-	-	-	-	-	-	4.20
	249	-	-	-	-	-	-	-
								0.79

Figure 320: Scribe-Java GE StmtLoss matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.58	0.57	0.56	0.53	0.53
	39	-	0.00	0.58	0.57	0.55	0.52	0.52
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-
								0.00

Figure 321: Scribe-Java GE MutLoss matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	34.21	34.21	34.21	34.21	34.21	34.21	34.21
	39	-	37.50	37.50	37.50	37.50	37.50	37.50
	98	-	-	33.33	33.33	33.33	33.33	33.33
	129	-	-	-	33.93	33.93	33.93	33.93
	159	-	-	-	-	37.10	37.10	37.10
	189	-	-	-	-	-	40.74	40.74
	219	-	-	-	-	-	-	43.62
	249	-	-	-	-	-	-	-

Figure 322: Scribe-Java GRE SizRed matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	2.03	5.75	5.65	5.42	3.54	4.58
	98	-	-	4.76	4.66	4.50	3.05	3.96
	129	-	-	-	4.97	4.81	3.46	4.29
	159	-	-	-	-	4.78	3.44	4.27
	189	-	-	-	-	-	3.33	4.14
	219	-	-	-	-	-	-	4.20
	249	-	-	-	-	-	-	-

Figure 323: Scribe-Java GRE StmtLoss matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.29	0.29	0.28	0.26	0.26
	39	-	0.00	0.29	0.28	0.28	0.26	0.26
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 324: Scribe-Java GRE MutLoss matrix for MAR

Version		9	39	98	129	159	189	219	249
Scribe-Java	9	34.21	34.21	34.21	34.21	34.21	34.21	34.21	34.21
	39	-	37.50	37.50	37.50	37.50	37.50	37.50	37.50
	98	-	-	33.33	33.33	33.33	33.33	33.33	33.33
	129	-	-	-	33.93	33.93	33.93	33.93	33.93
	159	-	-	-	-	37.10	37.10	37.10	37.10
	189	-	-	-	-	-	40.74	40.74	40.74
	219	-	-	-	-	-	-	43.62	43.62
	249	-	-	-	-	-	-	-	41.41

Figure 325: Scribe-Java HGS SizRed matrix for MAR

Version		9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	2.03	5.75	5.65	5.42	3.54	4.58	0.00
	98	-	-	4.76	4.66	4.50	3.05	3.96	0.00
	129	-	-	-	4.97	4.81	3.46	4.29	0.60
	159	-	-	-	-	4.78	3.44	4.27	0.60
	189	-	-	-	-	-	3.33	4.14	0.58
	219	-	-	-	-	-	-	4.20	0.82
	249	-	-	-	-	-	-	-	0.79

Figure 326: Scribe-Java HGS StmtLoss matrix for MAR

Version		9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.29	0.29	0.28	0.26	0.26	0.26
	39	-	0.00	0.29	0.28	0.28	0.26	0.26	0.26
	98	-	-	0.00	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00	0.00
	219	-	-	-	-	-	-	0.00	0.00
	249	-	-	-	-	-	-	-	0.00

Figure 327: Scribe-Java HGS MutLoss matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	34.21	34.21	34.21	34.21	34.21	34.21	34.21	34.21
39	-	37.50	37.50	37.50	37.50	37.50	37.50	37.50
98	-	-	33.33	33.33	33.33	33.33	33.33	33.33
129	-	-	-	33.93	33.93	33.93	33.93	33.93
159	-	-	-	-	37.10	37.10	37.10	37.10
189	-	-	-	-	-	40.74	40.74	40.74
219	-	-	-	-	-	-	43.62	43.62
249	-	-	-	-	-	-	-	41.41

Figure 328: Scribe-Java ILP SizRed matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	-	2.03	5.75	5.65	5.42	3.54	4.58	0.00
98	-	-	4.76	4.66	4.50	3.05	3.96	0.00
129	-	-	-	4.97	4.81	3.46	4.29	0.60
159	-	-	-	-	4.78	3.44	4.27	0.60
189	-	-	-	-	-	3.33	4.14	0.58
219	-	-	-	-	-	-	4.20	0.82
249	-	-	-	-	-	-	-	0.79

Figure 329: Scribe-Java ILP StmtLoss matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	0.00	0.00	0.58	0.57	0.56	0.53	0.53	0.52
39	-	0.00	0.58	0.57	0.55	0.52	0.52	0.51
98	-	-	0.00	0.00	0.00	0.00	0.00	0.00
129	-	-	-	0.00	0.00	0.00	0.00	0.00
159	-	-	-	-	0.00	0.00	0.00	0.00
189	-	-	-	-	-	0.00	0.00	0.00
219	-	-	-	-	-	-	0.00	0.00
249	-	-	-	-	-	-	-	0.00

Figure 330: Scribe-Java ILP MutLoss matrix for MAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	34.21	34.21	34.21	34.21	34.21	34.21	34.21
	39	-	35.00	35.00	35.00	35.00	35.00	35.00
	98	-	-	31.11	31.11	31.11	31.11	31.11
	129	-	-	-	32.14	32.14	32.14	32.14
	159	-	-	-	-	35.48	35.48	35.48
	189	-	-	-	-	-	38.27	38.27
	219	-	-	-	-	-	-	40.43
	249	-	-	-	-	-	-	-

Figure 331: Scribe-Java Greedy SizRed matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	0.00	0.00	0.00	0.00	0.00	0.00
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 332: Scribe-Java Greedy StmtLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.58	0.57	0.56	0.53	0.53
	39	-	0.00	0.58	0.57	0.55	0.52	0.52
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 333: Scribe-Java Greedy MutLoss matrix for SMAR



Version	9	39	98	129	159	189	219	249
Scribe-Java	9	34.21	34.21	34.21	34.21	34.21	34.21	34.21
	39	-	35.00	35.00	35.00	35.00	35.00	35.00
	98	-	-	31.11	31.11	31.11	31.11	31.11
	129	-	-	-	32.14	32.14	32.14	32.14
	159	-	-	-	-	35.48	35.48	35.48
	189	-	-	-	-	-	39.51	39.51
	219	-	-	-	-	-	-	41.49
	249	-	-	-	-	-	-	-

Figure 334: Scribe-Java GE SizRed matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	0.00	0.00	0.00	0.00	0.00	0.00
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 335: Scribe-Java GE StmtLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.29	0.29	0.28	0.26	0.26
	39	-	0.00	0.29	0.28	0.28	0.26	0.26
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 336: Scribe-Java GE MutLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	34.21	34.21	34.21	34.21	34.21	34.21	34.21	34.21
39	-	35.00	35.00	35.00	35.00	35.00	35.00	35.00
98	-	-	31.11	31.11	31.11	31.11	31.11	31.11
129	-	-	-	32.14	32.14	32.14	32.14	32.14
159	-	-	-	-	35.48	35.48	35.48	35.48
189	-	-	-	-	-	39.51	39.51	39.51
219	-	-	-	-	-	-	41.49	41.49
249	-	-	-	-	-	-	-	40.40

Figure 337: Scribe-Java GRE SizRed matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	-	-	0.00	0.00	0.00	0.00	0.00	0.00
129	-	-	-	0.00	0.00	0.00	0.00	0.00
159	-	-	-	-	0.00	0.00	0.00	0.00
189	-	-	-	-	-	0.00	0.00	0.00
219	-	-	-	-	-	-	0.00	0.00
249	-	-	-	-	-	-	-	0.00

Figure 338: Scribe-Java GRE StmtLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java 9	0.00	0.00	0.58	0.57	0.56	0.53	0.53	0.52
39	-	0.00	0.58	0.57	0.55	0.52	0.52	0.51
98	-	-	0.00	0.00	0.00	0.00	0.00	0.00
129	-	-	-	0.00	0.00	0.00	0.00	0.00
159	-	-	-	-	0.00	0.00	0.00	0.00
189	-	-	-	-	-	0.00	0.00	0.00
219	-	-	-	-	-	-	0.00	0.00
249	-	-	-	-	-	-	-	0.00

Figure 339: Scribe-Java GRE MutLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	34.21	34.21	34.21	34.21	34.21	34.21	34.21
	39	-	35.00	35.00	35.00	35.00	35.00	35.00
	98	-	-	31.11	31.11	31.11	31.11	31.11
	129	-	-	-	32.14	32.14	32.14	32.14
	159	-	-	-	-	35.48	35.48	35.48
	189	-	-	-	-	-	39.51	39.51
	219	-	-	-	-	-	-	41.49
	249	-	-	-	-	-	-	-

Figure 340: Scribe-Java HGS SizRed matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	0.00	0.00	0.00	0.00	0.00	0.00
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 341: Scribe-Java HGS StmtLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.29	0.29	0.28	0.26	0.26
	39	-	0.00	0.29	0.28	0.28	0.26	0.26
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 342: Scribe-Java HGS MutLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	34.21	34.21	34.21	34.21	34.21	34.21	34.21
	39	-	35.00	35.00	35.00	35.00	35.00	35.00
	98	-	-	31.11	31.11	31.11	31.11	31.11
	129	-	-	-	32.14	32.14	32.14	32.14
	159	-	-	-	-	35.48	35.48	35.48
	189	-	-	-	-	-	39.51	39.51
	219	-	-	-	-	-	-	41.49
	249	-	-	-	-	-	-	-

Figure 343: Scribe-Java ILP SizRed matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	39	-	0.00	0.00	0.00	0.00	0.00	0.00
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 344: Scribe-Java ILP StmtLoss matrix for SMAR

Version	9	39	98	129	159	189	219	249
Scribe-Java	9	0.00	0.00	0.58	0.57	0.56	0.53	0.53
	39	-	0.00	0.29	0.28	0.28	0.26	0.26
	98	-	-	0.00	0.00	0.00	0.00	0.00
	129	-	-	-	0.00	0.00	0.00	0.00
	159	-	-	-	-	0.00	0.00	0.00
	189	-	-	-	-	-	0.00	0.00
	219	-	-	-	-	-	-	0.00
	249	-	-	-	-	-	-	-

Figure 345: Scribe-Java ILP MutLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	29.17	29.17	29.17	29.17	29.17	29.17
	157	-	37.63	37.63	37.63	37.63	37.63
	187	-	-	38.46	38.46	38.46	38.46
	217	-	-	-	39.47	39.47	39.47
	247	-	-	-	-	52.15	52.15
	277	-	-	-	-	-	54.73

Figure 346: SQL-Parser Greedy SizRed matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	7.23	7.53	6.98	3.60	9.70
	157	-	0.00	2.18	4.80	5.33	4.45
	187	-	-	0.00	6.30	8.59	4.24
	217	-	-	-	0.00	7.90	7.13
	247	-	-	-	-	0.00	7.34
	277	-	-	-	-	-	0.00

Figure 347: SQL-Parser Greedy StmtLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.87	10.50	10.63	9.12	5.40	12.06
	157	-	0.66	5.17	8.04	8.73	6.89
	187	-	-	0.60	10.56	11.83	6.70
	217	-	-	-	0.74	10.07	10.21
	247	-	-	-	-	0.98	11.31
	277	-	-	-	-	-	1.09

Figure 348: SQL-Parser Greedy MutLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	29.17	29.17	29.17	29.17	29.17	29.17
	157	-	38.71	38.71	38.71	38.71	38.71
	187	-	-	39.42	39.42	39.42	39.42
	217	-	-	-	40.35	40.35	40.35
	247	-	-	-	-	52.69	52.69
	277	-	-	-	-	-	55.14

Figure 349: SQL-Parser GE SizRed matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	7.23	7.53	6.98	3.60	9.70
	157	-	0.00	2.38	4.96	5.76	6.51
	187	-	-	0.00	6.45	8.99	4.20
	217	-	-	-	0.00	8.02	7.13
	247	-	-	-	-	0.00	7.37
	277	-	-	-	-	-	0.00

Figure 350: SQL-Parser GE StmtLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.87	10.50	10.63	9.12	5.40	12.06
	157	-	0.70	6.08	8.77	9.44	9.39
	187	-	-	0.63	11.32	12.49	6.58
	217	-	-	-	0.71	10.14	10.10
	247	-	-	-	-	0.84	11.61
	277	-	-	-	-	-	1.05

Figure 351: SQL-Parser GE MutLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	29.17	29.17	29.17	29.17	29.17	29.17
	157	-	38.71	38.71	38.71	38.71	38.71
	187	-	-	39.42	39.42	39.42	39.42
	217	-	-	-	40.35	40.35	40.35
	247	-	-	-	-	52.69	52.69
	277	-	-	-	-	-	55.14

Figure 352: SQL-Parser GRE SizRed matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	7.23	7.53	6.98	3.60	9.70
	157	-	0.00	1.63	6.48	7.38	4.54
	187	-	-	0.00	5.69	10.95	3.93
	217	-	-	-	0.00	8.79	5.21
	247	-	-	-	-	0.00	7.48
	277	-	-	-	-	-	0.00

Figure 353: SQL-Parser GRE StmtLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.87	10.50	10.63	9.12	5.40	12.06
	157	-	0.66	4.00	9.57	10.87	6.80
	187	-	-	0.73	10.46	15.25	6.03
	217	-	-	-	0.80	11.48	7.14
	247	-	-	-	-	0.95	11.50
	277	-	-	-	-	-	0.65

Figure 354: SQL-Parser GRE MutLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	29.17	29.17	29.17	29.17	29.17	29.17
	157	-	38.71	38.71	38.71	38.71	38.71
	187	-	-	39.42	39.42	39.42	39.42
	217	-	-	-	40.35	40.35	40.35
	247	-	-	-	-	52.69	52.69
	277	-	-	-	-	-	55.14

Figure 355: SQL-Parser HGS SizRed matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	7.09	7.39	6.11	4.40	10.28
	157	-	0.00	1.94	5.58	6.27	6.65
	187	-	-	0.00	4.68	10.59	4.06
	217	-	-	-	0.00	9.53	5.04
	247	-	-	-	-	0.00	7.37
	277	-	-	-	-	-	0.00

Figure 356: SQL-Parser HGS StmtLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.87	10.50	10.63	7.71	6.89	12.78
	157	-	0.77	4.91	8.60	9.96	9.44
	187	-	-	0.76	8.81	14.92	6.28
	217	-	-	-	0.89	12.65	6.61
	247	-	-	-	-	0.87	10.54
	277	-	-	-	-	-	0.74

Figure 357: SQL-Parser HGS MutLoss matrix for SAR



	Version	127	157	187	217	247	277
SQL-Parser	127	29.17	29.17	29.17	29.17	29.17	29.17
	157	-	38.71	38.71	38.71	38.71	38.71
	187	-	-	39.42	39.42	39.42	39.42
	217	-	-	-	40.35	40.35	40.35
	247	-	-	-	-	52.69	52.69
	277	-	-	-	-	-	55.14

Figure 358: SQL-Parser ILP SizRed matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	7.09	7.39	6.11	4.40	10.28
	157	-	0.00	2.38	6.64	6.87	6.51
	187	-	-	0.00	5.77	10.99	3.93
	217	-	-	-	0.00	8.87	4.88
	247	-	-	-	-	0.00	8.25
	277	-	-	-	-	-	0.00

Figure 359: SQL-Parser ILP StmtLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.87	10.50	10.63	7.71	6.89	12.78
	157	-	0.73	6.12	10.27	10.23	9.22
	187	-	-	0.73	10.91	15.64	6.03
	217	-	-	-	0.80	12.13	6.07
	247	-	-	-	-	0.90	12.65
	277	-	-	-	-	-	1.07

Figure 360: SQL-Parser ILP MutLoss matrix for SAR

	Version	127	157	187	217	247	277
SQL-Parser	127	27.08	27.08	27.08	27.08	27.08	27.08
	157	-	39.78	39.78	39.78	39.78	39.78
	187	-	-	38.46	38.46	38.46	38.46
	217	-	-	-	39.47	39.47	39.47
	247	-	-	-	-	50.00	50.00
	277	-	-	-	-	-	51.44

Figure 361: SQL-Parser Greedy SizRed matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	14.09	22.50	21.25	23.18	25.39	30.47
	157	-	13.47	15.99	22.21	20.56	21.83
	187	-	-	13.02	20.44	23.57	19.80
	217	-	-	-	13.07	18.48	21.51
	247	-	-	-	-	11.74	18.13
	277	-	-	-	-	-	10.78

Figure 362: SQL-Parser Greedy StmtLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	8.00	6.86	8.74	12.29	15.76
	157	-	0.00	4.20	12.84	9.52	6.54
	187	-	-	0.00	11.51	12.85	6.20
	217	-	-	-	0.00	8.04	10.10
	247	-	-	-	-	0.00	10.16
	277	-	-	-	-	-	0.00

Figure 363: SQL-Parser Greedy MutLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	27.08	27.08	27.08	27.08	27.08	27.08
	157	-	39.78	39.78	39.78	39.78	39.78
	187	-	-	38.46	38.46	38.46	38.46
	217	-	-	-	39.47	39.47	39.47
	247	-	-	-	-	51.08	51.08
	277	-	-	-	-	-	52.67

Figure 364: SQL-Parser GE SizRed matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	14.09	19.18	20.96	21.77	23.09	30.47
	157	-	13.47	15.87	21.58	20.56	21.83
	187	-	-	13.14	20.51	23.49	19.80
	217	-	-	-	13.07	18.48	23.51
	247	-	-	-	-	11.97	18.67
	277	-	-	-	-	-	10.99

Figure 365: SQL-Parser GE StmtLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	3.73	5.86	6.81	9.16	15.76
	157	-	0.00	4.20	13.17	9.48	6.54
	187	-	-	0.00	11.67	12.96	6.16
	217	-	-	-	0.00	8.49	13.29
	247	-	-	-	-	0.00	10.19
	277	-	-	-	-	-	0.00

Figure 366: SQL-Parser GE MutLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	27.08	27.08	27.08	27.08	27.08	27.08
	157	-	39.78	39.78	39.78	39.78	39.78
	187	-	-	38.46	38.46	38.46	38.46
	217	-	-	-	39.47	39.47	39.47
	247	-	-	-	-	51.08	51.08
	277	-	-	-	-	-	52.67

Figure 367: SQL-Parser GRE SizRed matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	14.09	22.50	21.25	23.18	25.39	30.47
	157	-	13.34	15.59	21.31	21.80	26.06
	187	-	-	13.02	19.87	25.01	19.76
	217	-	-	-	13.18	19.26	21.59
	247	-	-	-	-	11.90	19.22
	277	-	-	-	-	-	10.87

Figure 368: SQL-Parser GRE StmtLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	8.00	6.86	8.74	12.29	15.76
	157	-	0.00	4.84	11.74	11.11	12.55
	187	-	-	0.00	11.58	15.14	6.12
	217	-	-	-	0.00	9.97	10.33
	247	-	-	-	-	0.00	11.23
	277	-	-	-	-	-	0.00

Figure 369: SQL-Parser GRE MutLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	27.08	27.08	27.08	27.08	27.08	27.08
	157	-	39.78	39.78	39.78	39.78	39.78
	187	-	-	38.46	38.46	38.46	38.46
	217	-	-	-	39.47	39.47	39.47
	247	-	-	-	-	51.08	51.08
	277	-	-	-	-	-	52.67

Figure 370: SQL-Parser HGS SizRed matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	14.09	19.92	21.68	20.90	23.09	29.73
	157	-	13.34	15.47	21.31	20.90	23.67
	187	-	-	13.14	19.80	24.93	19.76
	217	-	-	-	13.18	19.07	21.09
	247	-	-	-	-	11.74	18.67
	277	-	-	-	-	-	10.78

Figure 371: SQL-Parser HGS StmtLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	5.09	7.22	5.40	9.16	15.49
	157	-	0.00	4.20	11.80	9.96	8.78
	187	-	-	0.00	11.01	15.25	6.03
	217	-	-	-	0.00	9.87	9.15
	247	-	-	-	-	0.00	9.31
	277	-	-	-	-	-	0.00

Figure 372: SQL-Parser HGS MutLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	27.08	27.08	27.08	27.08	27.08	27.08
	157	-	39.78	39.78	39.78	39.78	39.78
	187	-	-	38.46	38.46	38.46	38.46
	217	-	-	-	39.47	39.47	39.47
	247	-	-	-	-	51.08	51.08
	277	-	-	-	-	-	52.67

Figure 373: SQL-Parser ILP SizRed matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	14.09	23.24	21.97	22.31	25.39	29.73
	157	-	13.34	15.59	20.69	21.42	26.06
	187	-	-	13.02	19.76	24.65	19.80
	217	-	-	-	13.18	18.95	23.01
	247	-	-	-	-	12.06	20.13
	277	-	-	-	-	-	11.04

Figure 374: SQL-Parser ILP StmtLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	9.37	8.22	7.33	12.29	15.49
	157	-	0.00	4.84	12.04	10.67	12.55
	187	-	-	0.00	11.29	14.70	6.20
	217	-	-	-	0.00	9.59	12.19
	247	-	-	-	-	0.00	11.75
	277	-	-	-	-	-	0.00

Figure 375: SQL-Parser ILP MutLoss matrix for MAR

	Version	127	157	187	217	247	277
SQL-Parser	127	22.92	22.92	22.92	22.92	22.92	22.92
	157	-	34.41	34.41	34.41	34.41	34.41
	187	-	-	34.62	34.62	34.62	34.62
	217	-	-	-	34.21	34.21	34.21
	247	-	-	-	-	46.77	46.77
	277	-	-	-	-	-	48.56

Figure 376: SQL-Parser Greedy SizRed matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	3.77	5.07	6.45	4.25	10.49
	157	-	0.00	1.71	6.48	5.08	2.06
	187	-	-	0.00	6.64	8.19	3.80
	217	-	-	-	0.00	4.86	5.00
	247	-	-	-	-	0.00	6.22
	277	-	-	-	-	-	0.00

Figure 377: SQL-Parser Greedy StmtLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	4.96	6.86	8.74	6.64	12.17
	157	-	0.00	3.39	9.40	8.41	2.81
	187	-	-	0.00	10.56	9.95	5.91
	217	-	-	-	0.00	7.70	6.87
	247	-	-	-	-	0.00	9.99
	277	-	-	-	-	-	0.00

Figure 378: SQL-Parser Greedy MutLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	22.92	22.92	22.92	22.92	22.92	22.92
	157	-	34.41	34.41	34.41	34.41	34.41
	187	-	-	35.58	35.58	35.58	35.58
	217	-	-	-	35.09	35.09	35.09
	247	-	-	-	-	47.31	47.31
	277	-	-	-	-	-	49.38

Figure 379: SQL-Parser GE SizRed matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	0.50	4.78	5.04	1.95	10.49
	157	-	0.00	1.63	4.80	3.97	2.06
	187	-	-	0.00	5.77	9.03	4.02
	217	-	-	-	0.00	4.94	7.00
	247	-	-	-	-	0.00	6.16
	277	-	-	-	-	-	0.00

Figure 380: SQL-Parser GE StmtLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	0.77	5.86	6.81	3.50	12.17
	157	-	0.00	3.86	7.90	7.62	2.90
	187	-	-	0.00	9.54	12.56	6.45
	217	-	-	-	0.00	8.46	10.06
	247	-	-	-	-	0.00	9.72
	277	-	-	-	-	-	0.00

Figure 381: SQL-Parser GE MutLoss matrix for SMAR



	Version	127	157	187	217	247	277
SQL-Parser	127	22.92	22.92	22.92	22.92	22.92	22.92
	157	-	34.41	34.41	34.41	34.41	34.41
	187	-	-	35.58	35.58	35.58	35.58
	217	-	-	-	35.09	35.09	35.09
	247	-	-	-	-	47.31	47.31
	277	-	-	-	-	-	49.38

Figure 382: SQL-Parser GRE SizRed matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	3.77	5.07	6.45	4.25	10.49
	157	-	0.00	1.98	6.64	6.36	6.56
	187	-	-	0.00	6.00	10.91	3.76
	217	-	-	-	0.00	4.94	5.09
	247	-	-	-	-	0.00	6.53
	277	-	-	-	-	-	0.00

Figure 383: SQL-Parser GRE StmtLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	4.96	6.86	8.74	6.64	12.17
	157	-	0.00	4.77	10.14	10.00	9.26
	187	-	-	0.00	10.02	15.14	5.95
	217	-	-	-	0.00	7.94	7.10
	247	-	-	-	-	0.00	9.91
	277	-	-	-	-	-	0.00

Figure 384: SQL-Parser GRE MutLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	22.92	22.92	22.92	22.92	22.92	22.92
	157	-	34.41	34.41	34.41	34.41	34.41
	187	-	-	35.58	35.58	35.58	35.58
	217	-	-	-	35.09	35.09	35.09
	247	-	-	-	-	47.31	47.31
	277	-	-	-	-	-	49.38

Figure 385: SQL-Parser HGS SizRed matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	1.24	5.50	4.17	1.95	9.75
	157	-	0.00	1.86	5.58	4.35	4.17
	187	-	-	0.00	4.98	10.47	3.98
	217	-	-	-	0.00	4.75	4.59
	247	-	-	-	-	0.00	6.43
	277	-	-	-	-	-	0.00

Figure 386: SQL-Parser HGS StmtLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	2.14	7.22	5.40	3.50	11.89
	157	-	0.00	4.13	8.37	8.05	5.58
	187	-	-	0.00	8.27	14.85	6.33
	217	-	-	-	0.00	7.84	5.92
	247	-	-	-	-	0.00	8.93
	277	-	-	-	-	-	0.00

Figure 387: SQL-Parser HGS MutLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	22.92	22.92	22.92	22.92	22.92	22.92
	157	-	34.41	34.41	34.41	34.41	34.41
	187	-	-	35.58	35.58	35.58	35.58
	217	-	-	-	35.09	35.09	35.09
	247	-	-	-	-	47.31	47.31
	277	-	-	-	-	-	49.38

Figure 388: SQL-Parser ILP SizRed matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	4.51	5.79	5.58	4.25	9.75
	157	-	0.00	1.98	6.64	5.97	6.56
	187	-	-	0.00	6.07	10.55	3.80
	217	-	-	-	0.00	4.63	4.67
	247	-	-	-	-	0.00	7.31
	277	-	-	-	-	-	0.00

Figure 389: SQL-Parser ILP StmtLoss matrix for SMAR

	Version	127	157	187	217	247	277
SQL-Parser	127	0.00	6.32	8.22	7.33	6.64	11.89
	157	-	0.00	4.77	10.07	9.56	9.26
	187	-	-	0.00	10.46	14.70	6.07
	217	-	-	-	0.00	8.11	5.96
	247	-	-	-	-	0.00	11.09
	277	-	-	-	-	-	0.00

Figure 390: SQL-Parser ILP MutLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	72.81	72.81	72.81	72.81	72.81	72.81	72.81	72.81	72.81	
	185	-	72.21	72.21	72.21	72.21	72.21	72.21	72.21	72.21	
	215	-	-	72.08	72.08	72.08	72.08	72.08	72.08	72.08	
	245	-	-	-	71.83	71.83	71.83	71.83	71.83	71.83	
	275	-	-	-	-	71.81	71.81	71.81	71.81	71.81	
	305	-	-	-	-	-	72.39	72.39	72.39	72.39	
	335	-	-	-	-	-	-	72.68	72.68	72.68	
	365	-	-	-	-	-	-	-	72.78	72.78	
	395	-	-	-	-	-	-	-	-	72.47	
	425	-	-	-	-	-	-	-	-	-	72.34

Figure 391: GS-Collections Greedy SizRed matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.47	0.48	0.48	0.50	0.50	0.54	0.60	0.76	0.84
	185	-	0.00	0.03	0.03	0.02	0.03	0.05	0.11	0.27	0.34
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.05	0.21	0.29
	245	-	-	-	0.00	0.00	0.01	0.01	0.07	0.22	0.29
	275	-	-	-	-	0.00	0.00	0.01	0.07	0.20	0.26
	305	-	-	-	-	-	0.00	0.02	0.05	0.15	0.22
	335	-	-	-	-	-	-	0.00	0.07	0.16	0.22
	365	-	-	-	-	-	-	-	0.00	0.13	0.20
	395	-	-	-	-	-	-	-	-	0.00	0.07
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 392: GS-Collections Greedy StmtLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	2.09	2.35	2.39	2.40	2.39	2.39	2.41	2.49	2.56	2.71
	185	-	2.05	2.09	2.10	2.09	2.10	2.10	2.16	2.23	2.38
	215	-	-	2.16	2.18	2.17	2.17	2.16	2.19	2.26	2.42
	245	-	-	-	2.22	2.21	2.22	2.21	2.26	2.33	2.46
	275	-	-	-	-	2.26	2.27	2.25	2.29	2.35	2.49
	305	-	-	-	-	-	2.37	2.33	2.35	2.42	2.55
	335	-	-	-	-	-	-	2.35	2.40	2.46	2.59
	365	-	-	-	-	-	-	-	2.36	2.54	2.66
	395	-	-	-	-	-	-	-	-	2.34	2.47
	425	-	-	-	-	-	-	-	-	-	2.28

Figure 393: GS-Collections Greedy MutLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	73.03	73.03	73.03	73.03	73.03	73.03	73.03	73.03	73.03	
	185	-	72.52	72.52	72.52	72.52	72.52	72.52	72.52	72.52	
	215	-	-	72.38	72.38	72.38	72.38	72.38	72.38	72.38	
	245	-	-	-	72.15	72.15	72.15	72.15	72.15	72.15	
	275	-	-	-	-	72.13	72.13	72.13	72.13	72.13	
	305	-	-	-	-	-	72.69	72.69	72.69	72.69	
	335	-	-	-	-	-	-	72.96	72.96	72.96	
	365	-	-	-	-	-	-	-	73.05	73.05	
	395	-	-	-	-	-	-	-	-	72.70	
	425	-	-	-	-	-	-	-	-	-	72.60

Figure 394: GS-Collections GE SizRed matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425
GS-Collections	155	0.00	0.42	0.43	0.43	0.44	0.45	0.49	0.55	0.71
	185	-	0.00	0.03	0.03	0.02	0.03	0.05	0.11	0.27
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.08	0.24
	245	-	-	-	0.00	0.00	0.01	0.01	0.10	0.25
	275	-	-	-	-	0.00	0.00	0.01	0.10	0.23
	305	-	-	-	-	-	0.00	0.02	0.08	0.18
	335	-	-	-	-	-	-	0.00	0.10	0.20
	365	-	-	-	-	-	-	-	0.00	0.13
	395	-	-	-	-	-	-	-	-	0.00
	425	-	-	-	-	-	-	-	-	-

Figure 395: GS-Collections GE StmtLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425
GS-Collections	155	2.20	2.44	2.49	2.48	2.49	2.49	2.50	2.58	2.65
	185	-	2.15	2.20	2.19	2.20	2.20	2.21	2.27	2.33
	215	-	-	2.23	2.23	2.24	2.23	2.23	2.31	2.38
	245	-	-	-	2.32	2.34	2.33	2.32	2.42	2.49
	275	-	-	-	-	2.34	2.33	2.31	2.41	2.47
	305	-	-	-	-	-	2.43	2.39	2.47	2.53
	335	-	-	-	-	-	-	2.38	2.48	2.54
	365	-	-	-	-	-	-	-	2.43	2.60
	395	-	-	-	-	-	-	-	-	2.32
	425	-	-	-	-	-	-	-	-	-

Figure 396: GS-Collections GE MutLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	73.14	73.14	73.14	73.14	73.14	73.14	73.14	73.14	73.14	
	185	-	72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62	
	215	-	-	72.46	72.46	72.46	72.46	72.46	72.46	72.46	
	245	-	-	-	72.23	72.23	72.23	72.23	72.23	72.23	
	275	-	-	-	-	72.21	72.21	72.21	72.21	72.21	
	305	-	-	-	-	-	72.77	72.77	72.77	72.77	
	335	-	-	-	-	-	-	73.06	73.06	73.06	
	365	-	-	-	-	-	-	-	73.14	73.14	
	395	-	-	-	-	-	-	-	-	72.77	
	425	-	-	-	-	-	-	-	-	-	72.68

Figure 397: GS-Collections GRE SizRed matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.47	0.48	0.48	0.49	0.50	0.53	0.61	0.78	0.87
	185	-	0.00	0.03	0.02	0.02	0.02	0.04	0.11	0.28	0.34
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.05	0.22	0.30
	245	-	-	-	0.00	0.00	0.01	0.01	0.07	0.23	0.30
	275	-	-	-	-	0.00	0.01	0.02	0.08	0.23	0.30
	305	-	-	-	-	-	0.00	0.04	0.05	0.17	0.26
	335	-	-	-	-	-	-	0.00	0.07	0.18	0.26
	365	-	-	-	-	-	-	-	0.00	0.15	0.23
	395	-	-	-	-	-	-	-	-	0.00	0.09
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 398: GS-Collections GRE StmtLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	2.17	2.44	2.48	2.48	2.47	2.48	2.49	2.57	2.66	2.80
	185	-	2.11	2.15	2.15	2.15	2.16	2.17	2.23	2.31	2.45
	215	-	-	2.20	2.21	2.21	2.21	2.20	2.24	2.33	2.47
	245	-	-	-	2.32	2.32	2.32	2.31	2.36	2.45	2.58
	275	-	-	-	-	2.29	2.30	2.28	2.33	2.40	2.54
	305	-	-	-	-	-	2.41	2.37	2.39	2.46	2.61
	335	-	-	-	-	-	-	2.35	2.40	2.48	2.61
	365	-	-	-	-	-	-	-	2.40	2.58	2.72
	395	-	-	-	-	-	-	-	-	2.38	2.51
	425	-	-	-	-	-	-	-	-	-	2.37

Figure 399: GS-Collections GRE MutLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	73.14	73.14	73.14	73.14	73.14	73.14	73.14	73.14	73.14	
	185	-	72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62	
	215	-	-	72.46	72.46	72.46	72.46	72.46	72.46	72.46	
	245	-	-	-	72.23	72.23	72.23	72.23	72.23	72.23	
	275	-	-	-	-	72.22	72.22	72.22	72.22	72.22	
	305	-	-	-	-	-	72.77	72.77	72.77	72.77	
	335	-	-	-	-	-	-	73.06	73.06	73.06	
	365	-	-	-	-	-	-	-	73.14	73.14	
	395	-	-	-	-	-	-	-	-	72.74	
	425	-	-	-	-	-	-	-	-	-	72.66

Figure 400: GS-Collections HGS SizRed matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.45	0.46	0.46	0.47	0.48	0.52	0.60	0.77	0.85
	185	-	0.00	0.04	0.03	0.03	0.03	0.05	0.12	0.29	0.36
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.05	0.22	0.31
	245	-	-	-	0.00	0.00	0.01	0.01	0.07	0.24	0.30
	275	-	-	-	-	0.00	0.00	0.01	0.07	0.23	0.30
	305	-	-	-	-	-	0.00	0.04	0.06	0.18	0.26
	335	-	-	-	-	-	-	0.00	0.08	0.19	0.26
	365	-	-	-	-	-	-	-	0.00	0.15	0.23
	395	-	-	-	-	-	-	-	-	0.00	0.09
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 401: GS-Collections HGS StmtLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	2.07	2.38	2.44	2.43	2.43	2.44	2.46	2.54	2.61	2.76
	185	-	2.01	2.06	2.06	2.05	2.06	2.08	2.14	2.21	2.36
	215	-	-	2.12	2.13	2.12	2.12	2.12	2.16	2.24	2.38
	245	-	-	-	2.23	2.22	2.22	2.22	2.28	2.35	2.49
	275	-	-	-	-	2.22	2.23	2.21	2.26	2.32	2.46
	305	-	-	-	-	-	2.35	2.32	2.34	2.41	2.55
	335	-	-	-	-	-	-	2.32	2.38	2.44	2.58
	365	-	-	-	-	-	-	-	2.34	2.52	2.64
	395	-	-	-	-	-	-	-	-	2.36	2.49
	425	-	-	-	-	-	-	-	-	-	2.31

Figure 402: GS-Collections HGS MutLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	73.17	
	185	-	72.63	72.63	72.63	72.63	72.63	72.63	72.63	72.63	
	215	-	-	72.48	72.48	72.48	72.48	72.48	72.48	72.48	
	245	-	-	-	72.24	72.24	72.24	72.24	72.24	72.24	
	275	-	-	-	-	72.23	72.23	72.23	72.23	72.23	
	305	-	-	-	-	-	72.79	72.79	72.79	72.79	
	335	-	-	-	-	-	-	73.08	73.08	73.08	
	365	-	-	-	-	-	-	-	73.16	73.16	
	395	-	-	-	-	-	-	-	-	72.79	
	425	-	-	-	-	-	-	-	-	-	72.69

Figure 403: GS-Collections ILP SizRed matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.47	0.47	0.47	0.48	0.49	0.53	0.61	0.78	0.86
	185	-	0.00	0.04	0.03	0.03	0.03	0.05	0.12	0.29	0.36
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.05	0.22	0.32
	245	-	-	-	0.00	0.00	0.01	0.01	0.07	0.24	0.31
	275	-	-	-	-	0.00	0.00	0.01	0.07	0.22	0.30
	305	-	-	-	-	-	0.00	0.04	0.06	0.18	0.28
	335	-	-	-	-	-	-	0.00	0.08	0.18	0.27
	365	-	-	-	-	-	-	-	0.00	0.15	0.24
	395	-	-	-	-	-	-	-	-	0.00	0.10
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 404: GS-Collections ILP StmtLoss matrix for SAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	2.18	2.49	2.52	2.53	2.52	2.54	2.55	2.63	2.70	2.84
	185	-	2.04	2.09	2.09	2.09	2.09	2.11	2.17	2.24	2.41
	215	-	-	2.15	2.16	2.16	2.15	2.15	2.19	2.27	2.44
	245	-	-	-	2.29	2.28	2.28	2.28	2.34	2.42	2.56
	275	-	-	-	-	2.21	2.21	2.20	2.25	2.31	2.48
	305	-	-	-	-	-	2.42	2.39	2.39	2.47	2.63
	335	-	-	-	-	-	-	2.29	2.35	2.40	2.56
	365	-	-	-	-	-	-	-	2.34	2.52	2.64
	395	-	-	-	-	-	-	-	-	2.35	2.49
	425	-	-	-	-	-	-	-	-	-	2.27

Figure 405: GS-Collections ILP MutLoss matrix for SAR



Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	71.46	71.46	71.46	71.46	71.46	71.46	71.46	71.46	71.46	
	185	-	70.94	70.94	70.94	70.94	70.94	70.94	70.94	70.94	
	215	-	-	70.76	70.76	70.76	70.76	70.76	70.76	70.76	
	245	-	-	-	70.37	70.37	70.37	70.37	70.37	70.37	
	275	-	-	-	-	70.37	70.37	70.37	70.37	70.37	
	305	-	-	-	-	-	70.90	70.90	70.90	70.90	
	335	-	-	-	-	-	-	71.23	71.23	71.23	
	365	-	-	-	-	-	-	-	71.29	71.29	
	395	-	-	-	-	-	-	-	-	70.89	
	425	-	-	-	-	-	-	-	-	-	70.86

Figure 406: GS-Collections Greedy SizRed matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	1.18	1.52	1.53	1.54	1.54	1.54	1.59	1.63	1.60	
	185	-	1.26	1.28	1.29	1.29	1.29	1.31	1.36	1.32	
	215	-	-	1.25	1.26	1.27	1.27	1.27	1.29	1.27	
	245	-	-	-	1.23	1.24	1.24	1.24	1.29	1.26	
	275	-	-	-	-	1.22	1.23	1.23	1.28	1.25	
	305	-	-	-	-	-	0.67	0.68	0.70	0.72	
	335	-	-	-	-	-	-	0.69	0.73	0.74	
	365	-	-	-	-	-	-	-	0.68	0.73	
	395	-	-	-	-	-	-	-	-	0.67	
	425	-	-	-	-	-	-	-	-	-	0.66

Figure 407: GS-Collections Greedy StmtLoss matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.33	0.34	0.35	0.34	0.34	0.36	0.44	0.45	
	185	-	0.00	0.03	0.04	0.04	0.04	0.05	0.12	0.13	
	215	-	-	0.00	0.02	0.01	0.01	0.01	0.08	0.09	
	245	-	-	-	0.00	0.01	0.01	0.01	0.09	0.10	
	275	-	-	-	-	0.00	0.00	0.01	0.08	0.10	
	305	-	-	-	-	-	0.00	0.02	0.08	0.10	
	335	-	-	-	-	-	-	0.00	0.07	0.07	
	365	-	-	-	-	-	-	-	0.00	0.15	
	395	-	-	-	-	-	-	-	-	0.00	
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 408: GS-Collections Greedy MutLoss matrix for MAR

	Version	155	185	215	245	275	305	335	365	395	425
GS-Collections	155	71.81	71.81	71.81	71.81	71.81	71.81	71.81	71.81	71.81	71.81
	185	-	71.29	71.29	71.29	71.29	71.29	71.29	71.29	71.29	71.29
	215	-	-	71.10	71.10	71.10	71.10	71.10	71.10	71.10	71.10
	245	-	-	-	70.73	70.73	70.73	70.73	70.73	70.73	70.73
	275	-	-	-	-	70.68	70.68	70.68	70.68	70.68	70.68
	305	-	-	-	-	-	71.21	71.21	71.21	71.21	71.21
	335	-	-	-	-	-	-	71.55	71.55	71.55	71.55
	365	-	-	-	-	-	-	-	71.59	71.59	71.59
	395	-	-	-	-	-	-	-	-	71.20	71.20
	425	-	-	-	-	-	-	-	-	-	71.13

Figure 409: GS-Collections GE SizRed matrix for MAR

	Version	155	185	215	245	275	305	335	365	395	425
GS-Collections	155	1.18	1.57	1.58	1.58	1.59	1.59	1.64	1.66	1.64	1.69
	185	-	1.26	1.28	1.29	1.29	1.29	1.31	1.36	1.32	1.36
	215	-	-	1.26	1.27	1.27	1.27	1.27	1.33	1.31	1.35
	245	-	-	-	1.23	1.24	1.24	1.24	1.32	1.29	1.33
	275	-	-	-	-	1.22	1.22	1.23	1.30	1.28	1.43
	305	-	-	-	-	-	0.67	0.68	0.73	0.76	0.91
	335	-	-	-	-	-	-	0.69	0.76	0.77	0.91
	365	-	-	-	-	-	-	-	0.69	0.74	0.91
	395	-	-	-	-	-	-	-	-	0.67	0.83
	425	-	-	-	-	-	-	-	-	-	0.67

Figure 410: GS-Collections GE StmtLoss matrix for MAR

	Version	155	185	215	245	275	305	335	365	395	425
GS-Collections	155	0.00	0.39	0.40	0.41	0.41	0.40	0.42	0.51	0.52	0.64
	185	-	0.00	0.03	0.04	0.04	0.04	0.05	0.13	0.12	0.24
	215	-	-	0.00	0.02	0.01	0.01	0.01	0.12	0.14	0.25
	245	-	-	-	0.00	0.01	0.01	0.01	0.13	0.14	0.25
	275	-	-	-	-	0.00	0.00	0.01	0.13	0.14	0.35
	305	-	-	-	-	-	0.00	0.02	0.12	0.14	0.34
	335	-	-	-	-	-	-	0.00	0.12	0.12	0.32
	365	-	-	-	-	-	-	-	0.00	0.15	0.36
	395	-	-	-	-	-	-	-	-	0.00	0.21
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 411: GS-Collections GE MutLoss matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425
GS-Collections	155	71.90	71.90	71.90	71.90	71.90	71.90	71.90	71.90	71.90
	185	-	71.38	71.38	71.38	71.38	71.38	71.38	71.38	71.38
	215	-	-	71.20	71.20	71.20	71.20	71.20	71.20	71.20
	245	-	-	-	70.82	70.82	70.82	70.82	70.82	70.82
	275	-	-	-	-	70.78	70.78	70.78	70.78	70.78
	305	-	-	-	-	-	71.30	71.30	71.30	71.30
	335	-	-	-	-	-	-	71.65	71.65	71.65
	365	-	-	-	-	-	-	-	71.70	71.70
	395	-	-	-	-	-	-	-	-	71.34
	425	-	-	-	-	-	-	-	-	-
										71.26

Figure 412: GS-Collections GRE SizRed matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425
GS-Collections	155	1.16	1.52	1.53	1.53	1.53	1.53	1.60	1.62	1.61
	185	-	0.82	0.83	0.84	0.83	0.83	0.85	0.90	0.87
	215	-	-	0.82	0.82	0.82	0.82	0.84	0.84	0.84
	245	-	-	-	0.80	0.79	0.80	0.79	0.85	0.84
	275	-	-	-	-	0.79	0.80	0.80	0.85	0.85
	305	-	-	-	-	-	0.60	0.61	0.63	0.67
	335	-	-	-	-	-	-	0.62	0.66	0.69
	365	-	-	-	-	-	-	-	0.62	0.69
	395	-	-	-	-	-	-	-	-	0.62
	425	-	-	-	-	-	-	-	-	-
										0.60

Figure 413: GS-Collections GRE StmtLoss matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425
GS-Collections	155	0.00	0.31	0.32	0.33	0.33	0.33	0.36	0.42	0.44
	185	-	0.00	0.03	0.04	0.04	0.04	0.05	0.12	0.13
	215	-	-	0.00	0.02	0.02	0.02	0.02	0.07	0.09
	245	-	-	-	0.00	0.00	0.01	0.01	0.08	0.10
	275	-	-	-	-	0.00	0.01	0.01	0.09	0.11
	305	-	-	-	-	-	0.00	0.01	0.07	0.10
	335	-	-	-	-	-	-	0.00	0.06	0.08
	365	-	-	-	-	-	-	-	0.00	0.16
	395	-	-	-	-	-	-	-	-	0.00
	425	-	-	-	-	-	-	-	-	-
										0.00

Figure 414: GS-Collections GRE MutLoss matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	71.89	71.89	71.89	71.89	71.89	71.89	71.89	71.89	71.89	
	185	-	71.35	71.35	71.35	71.35	71.35	71.35	71.35	71.35	
	215	-	-	71.17	71.17	71.17	71.17	71.17	71.17	71.17	
	245	-	-	-	70.79	70.79	70.79	70.79	70.79	70.79	
	275	-	-	-	-	70.74	70.74	70.74	70.74	70.74	
	305	-	-	-	-	-	71.26	71.26	71.26	71.26	
	335	-	-	-	-	-	-	71.62	71.62	71.62	
	365	-	-	-	-	-	-	-	71.66	71.66	
	395	-	-	-	-	-	-	-	-	71.27	
	425	-	-	-	-	-	-	-	-	-	71.23

Figure 415: GS-Collections HGS SizRed matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	1.19	1.54	1.55	1.55	1.56	1.56	1.63	1.64	1.61	1.64
	185	-	0.83	0.84	0.85	0.84	0.84	0.86	0.91	0.87	0.89
	215	-	-	0.82	0.82	0.82	0.82	0.82	0.85	0.83	0.85
	245	-	-	-	0.80	0.80	0.80	0.80	0.86	0.84	0.91
	275	-	-	-	-	0.78	0.79	0.79	0.84	0.83	0.90
	305	-	-	-	-	-	0.59	0.60	0.62	0.66	0.75
	335	-	-	-	-	-	-	0.65	0.66	0.68	0.75
	365	-	-	-	-	-	-	-	0.61	0.67	0.77
	395	-	-	-	-	-	-	-	-	0.61	0.70
	425	-	-	-	-	-	-	-	-	-	0.64

Figure 416: GS-Collections HGS StmtLoss matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.37	0.38	0.39	0.39	0.39	0.42	0.49	0.51	0.57
	185	-	0.00	0.04	0.04	0.05	0.04	0.06	0.13	0.14	0.20
	215	-	-	0.00	0.02	0.01	0.01	0.01	0.08	0.10	0.15
	245	-	-	-	0.00	0.01	0.01	0.01	0.09	0.10	0.22
	275	-	-	-	-	0.00	0.00	0.01	0.09	0.10	0.22
	305	-	-	-	-	-	0.00	0.01	0.07	0.11	0.22
	335	-	-	-	-	-	-	0.00	0.07	0.08	0.20
	365	-	-	-	-	-	-	-	0.00	0.15	0.27
	395	-	-	-	-	-	-	-	-	0.00	0.13
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 417: GS-Collections HGS MutLoss matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	71.91	71.91	71.91	71.91	71.91	71.91	71.91	71.91	71.91	
	185	-	71.39	71.39	71.39	71.39	71.39	71.39	71.39	71.39	
	215	-	-	71.20	71.20	71.20	71.20	71.20	71.20	71.20	
	245	-	-	-	70.83	70.83	70.83	70.83	70.83	70.83	
	275	-	-	-	-	70.79	70.79	70.79	70.79	70.79	
	305	-	-	-	-	-	71.31	71.31	71.31	71.31	
	335	-	-	-	-	-	-	71.66	71.66	71.66	
	365	-	-	-	-	-	-	-	71.70	71.70	
	395	-	-	-	-	-	-	-	-	71.34	
	425	-	-	-	-	-	-	-	-	-	71.26

Figure 418: GS-Collections ILP SizRed matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	1.15	1.49	1.49	1.49	1.50	1.50	1.57	1.59	1.57	
	185	-	0.84	0.85	0.86	0.85	0.85	0.87	0.92	0.89	
	215	-	-	0.83	0.83	0.83	0.83	0.85	0.88	0.88	
	245	-	-	-	0.76	0.75	0.76	0.75	0.81	0.80	
	275	-	-	-	-	0.78	0.78	0.78	0.83	0.82	
	305	-	-	-	-	-	0.58	0.60	0.62	0.66	
	335	-	-	-	-	-	-	0.68	0.73	0.74	
	365	-	-	-	-	-	-	-	0.67	0.74	
	395	-	-	-	-	-	-	-	-	0.61	
	425	-	-	-	-	-	-	-	-	-	0.67

Figure 419: GS-Collections ILP StmtLoss matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.33	0.35	0.35	0.35	0.35	0.37	0.44	0.46	
	185	-	0.00	0.04	0.04	0.04	0.04	0.05	0.12	0.14	
	215	-	-	0.00	0.02	0.02	0.02	0.02	0.13	0.15	
	245	-	-	-	0.00	0.00	0.01	0.01	0.08	0.10	
	275	-	-	-	-	0.00	0.00	0.00	0.08	0.10	
	305	-	-	-	-	-	0.00	0.02	0.08	0.11	
	335	-	-	-	-	-	-	0.00	0.12	0.14	
	365	-	-	-	-	-	-	-	0.00	0.16	
	395	-	-	-	-	-	-	-	-	0.00	
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 420: GS-Collections ILP MutLoss matrix for MAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	70.72	70.72	70.72	70.72	70.72	70.72	70.72	70.72	70.72	
	185	-	70.24	70.24	70.24	70.24	70.24	70.24	70.24	70.24	
	215	-	-	70.02	70.02	70.02	70.02	70.02	70.02	70.02	
	245	-	-	-	69.70	69.70	69.70	69.70	69.70	69.70	
	275	-	-	-	-	69.68	69.68	69.68	69.68	69.68	
	305	-	-	-	-	-	70.22	70.22	70.22	70.22	
	335	-	-	-	-	-	-	70.55	70.55	70.55	
	365	-	-	-	-	-	-	-	70.67	70.67	
	395	-	-	-	-	-	-	-	-	70.33	
	425	-	-	-	-	-	-	-	-	-	70.35

Figure 421: GS-Collections Greedy SizRed matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.42	0.43	0.43	0.44	0.44	0.49	0.52	0.54	
	185	-	0.00	0.02	0.02	0.02	0.02	0.04	0.10	0.11	
	215	-	-	0.00	0.00	0.01	0.01	0.00	0.04	0.06	
	245	-	-	-	0.00	0.00	0.01	0.00	0.07	0.09	
	275	-	-	-	-	0.00	0.00	0.01	0.07	0.07	
	305	-	-	-	-	-	0.00	0.02	0.05	0.05	
	335	-	-	-	-	-	-	0.00	0.06	0.06	
	365	-	-	-	-	-	-	-	0.00	0.07	
	395	-	-	-	-	-	-	-	-	0.00	
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 422: GS-Collections Greedy StmtLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.32	0.32	0.33	0.33	0.33	0.35	0.43	0.44	
	185	-	0.00	0.03	0.04	0.03	0.04	0.05	0.12	0.12	
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.07	0.08	
	245	-	-	-	0.00	0.01	0.01	0.01	0.08	0.09	
	275	-	-	-	-	0.00	0.00	0.01	0.08	0.08	
	305	-	-	-	-	-	0.00	0.02	0.08	0.09	
	335	-	-	-	-	-	-	0.00	0.06	0.06	
	365	-	-	-	-	-	-	-	0.00	0.15	
	395	-	-	-	-	-	-	-	-	0.00	
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 423: GS-Collections Greedy MutLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	71.05	71.05	71.05	71.05	71.05	71.05	71.05	71.05	71.05	
	185	-	70.64	70.64	70.64	70.64	70.64	70.64	70.64	70.64	
	215	-	-	70.44	70.44	70.44	70.44	70.44	70.44	70.44	
	245	-	-	-	70.09	70.09	70.09	70.09	70.09	70.09	
	275	-	-	-	-	70.04	70.04	70.04	70.04	70.04	
	305	-	-	-	-	-	70.60	70.60	70.60	70.60	
	335	-	-	-	-	-	-	70.92	70.92	70.92	
	365	-	-	-	-	-	-	-	71.03	71.03	
	395	-	-	-	-	-	-	-	-	70.69	
	425	-	-	-	-	-	-	-	-	-	70.64

Figure 424: GS-Collections GE SizRed matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.39	0.40	0.41	0.42	0.42	0.46	0.50	0.52	0.57
	185	-	0.00	0.02	0.03	0.02	0.02	0.04	0.11	0.11	0.15
	215	-	-	0.00	0.00	0.01	0.01	0.00	0.08	0.10	0.14
	245	-	-	-	0.00	0.00	0.01	0.00	0.10	0.12	0.14
	275	-	-	-	-	0.00	0.00	0.01	0.10	0.10	0.14
	305	-	-	-	-	-	0.00	0.02	0.08	0.08	0.13
	335	-	-	-	-	-	-	0.00	0.09	0.09	0.13
	365	-	-	-	-	-	-	-	0.00	0.07	0.12
	395	-	-	-	-	-	-	-	-	0.00	0.05
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 425: GS-Collections GE StmtLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.29	0.32	0.32	0.32	0.32	0.34	0.42	0.43	0.55
	185	-	0.00	0.04	0.04	0.05	0.05	0.06	0.13	0.12	0.24
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.12	0.13	0.25
	245	-	-	-	0.00	0.01	0.01	0.01	0.13	0.14	0.25
	275	-	-	-	-	0.00	0.00	0.01	0.13	0.13	0.24
	305	-	-	-	-	-	0.00	0.02	0.12	0.13	0.24
	335	-	-	-	-	-	-	0.00	0.11	0.11	0.22
	365	-	-	-	-	-	-	-	0.00	0.15	0.26
	395	-	-	-	-	-	-	-	-	0.00	0.11
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 426: GS-Collections GE MutLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	71.17	71.17	71.17	71.17	71.17	71.17	71.17	71.17	71.17	
	185	-	70.70	70.70	70.70	70.70	70.70	70.70	70.70	70.70	
	215	-	-	70.50	70.50	70.50	70.50	70.50	70.50	70.50	
	245	-	-	-	70.16	70.16	70.16	70.16	70.16	70.16	
	275	-	-	-	-	70.13	70.13	70.13	70.13	70.13	
	305	-	-	-	-	-	70.68	70.68	70.68	70.68	
	335	-	-	-	-	-	-	71.02	71.02	71.02	
	365	-	-	-	-	-	-	-	71.11	71.11	
	395	-	-	-	-	-	-	-	-	70.80	
	425	-	-	-	-	-	-	-	-	-	70.73

Figure 427: GS-Collections GRE SizRed matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.40	0.40	0.40	0.42	0.41	0.46	0.51	0.54	0.62
	185	-	0.00	0.01	0.02	0.01	0.01	0.03	0.09	0.11	0.17
	215	-	-	0.00	0.00	0.01	0.01	0.00	0.04	0.08	0.15
	245	-	-	-	0.00	0.00	0.01	0.00	0.07	0.10	0.15
	275	-	-	-	-	0.00	0.01	0.02	0.07	0.10	0.15
	305	-	-	-	-	-	0.00	0.02	0.05	0.07	0.14
	335	-	-	-	-	-	-	0.00	0.06	0.08	0.13
	365	-	-	-	-	-	-	-	0.00	0.09	0.16
	395	-	-	-	-	-	-	-	-	0.00	0.07
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 428: GS-Collections GRE StmtLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.30	0.31	0.32	0.32	0.31	0.34	0.41	0.43	0.56
	185	-	0.00	0.03	0.04	0.04	0.04	0.05	0.12	0.13	0.26
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.07	0.09	0.22
	245	-	-	-	0.00	0.00	0.01	0.01	0.08	0.10	0.22
	275	-	-	-	-	0.00	0.01	0.01	0.08	0.10	0.22
	305	-	-	-	-	-	0.00	0.02	0.07	0.09	0.21
	335	-	-	-	-	-	-	0.00	0.06	0.06	0.19
	365	-	-	-	-	-	-	-	0.00	0.16	0.28
	395	-	-	-	-	-	-	-	-	0.00	0.13
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 429: GS-Collections GRE MutLoss matrix for SMAR



Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	71.18	71.18	71.18	71.18	71.18	71.18	71.18	71.18	71.18	
	185	-	70.69	70.69	70.69	70.69	70.69	70.69	70.69	70.69	
	215	-	-	70.49	70.49	70.49	70.49	70.49	70.49	70.49	
	245	-	-	-	70.15	70.15	70.15	70.15	70.15	70.15	
	275	-	-	-	-	70.13	70.13	70.13	70.13	70.13	
	305	-	-	-	-	-	70.67	70.67	70.67	70.67	
	335	-	-	-	-	-	-	71.01	71.01	71.01	
	365	-	-	-	-	-	-	-	71.10	71.10	
	395	-	-	-	-	-	-	-	-	70.74	
	425	-	-	-	-	-	-	-	-	-	70.71

Figure 430: GS-Collections HGS SizRed matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.26	0.27	0.27	0.27	0.27	0.31	0.35	0.38	0.41
	185	-	0.00	0.02	0.02	0.01	0.02	0.03	0.10	0.11	0.13
	215	-	-	0.00	0.00	0.01	0.01	0.00	0.05	0.07	0.10
	245	-	-	-	0.00	0.00	0.01	0.00	0.07	0.09	0.10
	275	-	-	-	-	0.00	0.01	0.02	0.08	0.09	0.10
	305	-	-	-	-	-	0.00	0.01	0.05	0.06	0.09
	335	-	-	-	-	-	-	0.00	0.07	0.08	0.11
	365	-	-	-	-	-	-	-	0.00	0.09	0.12
	395	-	-	-	-	-	-	-	-	0.00	0.04
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 431: GS-Collections HGS StmtLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.36	0.38	0.39	0.38	0.38	0.41	0.49	0.50	0.57
	185	-	0.00	0.04	0.04	0.04	0.04	0.06	0.13	0.13	0.20
	215	-	-	0.00	0.01	0.01	0.01	0.01	0.08	0.09	0.15
	245	-	-	-	0.00	0.00	0.01	0.01	0.09	0.10	0.16
	275	-	-	-	-	0.00	0.01	0.01	0.09	0.09	0.16
	305	-	-	-	-	-	0.00	0.01	0.07	0.09	0.14
	335	-	-	-	-	-	-	0.00	0.06	0.07	0.14
	365	-	-	-	-	-	-	-	0.00	0.16	0.22
	395	-	-	-	-	-	-	-	-	0.00	0.07
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 432: GS-Collections HGS MutLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	71.19	71.19	71.19	71.19	71.19	71.19	71.19	71.19	71.19	
	185	-	70.72	70.72	70.72	70.72	70.72	70.72	70.72	70.72	
	215	-	-	70.53	70.53	70.53	70.53	70.53	70.53	70.53	
	245	-	-	-	70.18	70.18	70.18	70.18	70.18	70.18	
	275	-	-	-	-	70.15	70.15	70.15	70.15	70.15	
	305	-	-	-	-	-	70.70	70.70	70.70	70.70	
	335	-	-	-	-	-	-	71.04	71.04	71.04	
	365	-	-	-	-	-	-	-	71.13	71.13	
	395	-	-	-	-	-	-	-	-	70.81	
	425	-	-	-	-	-	-	-	-	-	70.73

Figure 433: GS-Collections ILP SizRed matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.40	0.42	0.42	0.43	0.43	0.47	0.53	0.56	0.64
	185	-	0.00	0.01	0.02	0.01	0.01	0.03	0.10	0.12	0.13
	215	-	-	0.00	0.00	0.01	0.01	0.00	0.08	0.11	0.19
	245	-	-	-	0.00	0.00	0.01	0.00	0.10	0.13	0.19
	275	-	-	-	-	0.00	0.00	0.01	0.07	0.09	0.15
	305	-	-	-	-	-	0.00	0.01	0.04	0.06	0.13
	335	-	-	-	-	-	-	0.00	0.09	0.10	0.16
	365	-	-	-	-	-	-	-	0.00	0.08	0.16
	395	-	-	-	-	-	-	-	-	0.00	0.08
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 434: GS-Collections ILP StmtLoss matrix for SMAR

Version	155	185	215	245	275	305	335	365	395	425	
GS-Collections	155	0.00	0.32	0.35	0.34	0.34	0.34	0.36	0.44	0.46	0.59
	185	-	0.00	0.03	0.04	0.04	0.04	0.05	0.13	0.13	0.20
	215	-	-	0.00	0.02	0.01	0.01	0.01	0.13	0.15	0.28
	245	-	-	-	0.00	0.01	0.01	0.01	0.14	0.15	0.27
	275	-	-	-	-	0.00	0.00	0.01	0.08	0.09	0.22
	305	-	-	-	-	-	0.00	0.02	0.07	0.09	0.20
	335	-	-	-	-	-	-	0.00	0.11	0.12	0.24
	365	-	-	-	-	-	-	-	0.00	0.15	0.28
	395	-	-	-	-	-	-	-	-	0.00	0.13
	425	-	-	-	-	-	-	-	-	-	0.00

Figure 435: GS-Collections ILP MutLoss matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	67.29	67.29	67.29	67.29	67.29	67.29	67.29
	1551	-	67.26	67.26	67.26	67.26	67.26	67.26
	1581	-	-	67.40	67.40	67.40	67.40	67.40
	1611	-	-	-	67.56	67.56	67.56	67.56
	1641	-	-	-	-	67.81	67.81	67.81
	1671	-	-	-	-	-	67.46	67.46
	1701	-	-	-	-	-	-	67.79

Figure 436: JodaTime Greedy SizRed matrix for SAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.03	0.03	0.03	0.03	0.12	0.13
	1551	-	0.00	0.01	0.01	0.01	0.11	0.13
	1581	-	-	0.00	0.00	0.00	0.10	0.12
	1611	-	-	-	0.00	0.00	0.11	0.13
	1641	-	-	-	-	0.00	0.11	0.13
	1671	-	-	-	-	-	0.00	0.02
	1701	-	-	-	-	-	-	0.00

Figure 437: JodaTime Greedy StmtLoss matrix for SAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	4.35	4.36	4.39	4.42	4.50	4.48	4.57
	1551	-	4.42	4.45	4.48	4.55	4.54	4.63
	1581	-	-	4.45	4.48	4.55	4.56	4.66
	1611	-	-	-	4.52	4.60	4.70	4.79
	1641	-	-	-	-	4.62	4.72	4.82
	1671	-	-	-	-	-	4.37	4.47
	1701	-	-	-	-	-	-	4.56

Figure 438: JodaTime Greedy MutLoss matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	67.50	67.50	67.50	67.50	67.50	67.50	67.50
1551	-	67.47	67.47	67.47	67.47	67.47	67.47
1581	-	-	67.58	67.58	67.58	67.58	67.58
1611	-	-	-	67.76	67.76	67.76	67.76
1641	-	-	-	-	67.96	67.96	67.96
1671	-	-	-	-	-	67.74	67.74
1701	-	-	-	-	-	-	68.04

Figure 439: JodaTime GE SizRed matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	0.00	0.03	0.04	0.04	0.04	0.11	0.13
1551	-	0.00	0.01	0.01	0.01	0.10	0.12
1581	-	-	0.00	0.00	0.00	0.09	0.11
1611	-	-	-	0.00	0.00	0.10	0.12
1641	-	-	-	-	0.00	0.10	0.12
1671	-	-	-	-	-	0.00	0.02
1701	-	-	-	-	-	-	0.00

Figure 440: JodaTime GE StmtLoss matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	4.88	4.88	4.91	4.94	5.00	5.17	5.22
1551	-	4.90	4.93	4.96	5.02	5.19	5.24
1581	-	-	4.97	5.00	5.06	5.25	5.31
1611	-	-	-	5.10	5.16	5.45	5.50
1641	-	-	-	-	5.10	5.39	5.44
1671	-	-	-	-	-	5.25	5.30
1701	-	-	-	-	-	-	5.37

Figure 441: JodaTime GE MutLoss matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	67.58	67.58	67.58	67.58	67.58	67.58	67.58
JodaTime 1551	-	67.55	67.55	67.55	67.55	67.55	67.55
JodaTime 1581	-	-	67.65	67.65	67.65	67.65	67.65
JodaTime 1611	-	-	-	67.84	67.84	67.84	67.84
JodaTime 1641	-	-	-	-	68.06	68.06	68.06
JodaTime 1671	-	-	-	-	-	67.84	67.84
JodaTime 1701	-	-	-	-	-	-	68.16

Figure 442: JodaTime GRE SizRed matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	0.00	0.03	0.04	0.09	0.09	0.15	0.17
JodaTime 1551	-	0.00	0.07	0.11	0.11	0.20	0.22
JodaTime 1581	-	-	0.00	0.04	0.04	0.14	0.15
JodaTime 1611	-	-	-	0.00	0.00	0.10	0.12
JodaTime 1641	-	-	-	-	0.00	0.10	0.12
JodaTime 1671	-	-	-	-	-	0.00	0.02
JodaTime 1701	-	-	-	-	-	-	0.00

Figure 443: JodaTime GRE StmtLoss matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	4.97	4.98	5.00	5.03	5.02	5.15	5.25
JodaTime 1551	-	5.02	5.10	5.12	5.11	5.03	5.13
JodaTime 1581	-	-	5.04	5.06	5.06	5.00	5.11
JodaTime 1611	-	-	-	5.14	5.14	5.17	5.27
JodaTime 1641	-	-	-	-	5.15	5.19	5.29
JodaTime 1671	-	-	-	-	-	4.98	5.08
JodaTime 1701	-	-	-	-	-	-	5.08

Figure 444: JodaTime GRE MutLoss matrix for SAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	67.55	67.55	67.55	67.55	67.55	67.55	67.55
	1551	-	67.52	67.52	67.52	67.52	67.52	67.52
	1581	-	-	67.63	67.63	67.63	67.63	67.63
	1611	-	-	-	67.81	67.81	67.81	67.81
	1641	-	-	-	-	68.04	68.04	68.04
	1671	-	-	-	-	-	67.81	67.81
	1701	-	-	-	-	-	-	68.14

Figure 445: JodaTime HGS SizRed matrix for SAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.03	0.04	0.09	0.09	0.15	0.17
	1551	-	0.00	0.01	0.05	0.05	0.14	0.16
	1581	-	-	0.00	0.04	0.04	0.14	0.15
	1611	-	-	-	0.00	0.00	0.10	0.12
	1641	-	-	-	-	0.00	0.10	0.12
	1671	-	-	-	-	-	0.00	0.02
	1701	-	-	-	-	-	-	0.00

Figure 446: JodaTime HGS StmtLoss matrix for SAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	4.19	4.21	4.22	4.25	4.26	4.24	4.34
	1551	-	4.26	4.27	4.30	4.31	4.30	4.40
	1581	-	-	4.78	4.81	4.88	4.88	4.98
	1611	-	-	-	4.92	4.90	4.99	5.09
	1641	-	-	-	-	4.46	4.56	4.66
	1671	-	-	-	-	-	4.41	4.51
	1701	-	-	-	-	-	-	4.37

Figure 447: JodaTime HGS MutLoss matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	67.58	67.58	67.58	67.58	67.58	67.58	67.58
JodaTime 1551	-	67.55	67.55	67.55	67.55	67.55	67.55
JodaTime 1581	-	-	67.65	67.65	67.65	67.65	67.65
JodaTime 1611	-	-	-	67.84	67.84	67.84	67.84
JodaTime 1641	-	-	-	-	68.06	68.06	68.06
JodaTime 1671	-	-	-	-	-	67.84	67.84
JodaTime 1701	-	-	-	-	-	-	68.16

Figure 448: JodaTime ILP SizRed matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	0.00	0.03	0.04	0.04	0.04	0.12	0.13
JodaTime 1551	-	0.00	0.01	0.01	0.01	0.10	0.12
JodaTime 1581	-	-	0.00	0.00	0.00	0.08	0.10
JodaTime 1611	-	-	-	0.00	0.00	0.10	0.12
JodaTime 1641	-	-	-	-	0.00	0.11	0.13
JodaTime 1671	-	-	-	-	-	0.00	0.02
JodaTime 1701	-	-	-	-	-	-	0.00

Figure 449: JodaTime ILP StmtLoss matrix for SAR

Version	1521	1551	1581	1611	1641	1671	1701
JodaTime 1521	4.69	4.72	4.74	4.76	4.74	4.89	4.95
JodaTime 1551	-	4.43	4.45	4.48	4.45	4.43	4.48
JodaTime 1581	-	-	4.94	4.96	4.94	4.89	4.94
JodaTime 1611	-	-	-	4.45	4.42	4.48	4.53
JodaTime 1641	-	-	-	-	4.88	4.96	5.05
JodaTime 1671	-	-	-	-	-	4.72	4.81
JodaTime 1701	-	-	-	-	-	-	4.81

Figure 450: JodaTime ILP MutLoss matrix for SAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	62.70	62.70	62.70	62.70	62.70	62.70	62.70
	1551	-	62.47	62.47	62.47	62.47	62.47	62.47
	1581	-	-	62.51	62.51	62.51	62.51	62.51
	1611	-	-	-	62.54	62.54	62.54	62.54
	1641	-	-	-	-	62.81	62.81	62.81
	1671	-	-	-	-	-	62.64	62.64
	1701	-	-	-	-	-	-	62.93

Figure 451: JodaTime Greedy SizRed matrix for MAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.85	0.86	0.87	0.87	0.86	0.88	0.88
	1551	-	0.87	0.88	0.88	0.87	0.90	0.91
	1581	-	-	0.87	0.87	0.86	0.89	0.90
	1611	-	-	-	0.87	0.86	0.91	0.91
	1641	-	-	-	-	1.18	1.22	1.22
	1671	-	-	-	-	-	1.16	1.17
	1701	-	-	-	-	-	-	1.15

Figure 452: JodaTime Greedy StmtLoss matrix for MAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.09	0.12	0.14	0.18	0.20	0.22
	1551	-	0.00	0.04	0.06	0.10	0.17	0.19
	1581	-	-	0.00	0.02	0.05	0.14	0.20
	1611	-	-	-	0.00	0.02	0.20	0.22
	1641	-	-	-	-	0.00	0.18	0.20
	1671	-	-	-	-	-	0.00	0.04
	1701	-	-	-	-	-	-	0.00

Figure 453: JodaTime Greedy MutLoss matrix for MAR



Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	63.07	63.07	63.07	63.07	63.07	63.07	63.07
	1551	-	62.83	62.83	62.83	62.83	62.83	62.83
	1581	-	-	62.90	62.90	62.90	62.90	62.90
	1611	-	-	-	62.87	62.87	62.87	62.87
	1641	-	-	-	-	63.14	63.14	63.14
	1671	-	-	-	-	-	63.05	63.05
	1701	-	-	-	-	-	-	63.28

Figure 454: JodaTime GE SizRed matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.94	0.95	0.96	0.96	0.94	0.95	0.96
	1551	-	0.96	0.96	0.96	0.94	0.97	0.98
	1581	-	-	0.95	0.95	0.93	0.96	0.97
	1611	-	-	-	0.94	0.92	0.96	0.97
	1641	-	-	-	-	1.09	1.13	1.14
	1671	-	-	-	-	-	1.06	1.07
	1701	-	-	-	-	-	-	0.93

Figure 455: JodaTime GE StmtLoss matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.10	0.13	0.15	0.19	0.21	0.25
	1551	-	0.00	0.04	0.06	0.09	0.17	0.20
	1581	-	-	0.00	0.02	0.05	0.14	0.17
	1611	-	-	-	0.00	0.03	0.21	0.24
	1641	-	-	-	-	0.00	0.18	0.21
	1671	-	-	-	-	-	0.00	0.04
	1701	-	-	-	-	-	-	0.00

Figure 456: JodaTime GE MutLoss matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	63.12	63.12	63.12	63.12	63.12	63.12	63.12
	1551	-	62.88	62.88	62.88	62.88	62.88	62.88
	1581	-	-	62.95	62.95	62.95	62.95	62.95
	1611	-	-	-	62.97	62.97	62.97	62.97
	1641	-	-	-	-	63.21	63.21	63.21
	1671	-	-	-	-	-	63.12	63.12
	1701	-	-	-	-	-	-	63.35

Figure 457: JodaTime GRE SizRed matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.92	0.92	0.93	0.97	0.95	0.96	0.97
	1551	-	0.90	0.90	0.95	0.93	0.95	0.96
	1581	-	-	0.90	0.94	0.92	0.94	0.95
	1611	-	-	-	0.90	0.88	0.91	0.92
	1641	-	-	-	-	1.04	1.07	1.08
	1671	-	-	-	-	-	1.03	1.04
	1701	-	-	-	-	-	-	0.90

Figure 458: JodaTime GRE StmtLoss matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.08	0.11	0.13	0.16	0.20	0.28
	1551	-	0.00	0.04	0.06	0.08	0.15	0.22
	1581	-	-	0.00	0.02	0.05	0.12	0.20
	1611	-	-	-	0.00	0.02	0.19	0.27
	1641	-	-	-	-	0.00	0.16	0.24
	1671	-	-	-	-	-	0.00	0.08
	1701	-	-	-	-	-	-	0.00

Figure 459: JodaTime GRE MutLoss matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	63.15	63.15	63.15	63.15	63.15	63.15	63.15
	1551	-	62.93	62.93	62.93	62.93	62.93	62.93
	1581	-	-	63.00	63.00	63.00	63.00	63.00
	1611	-	-	-	63.00	63.00	63.00	63.00
	1641	-	-	-	-	63.24	63.24	63.24
	1671	-	-	-	-	-	63.15	63.15
	1701	-	-	-	-	-	-	63.35

Figure 460: JodaTime HGS SizRed matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	1.39	1.39	1.40	1.44	1.42	1.44	1.45
	1551	-	1.24	1.25	1.29	1.27	1.30	1.31
	1581	-	-	1.24	1.29	1.27	1.29	1.30
	1611	-	-	-	1.23	1.21	1.25	1.26
	1641	-	-	-	-	1.40	1.43	1.44
	1671	-	-	-	-	-	1.35	1.36
	1701	-	-	-	-	-	-	1.39

Figure 461: JodaTime HGS StmtLoss matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.09	0.13	0.15	0.19	0.23	0.31
	1551	-	0.00	0.05	0.07	0.10	0.18	0.26
	1581	-	-	0.00	0.02	0.06	0.15	0.23
	1611	-	-	-	0.00	0.03	0.21	0.29
	1641	-	-	-	-	0.00	0.19	0.26
	1671	-	-	-	-	-	0.00	0.08
	1701	-	-	-	-	-	-	0.00

Figure 462: JodaTime HGS MutLoss matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	63.15	63.15	63.15	63.15	63.15	63.15	63.15
	1551	-	62.93	62.93	62.93	62.93	62.93	62.93
	1581	-	-	63.00	63.00	63.00	63.00	63.00
	1611	-	-	-	63.02	63.02	63.02	63.02
	1641	-	-	-	-	63.26	63.26	63.26
	1671	-	-	-	-	-	63.17	63.17
	1701	-	-	-	-	-	-	63.38

Figure 463: JodaTime ILP SizRed matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	1.24	1.26	1.32	1.37	1.35	1.34	1.35
	1551	-	1.25	1.31	1.35	1.34	1.34	1.35
	1581	-	-	0.92	0.96	0.94	0.97	0.98
	1611	-	-	-	0.90	0.88	0.90	0.91
	1641	-	-	-	-	0.91	0.93	0.94
	1671	-	-	-	-	-	1.02	1.03
	1701	-	-	-	-	-	-	0.88

Figure 464: JodaTime ILP StmtLoss matrix for MAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.10	0.18	0.20	0.24	0.26	0.30
	1551	-	0.00	0.09	0.11	0.14	0.21	0.30
	1581	-	-	0.00	0.02	0.05	0.14	0.17
	1611	-	-	-	0.00	0.03	0.21	0.24
	1641	-	-	-	-	0.00	0.16	0.20
	1671	-	-	-	-	-	0.00	0.08
	1701	-	-	-	-	-	-	0.00

Figure 465: JodaTime ILP MutLoss matrix for MAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	61.29	61.29	61.29	61.29	61.29	61.29	61.29
	1551	-	61.17	61.17	61.17	61.17	61.17	61.17
	1581	-	-	61.20	61.20	61.20	61.20	61.20
	1611	-	-	-	61.24	61.24	61.24	61.24
	1641	-	-	-	-	61.60	61.60	61.60
	1671	-	-	-	-	-	61.34	61.34
	1701	-	-	-	-	-	-	61.77

Figure 466: JodaTime Greedy SizRed matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.03	0.03	0.08	0.08	0.11	0.12
	1551	-	0.00	0.01	0.05	0.05	0.10	0.11
	1581	-	-	0.00	0.04	0.04	0.09	0.10
	1611	-	-	-	0.00	0.00	0.06	0.07
	1641	-	-	-	-	0.00	0.06	0.07
	1671	-	-	-	-	-	0.00	0.01
	1701	-	-	-	-	-	-	0.00

Figure 467: JodaTime Greedy StmtLoss matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.06	0.09	0.11	0.14	0.17	0.30
	1551	-	0.00	0.04	0.06	0.09	0.16	0.22
	1581	-	-	0.00	0.02	0.04	0.13	0.19
	1611	-	-	-	0.00	0.02	0.20	0.26
	1641	-	-	-	-	0.00	0.18	0.24
	1671	-	-	-	-	-	0.00	0.06
	1701	-	-	-	-	-	-	0.00

Figure 468: JodaTime Greedy MutLoss matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	61.79	61.79	61.79	61.79	61.79	61.79	61.79
	1551	-	61.56	61.56	61.56	61.56	61.56	61.56
	1581	-	-	61.64	61.64	61.64	61.64	61.64
	1611	-	-	-	61.67	61.67	61.67	61.67
	1641	-	-	-	-	61.87	61.87	61.87
	1671	-	-	-	-	-	61.84	61.84
	1701	-	-	-	-	-	-	62.09

Figure 469: JodaTime GE SizRed matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.03	0.04	0.04	0.04	0.07	0.08
	1551	-	0.00	0.01	0.01	0.01	0.06	0.07
	1581	-	-	0.00	0.00	0.00	0.05	0.06
	1611	-	-	-	0.00	0.00	0.06	0.07
	1641	-	-	-	-	0.00	0.06	0.07
	1671	-	-	-	-	-	0.00	0.01
	1701	-	-	-	-	-	-	0.00

Figure 470: JodaTime GE StmtLoss matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.07	0.11	0.13	0.16	0.19	0.27
	1551	-	0.00	0.04	0.06	0.09	0.17	0.25
	1581	-	-	0.00	0.02	0.05	0.14	0.22
	1611	-	-	-	0.00	0.03	0.21	0.29
	1641	-	-	-	-	0.00	0.18	0.26
	1671	-	-	-	-	-	0.00	0.08
	1701	-	-	-	-	-	-	0.00

Figure 471: JodaTime GE MutLoss matrix for SMAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	61.92	61.92	61.92	61.92	61.92	61.92	61.92
	1551	-	61.66	61.66	61.66	61.66	61.66	61.66
	1581	-	-	61.74	61.74	61.74	61.74	61.74
	1611	-	-	-	61.77	61.77	61.77	61.77
	1641	-	-	-	-	62.00	62.00	62.00
	1671	-	-	-	-	-	61.94	61.94
	1701	-	-	-	-	-	-	62.19

Figure 472: JodaTime GRE SizRed matrix for SMAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.03	0.03	0.08	0.08	0.11	0.13
	1551	-	0.00	0.01	0.05	0.05	0.10	0.12
	1581	-	-	0.00	0.04	0.04	0.09	0.11
	1611	-	-	-	0.00	0.00	0.06	0.08
	1641	-	-	-	-	0.00	0.06	0.08
	1671	-	-	-	-	-	0.00	0.02
	1701	-	-	-	-	-	-	0.00

Figure 473: JodaTime GRE StmtLoss matrix for SMAR

Version		1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.06	0.09	0.11	0.14	0.18	0.25
	1551	-	0.00	0.04	0.06	0.08	0.15	0.22
	1581	-	-	0.00	0.02	0.05	0.12	0.20
	1611	-	-	-	0.00	0.02	0.19	0.27
	1641	-	-	-	-	0.00	0.16	0.24
	1671	-	-	-	-	-	0.00	0.08
	1701	-	-	-	-	-	-	0.00

Figure 474: JodaTime GRE MutLoss matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	61.95	61.95	61.95	61.95	61.95	61.95	61.95
	1551	-	61.69	61.69	61.69	61.69	61.69	61.69
	1581	-	-	61.74	61.74	61.74	61.74	61.74
	1611	-	-	-	61.77	61.77	61.77	61.77
	1641	-	-	-	-	62.05	62.05	62.05
	1671	-	-	-	-	-	61.97	61.97
	1701	-	-	-	-	-	-	62.19

Figure 475: JodaTime HGS SizRed matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.03	0.03	0.08	0.08	0.11	0.13
	1551	-	0.00	0.01	0.05	0.05	0.10	0.12
	1581	-	-	0.00	0.04	0.04	0.09	0.11
	1611	-	-	-	0.00	0.00	0.06	0.08
	1641	-	-	-	-	0.00	0.06	0.08
	1671	-	-	-	-	-	0.00	0.02
	1701	-	-	-	-	-	-	0.00

Figure 476: JodaTime HGS StmtLoss matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.07	0.10	0.12	0.16	0.20	0.28
	1551	-	0.00	0.05	0.07	0.10	0.18	0.26
	1581	-	-	0.00	0.02	0.06	0.15	0.23
	1611	-	-	-	0.00	0.03	0.22	0.29
	1641	-	-	-	-	0.00	0.18	0.26
	1671	-	-	-	-	-	0.00	0.08
	1701	-	-	-	-	-	-	0.00

Figure 477: JodaTime HGS MutLoss matrix for SMAR



	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	61.95	61.95	61.95	61.95	61.95	61.95	61.95
	1551	-	61.69	61.69	61.69	61.69	61.69	61.69
	1581	-	-	61.76	61.76	61.76	61.76	61.76
	1611	-	-	-	61.80	61.80	61.80	61.80
	1641	-	-	-	-	62.05	62.05	62.05
	1671	-	-	-	-	-	61.99	61.99
	1701	-	-	-	-	-	-	62.21

Figure 478: JodaTime ILP SizRed matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.03	0.03	0.08	0.08	0.11	0.13
	1551	-	0.00	0.01	0.05	0.05	0.09	0.11
	1581	-	-	0.00	0.00	0.00	0.05	0.07
	1611	-	-	-	0.00	0.00	0.05	0.07
	1641	-	-	-	-	0.00	0.05	0.07
	1671	-	-	-	-	-	0.00	0.02
	1701	-	-	-	-	-	-	0.00

Figure 479: JodaTime ILP StmtLoss matrix for SMAR

	Version	1521	1551	1581	1611	1641	1671	1701
JodaTime	1521	0.00	0.06	0.09	0.11	0.14	0.17	0.25
	1551	-	0.00	0.04	0.06	0.09	0.14	0.22
	1581	-	-	0.00	0.02	0.05	0.12	0.15
	1611	-	-	-	0.00	0.03	0.18	0.22
	1641	-	-	-	-	0.00	0.15	0.23
	1671	-	-	-	-	-	0.00	0.08
	1701	-	-	-	-	-	-	0.00

Figure 480: JodaTime ILP MutLoss matrix for SMAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	76.42	76.42	76.42	76.42	76.42	76.42	76.42	76.42
	437	-	76.98	76.98	76.98	76.98	76.98	76.98	76.98
	467	-	-	76.92	76.92	76.92	76.92	76.92	76.92
	497	-	-	-	76.65	76.65	76.65	76.65	76.65
	527	-	-	-	-	76.68	76.68	76.68	76.68
	557	-	-	-	-	-	77.44	77.44	77.44
	587	-	-	-	-	-	-	77.50	77.50
	617	-	-	-	-	-	-	-	77.70

Figure 481: AssertJ-Core Greedy SizRed matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.09	0.16	0.16	0.16	0.33	0.21	0.28
	437	-	0.00	0.11	0.28	0.28	0.28	0.43	0.47
	467	-	-	0.00	0.15	0.15	0.09	0.29	0.33
	497	-	-	-	0.00	0.00	0.04	0.12	0.16
	527	-	-	-	-	0.00	0.04	0.12	0.16
	557	-	-	-	-	-	0.00	0.41	0.40
	587	-	-	-	-	-	-	0.00	0.00
	617	-	-	-	-	-	-	-	0.00

Figure 482: AssertJ-Core Greedy StmtLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	20.54	20.60	20.60	20.56	20.60	20.40	20.33	20.15
	437	-	19.93	19.90	19.89	19.93	19.35	19.40	19.06
	467	-	-	19.23	19.21	19.25	18.73	18.76	18.42
	497	-	-	-	18.70	18.75	18.39	18.59	18.28
	527	-	-	-	-	19.06	18.69	18.89	18.57
	557	-	-	-	-	-	19.11	19.29	19.01
	587	-	-	-	-	-	-	18.87	18.60
	617	-	-	-	-	-	-	-	17.77

Figure 483: AssertJ-Core Greedy MutLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	76.45	76.45	76.45	76.45	76.45	76.45	76.45	76.45
	437	-	76.98	76.98	76.98	76.98	76.98	76.98	76.98
	467	-	-	76.94	76.94	76.94	76.94	76.94	76.94
	497	-	-	-	76.67	76.67	76.67	76.67	76.67
	527	-	-	-	-	76.70	76.70	76.70	76.70
	557	-	-	-	-	-	77.50	77.50	77.50
	587	-	-	-	-	-	-	77.48	77.48
	617	-	-	-	-	-	-	-	77.72

Figure 484: AssertJ-Core GE SizRed matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.00	0.12	0.12	0.12	0.22	0.17	0.24
	437	-	0.00	0.13	0.30	0.30	0.24	0.46	0.56
	467	-	-	0.00	0.17	0.17	0.11	0.32	0.42
	497	-	-	-	0.00	0.00	0.04	0.12	0.16
	527	-	-	-	-	0.00	0.10	0.12	0.16
	557	-	-	-	-	-	0.00	0.41	0.40
	587	-	-	-	-	-	-	0.00	0.00
	617	-	-	-	-	-	-	-	0.00

Figure 485: AssertJ-Core GE StmtLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	20.91	20.90	20.85	20.84	20.87	20.68	20.58	20.38
	437	-	20.23	20.19	20.12	20.17	19.62	19.65	19.31
	467	-	-	19.66	19.57	19.62	19.09	19.13	18.79
	497	-	-	-	19.07	19.13	18.79	18.99	18.67
	527	-	-	-	-	19.16	18.84	19.05	18.72
	557	-	-	-	-	-	19.48	19.68	19.35
	587	-	-	-	-	-	-	18.80	18.50
	617	-	-	-	-	-	-	-	17.78

Figure 486: AssertJ-Core GE MutLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	76.60	76.60	76.60	76.60	76.60	76.60	76.60	76.60
	437	-	77.12	77.12	77.12	77.12	77.12	77.12	77.12
	467	-	-	77.05	77.05	77.05	77.05	77.05	77.05
	497	-	-	-	76.75	76.75	76.75	76.75	76.75
	527	-	-	-	-	76.79	76.79	76.79	76.79
	557	-	-	-	-	-	77.58	77.58	77.58
	587	-	-	-	-	-	-	77.59	77.59
	617	-	-	-	-	-	-	-	77.81

Figure 487: AssertJ-Core GRE SizRed matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.09	0.16	0.16	0.16	0.33	0.28	0.35
	437	-	0.00	0.11	0.36	0.36	0.31	0.63	0.60
	467	-	-	0.00	0.25	0.25	0.19	0.50	0.48
	497	-	-	-	0.00	0.00	0.14	0.22	0.26
	527	-	-	-	-	0.00	0.08	0.22	0.26
	557	-	-	-	-	-	0.00	0.52	0.52
	587	-	-	-	-	-	-	0.00	0.00
	617	-	-	-	-	-	-	-	0.00

Figure 488: AssertJ-Core GRE StmtLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	20.89	20.99	21.10	21.16	21.18	21.05	20.93	20.71
	437	-	20.57	20.64	20.66	20.70	20.03	20.02	19.56
	467	-	-	19.81	19.84	19.88	19.25	19.25	18.79
	497	-	-	-	19.24	19.28	18.92	19.06	18.68
	527	-	-	-	-	19.37	19.03	19.17	18.84
	557	-	-	-	-	-	20.08	20.21	19.87
	587	-	-	-	-	-	-	19.44	19.10
	617	-	-	-	-	-	-	-	18.44

Figure 489: AssertJ-Core GRE MutLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	76.60	76.60	76.60	76.60	76.60	76.60	76.60	76.60
	437	-	77.12	77.12	77.12	77.12	77.12	77.12	77.12
	467	-	-	77.05	77.05	77.05	77.05	77.05	77.05
	497	-	-	-	76.75	76.75	76.75	76.75	76.75
	527	-	-	-	-	76.79	76.79	76.79	76.79
	557	-	-	-	-	-	77.58	77.58	77.58
	587	-	-	-	-	-	-	77.59	77.59
	617	-	-	-	-	-	-	-	77.81

Figure 490: AssertJ-Core HGS SizRed matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.05	0.14	0.14	0.14	0.24	0.26	0.33
	437	-	0.00	0.11	0.26	0.26	0.26	0.54	0.60
	467	-	-	0.00	0.19	0.19	0.19	0.48	0.54
	497	-	-	-	0.00	0.00	0.10	0.24	0.30
	527	-	-	-	-	0.00	0.10	0.24	0.30
	557	-	-	-	-	-	0.00	0.42	0.50
	587	-	-	-	-	-	-	0.00	0.07
	617	-	-	-	-	-	-	-	0.00

Figure 491: AssertJ-Core HGS StmtLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	20.52	20.59	20.47	20.48	20.53	20.37	20.28	20.04
	437	-	19.83	19.70	19.69	19.75	19.26	19.31	18.82
	467	-	-	19.24	19.27	19.31	18.73	18.76	18.28
	497	-	-	-	18.71	18.76	18.33	18.53	18.08
	527	-	-	-	-	18.96	18.54	18.73	18.28
	557	-	-	-	-	-	19.18	19.38	19.03
	587	-	-	-	-	-	-	18.70	18.35
	617	-	-	-	-	-	-	-	17.76

Figure 492: AssertJ-Core HGS MutLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	76.60	76.60	76.60	76.60	76.60	76.60	76.60	76.60
	437	-	77.12	77.12	77.12	77.12	77.12	77.12	77.12
	467	-	-	77.05	77.05	77.05	77.05	77.05	77.05
	497	-	-	-	76.75	76.75	76.75	76.75	76.75
	527	-	-	-	-	76.79	76.79	76.79	76.79
	557	-	-	-	-	-	77.58	77.58	77.58
	587	-	-	-	-	-	-	77.59	77.59
	617	-	-	-	-	-	-	-	77.81

Figure 493: AssertJ-Core ILP SizRed matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.09	0.16	0.16	0.16	0.26	0.28	0.28
	437	-	0.00	0.11	0.32	0.32	0.28	0.56	0.60
	467	-	-	0.00	0.21	0.21	0.19	0.46	0.44
	497	-	-	-	0.00	0.00	0.08	0.16	0.26
	527	-	-	-	-	0.00	0.14	0.28	0.34
	557	-	-	-	-	-	0.00	0.50	0.50
	587	-	-	-	-	-	-	0.00	0.07
	617	-	-	-	-	-	-	-	0.00

Figure 494: AssertJ-Core ILP StmtLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	21.18	21.17	21.18	21.19	21.21	21.11	20.98	20.74
	437	-	20.57	20.58	20.53	20.58	19.97	19.98	19.57
	467	-	-	19.69	19.73	19.76	19.10	19.09	18.69
	497	-	-	-	19.29	19.33	18.95	19.12	18.71
	527	-	-	-	-	19.25	18.89	19.06	18.67
	557	-	-	-	-	-	19.77	19.81	19.46
	587	-	-	-	-	-	-	19.37	18.99
	617	-	-	-	-	-	-	-	18.02

Figure 495: AssertJ-Core ILP MutLoss matrix for SAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	61.31	61.31	61.31	61.31	61.31	61.31	61.31	61.31
	437	-	62.23	62.23	62.23	62.23	62.23	62.23	62.23
	467	-	-	62.23	62.23	62.23	62.23	62.23	62.23
	497	-	-	-	61.96	61.96	61.96	61.96	61.96
	527	-	-	-	-	61.84	61.84	61.84	61.84
	557	-	-	-	-	-	62.58	62.58	62.58
	587	-	-	-	-	-	-	62.66	62.66
	617	-	-	-	-	-	-	-	62.90

Figure 496: AssertJ-Core Greedy SizRed matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	4.63	4.75	4.81	4.77	4.76	4.93	4.83	4.48
	437	-	4.33	4.38	4.33	4.32	4.45	4.38	4.03
	467	-	-	4.25	4.20	4.19	4.31	4.25	3.91
	497	-	-	-	4.11	4.10	4.22	4.20	3.96
	527	-	-	-	-	4.19	4.32	4.29	3.93
	557	-	-	-	-	-	4.27	4.38	4.03
	587	-	-	-	-	-	-	4.15	3.71
	617	-	-	-	-	-	-	-	3.75

Figure 497: AssertJ-Core Greedy StmtLoss matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.12	0.21	0.26	0.27	0.47	0.51	0.49
	437	-	0.00	0.06	0.13	0.13	0.25	0.28	0.31
	467	-	-	0.00	0.09	0.09	0.20	0.25	0.23
	497	-	-	-	0.00	0.04	0.19	0.25	0.22
	527	-	-	-	-	0.00	0.19	0.27	0.24
	557	-	-	-	-	-	0.00	0.10	0.09
	587	-	-	-	-	-	-	0.00	0.06
	617	-	-	-	-	-	-	-	0.00

Figure 498: AssertJ-Core Greedy MutLoss matrix for MAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	61.31	61.31	61.31	61.31	61.31	61.31	61.31
	437	-	62.25	62.25	62.25	62.25	62.25	62.25
	467	-	-	62.28	62.28	62.28	62.28	62.28
	497	-	-	-	61.94	61.94	61.94	61.94
	527	-	-	-	-	61.84	61.84	61.84
	557	-	-	-	-	-	62.56	62.56
	587	-	-	-	-	-	-	62.70
	617	-	-	-	-	-	-	-
	617	-	-	-	-	-	-	-

Figure 499: AssertJ-Core GE SizRed matrix for MAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	4.61	4.72	4.78	4.75	4.73	4.90	4.81
	437	-	4.33	4.36	4.31	4.30	4.43	4.36
	467	-	-	4.29	4.24	4.23	4.36	4.29
	497	-	-	-	4.17	4.16	4.28	4.26
	527	-	-	-	-	4.13	4.26	4.23
	557	-	-	-	-	-	4.21	4.33
	587	-	-	-	-	-	-	4.21
	617	-	-	-	-	-	-	-
	617	-	-	-	-	-	-	-

Figure 500: AssertJ-Core GE StmtLoss matrix for MAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.12	0.23	0.28	0.30	0.48	0.55
	437	-	0.00	0.04	0.12	0.13	0.24	0.27
	467	-	-	0.00	0.07	0.10	0.20	0.26
	497	-	-	-	0.00	0.05	0.19	0.25
	527	-	-	-	-	0.00	0.19	0.27
	557	-	-	-	-	-	0.00	0.10
	587	-	-	-	-	-	-	0.00
	617	-	-	-	-	-	-	-
	617	-	-	-	-	-	-	-

Figure 501: AssertJ-Core GE MutLoss matrix for MAR



	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	61.43	61.43	61.43	61.43	61.43	61.43	61.43	61.43
	437	-	62.34	62.34	62.34	62.34	62.34	62.34	62.34
	467	-	-	62.36	62.36	62.36	62.36	62.36	62.36
	497	-	-	-	62.07	62.07	62.07	62.07	62.07
	527	-	-	-	-	61.95	61.95	61.95	61.95
	557	-	-	-	-	-	62.68	62.68	62.68
	587	-	-	-	-	-	-	62.79	62.79
	617	-	-	-	-	-	-	-	63.05

Figure 502: AssertJ-Core GRE SizRed matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	4.34	4.46	4.50	4.47	4.45	4.59	4.52	4.44
	437	-	4.17	4.23	4.18	4.17	4.27	4.23	4.05
	467	-	-	4.12	4.08	4.06	4.17	4.12	3.95
	497	-	-	-	4.01	4.00	4.10	4.10	3.96
	527	-	-	-	-	3.98	4.08	4.07	3.93
	557	-	-	-	-	-	4.07	4.21	4.01
	587	-	-	-	-	-	-	4.23	3.78
	617	-	-	-	-	-	-	-	3.82

Figure 503: AssertJ-Core GRE StmtLoss matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.12	0.28	0.38	0.41	0.57	0.60	0.57
	437	-	0.00	0.18	0.27	0.31	0.36	0.39	0.41
	467	-	-	0.00	0.11	0.14	0.20	0.26	0.24
	497	-	-	-	0.00	0.05	0.19	0.23	0.20
	527	-	-	-	-	0.00	0.20	0.27	0.24
	557	-	-	-	-	-	0.00	0.10	0.09
	587	-	-	-	-	-	-	0.00	0.02
	617	-	-	-	-	-	-	-	0.00

Figure 504: AssertJ-Core GRE MutLoss matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	61.41	61.41	61.41	61.41	61.41	61.41	61.41	61.41
	437	-	62.34	62.34	62.34	62.34	62.34	62.34	62.34
	467	-	-	62.36	62.36	62.36	62.36	62.36	62.36
	497	-	-	-	62.07	62.07	62.07	62.07	62.07
	527	-	-	-	-	61.95	61.95	61.95	61.95
	557	-	-	-	-	-	62.68	62.68	62.68
	587	-	-	-	-	-	-	62.77	62.77
	617	-	-	-	-	-	-	-	63.03

Figure 505: AssertJ-Core HGS SizRed matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	4.42	4.53	4.57	4.54	4.52	4.66	4.59	4.44
	437	-	4.17	4.21	4.16	4.15	4.25	4.21	4.01
	467	-	-	4.10	4.06	4.04	4.14	4.10	3.91
	497	-	-	-	4.03	4.02	4.12	4.12	3.94
	527	-	-	-	-	4.00	4.10	4.09	3.91
	557	-	-	-	-	-	4.09	4.23	4.01
	587	-	-	-	-	-	-	4.23	3.78
	617	-	-	-	-	-	-	-	3.80

Figure 506: AssertJ-Core HGS StmtLoss matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.10	0.25	0.31	0.33	0.50	0.56	0.52
	437	-	0.00	0.10	0.18	0.22	0.30	0.33	0.34
	467	-	-	0.00	0.11	0.14	0.20	0.27	0.24
	497	-	-	-	0.00	0.05	0.19	0.22	0.19
	527	-	-	-	-	0.00	0.19	0.26	0.22
	557	-	-	-	-	-	0.00	0.09	0.06
	587	-	-	-	-	-	-	0.00	0.05
	617	-	-	-	-	-	-	-	0.00

Figure 507: AssertJ-Core HGS MutLoss matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	61.43	61.43	61.43	61.43	61.43	61.43	61.43	61.43
	437	-	62.36	62.36	62.36	62.36	62.36	62.36	62.36
	467	-	-	62.39	62.39	62.39	62.39	62.39	62.39
	497	-	-	-	62.09	62.09	62.09	62.09	62.09
	527	-	-	-	-	61.97	61.97	61.97	61.97
	557	-	-	-	-	-	62.72	62.72	62.72
	587	-	-	-	-	-	-	62.81	62.81
	617	-	-	-	-	-	-	-	63.07

Figure 508: AssertJ-Core ILP SizRed matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	4.46	4.56	4.62	4.58	4.57	4.73	4.64	4.34
	437	-	4.22	4.27	4.22	4.21	4.34	4.27	3.99
	467	-	-	4.27	4.22	4.21	4.34	4.27	3.95
	497	-	-	-	4.01	4.00	4.12	4.10	3.92
	527	-	-	-	-	3.84	3.96	3.93	3.81
	557	-	-	-	-	-	4.19	4.31	4.03
	587	-	-	-	-	-	-	4.28	3.84
	617	-	-	-	-	-	-	-	3.75

Figure 509: AssertJ-Core ILP StmtLoss matrix for MAR

	Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.22	0.26	0.31	0.35	0.50	0.53	0.51
	437	-	0.00	0.07	0.15	0.18	0.24	0.25	0.26
	467	-	-	0.00	0.11	0.14	0.20	0.26	0.24
	497	-	-	-	0.00	0.05	0.19	0.25	0.22
	527	-	-	-	-	0.00	0.20	0.27	0.23
	557	-	-	-	-	-	0.00	0.10	0.08
	587	-	-	-	-	-	-	0.00	0.05
	617	-	-	-	-	-	-	-	0.00

Figure 510: AssertJ-Core ILP MutLoss matrix for MAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	57.31	57.31	57.31	57.31	57.31	57.31	57.31
	437	-	58.49	58.49	58.49	58.49	58.49	58.49
	467	-	-	58.57	58.57	58.57	58.57	58.57
	497	-	-	-	58.34	58.34	58.34	58.34
	527	-	-	-	-	58.27	58.27	58.27
	557	-	-	-	-	-	58.83	58.83
	587	-	-	-	-	-	-	58.84
	617	-	-	-	-	-	-	-

Figure 511: AssertJ-Core Greedy SizRed matrix for SMAR

Version	407	437	467	497	527	557	587	617	
AssertJ-Core	407	0.00	0.07	0.09	0.09	0.09	0.17	0.12	0.19
	437	-	0.00	0.02	0.02	0.02	0.07	0.04	0.09
	467	-	-	0.00	0.00	0.00	0.04	0.02	0.06
	497	-	-	-	0.00	0.00	0.04	0.02	0.06
	527	-	-	-	-	0.00	0.04	0.02	0.06
	557	-	-	-	-	-	0.00	0.12	0.12
	587	-	-	-	-	-	-	0.00	0.00
	617	-	-	-	-	-	-	-	0.00

Figure 512: AssertJ-Core Greedy StmtLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617	
AssertJ-Core	407	0.00	0.12	0.12	0.17	0.18	0.35	0.40	0.38
	437	-	0.00	0.06	0.13	0.15	0.22	0.24	0.26
	467	-	-	0.00	0.09	0.10	0.17	0.22	0.20
	497	-	-	-	0.00	0.04	0.15	0.21	0.18
	527	-	-	-	-	0.00	0.16	0.25	0.22
	557	-	-	-	-	-	0.00	0.10	0.09
	587	-	-	-	-	-	-	0.00	0.06
	617	-	-	-	-	-	-	-	0.00

Figure 513: AssertJ-Core Greedy MutLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	57.41	57.41	57.41	57.41	57.41	57.41	57.41
	437	-	58.58	58.58	58.58	58.58	58.58	58.58
	467	-	-	58.66	58.66	58.66	58.66	58.66
	497	-	-	-	58.42	58.42	58.42	58.42
	527	-	-	-	-	58.33	58.33	58.33
	557	-	-	-	-	-	58.93	58.93
	587	-	-	-	-	-	-	58.89
	617	-	-	-	-	-	-	-

Figure 514: AssertJ-Core GE SizRed matrix for SMAR

Version	407	437	467	497	527	557	587	617	
AssertJ-Core	407	0.00	0.07	0.09	0.09	0.09	0.17	0.12	0.19
	437	-	0.00	0.02	0.02	0.02	0.07	0.04	0.09
	467	-	-	0.00	0.00	0.00	0.04	0.02	0.06
	497	-	-	-	0.00	0.00	0.04	0.02	0.06
	527	-	-	-	-	0.00	0.04	0.02	0.06
	557	-	-	-	-	-	0.00	0.10	0.10
	587	-	-	-	-	-	-	0.00	0.00
	617	-	-	-	-	-	-	-	0.00

Figure 515: AssertJ-Core GE StmtLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617	
AssertJ-Core	407	0.00	0.12	0.25	0.28	0.30	0.45	0.51	0.49
	437	-	0.00	0.06	0.12	0.13	0.21	0.24	0.26
	467	-	-	0.00	0.09	0.10	0.17	0.23	0.21
	497	-	-	-	0.00	0.05	0.16	0.22	0.19
	527	-	-	-	-	0.00	0.18	0.26	0.23
	557	-	-	-	-	-	0.00	0.10	0.09
	587	-	-	-	-	-	-	0.00	0.06
	617	-	-	-	-	-	-	-	0.00

Figure 516: AssertJ-Core GE MutLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	57.44	57.44	57.44	57.44	57.44	57.44	57.44
	437	-	58.63	58.63	58.63	58.63	58.63	58.63
	467	-	-	58.76	58.76	58.76	58.76	58.76
	497	-	-	-	58.46	58.46	58.46	58.46
	527	-	-	-	-	58.37	58.37	58.37
	557	-	-	-	-	-	59.01	59.01
	587	-	-	-	-	-	-	58.97
	617	-	-	-	-	-	-	-

Figure 517: AssertJ-Core GRE SizRed matrix for SMAR

Version	407	437	467	497	527	557	587	617	
AssertJ-Core	407	0.00	0.05	0.09	0.09	0.09	0.17	0.12	0.19
	437	-	0.00	0.02	0.02	0.02	0.07	0.04	0.09
	467	-	-	0.00	0.00	0.00	0.04	0.02	0.06
	497	-	-	-	0.00	0.00	0.04	0.02	0.06
	527	-	-	-	-	0.00	0.04	0.02	0.06
	557	-	-	-	-	-	0.00	0.21	0.21
	587	-	-	-	-	-	-	0.00	0.00
	617	-	-	-	-	-	-	-	0.00

Figure 518: AssertJ-Core GRE StmtLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617	
AssertJ-Core	407	0.00	0.17	0.38	0.48	0.51	0.62	0.63	0.60
	437	-	0.00	0.16	0.25	0.28	0.31	0.34	0.37
	467	-	-	0.00	0.11	0.14	0.17	0.23	0.21
	497	-	-	-	0.00	0.05	0.16	0.21	0.18
	527	-	-	-	-	0.00	0.18	0.25	0.22
	557	-	-	-	-	-	0.00	0.10	0.09
	587	-	-	-	-	-	-	0.00	0.01
	617	-	-	-	-	-	-	-	0.00

Figure 519: AssertJ-Core GRE MutLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	57.46	57.46	57.46	57.46	57.46	57.46	57.46
	437	-	58.63	58.63	58.63	58.63	58.63	58.63
	467	-	-	58.76	58.76	58.76	58.76	58.76
	497	-	-	-	58.46	58.46	58.46	58.46
	527	-	-	-	-	58.37	58.37	58.37
	557	-	-	-	-	-	59.01	59.01
	587	-	-	-	-	-	-	58.95
	617	-	-	-	-	-	-	-

Figure 520: AssertJ-Core HGS SizRed matrix for SMAR

Version	407	437	467	497	527	557	587	617	
AssertJ-Core	407	0.00	0.07	0.09	0.09	0.09	0.17	0.12	0.19
	437	-	0.00	0.02	0.02	0.02	0.07	0.04	0.09
	467	-	-	0.00	0.00	0.00	0.04	0.02	0.06
	497	-	-	-	0.00	0.00	0.04	0.02	0.06
	527	-	-	-	-	0.00	0.04	0.02	0.06
	557	-	-	-	-	-	0.00	0.14	0.13
	587	-	-	-	-	-	-	0.00	0.00
	617	-	-	-	-	-	-	-	0.00

Figure 521: AssertJ-Core HGS StmtLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617	
AssertJ-Core	407	0.00	0.12	0.26	0.31	0.33	0.47	0.55	0.51
	437	-	0.00	0.10	0.18	0.21	0.27	0.28	0.29
	467	-	-	0.00	0.11	0.14	0.17	0.25	0.21
	497	-	-	-	0.00	0.05	0.16	0.19	0.16
	527	-	-	-	-	0.00	0.16	0.23	0.19
	557	-	-	-	-	-	0.00	0.09	0.06
	587	-	-	-	-	-	-	0.00	0.05
	617	-	-	-	-	-	-	-	0.00

Figure 522: AssertJ-Core HGS MutLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	57.46	57.46	57.46	57.46	57.46	57.46	57.46
	437	-	58.63	58.63	58.63	58.63	58.63	58.63
	467	-	-	58.76	58.76	58.76	58.76	58.76
	497	-	-	-	58.46	58.46	58.46	58.46
	527	-	-	-	-	58.37	58.37	58.37
	557	-	-	-	-	-	59.03	59.03
	587	-	-	-	-	-	-	58.97
	617	-	-	-	-	-	-	-

Figure 523: AssertJ-Core ILP SizRed matrix for SMAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.05	0.09	0.09	0.09	0.17	0.12
	437	-	0.00	0.02	0.02	0.02	0.07	0.04
	467	-	-	0.00	0.00	0.00	0.04	0.02
	497	-	-	-	0.00	0.00	0.04	0.02
	527	-	-	-	-	0.00	0.04	0.02
	557	-	-	-	-	-	0.00	0.12
	587	-	-	-	-	-	-	0.00
	617	-	-	-	-	-	-	-

Figure 524: AssertJ-Core ILP StmtLoss matrix for SMAR

Version	407	437	467	497	527	557	587	617
AssertJ-Core	407	0.00	0.17	0.36	0.46	0.50	0.60	0.63
	437	-	0.00	0.12	0.21	0.24	0.27	0.30
	467	-	-	0.00	0.09	0.11	0.16	0.20
	497	-	-	-	0.00	0.05	0.16	0.22
	527	-	-	-	-	0.00	0.18	0.26
	557	-	-	-	-	-	0.00	0.12
	587	-	-	-	-	-	-	0.00
	617	-	-	-	-	-	-	-

Figure 525: AssertJ-Core ILP MutLoss matrix for SMAR



Version	125	155	185	215	245	275	305	335	365	395
MessagePack	125	87.15	87.15	87.15	87.15	87.15	87.15	87.15	87.15	87.15
	155	-	89.32	89.32	89.32	89.32	89.32	89.32	89.32	89.32
	185	-	-	89.43	89.43	89.43	89.43	89.43	89.43	89.43
	215	-	-	-	89.72	89.72	89.72	89.72	89.72	89.72
	245	-	-	-	-	92.90	92.90	92.90	92.90	92.90
	275	-	-	-	-	-	92.69	92.69	92.69	92.69
	305	-	-	-	-	-	-	92.11	92.11	92.11
	335	-	-	-	-	-	-	-	91.86	91.86
	365	-	-	-	-	-	-	-	-	91.62
	395	-	-	-	-	-	-	-	-	-

Figure 526: MessagePack Greedy SizRed matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395
MessagePack	125	0.00	0.53	0.61	0.61	1.07	1.08	0.86	1.05	1.21
	155	-	0.00	0.12	0.12	0.49	0.49	0.49	0.48	14.17
	185	-	-	0.00	0.19	0.70	0.70	0.47	0.50	0.56
	215	-	-	-	0.00	0.32	0.32	0.32	0.32	0.43
	245	-	-	-	-	0.00	0.00	0.00	0.00	0.15
	275	-	-	-	-	-	0.00	0.00	0.00	11.62
	305	-	-	-	-	-	-	0.00	0.03	0.20
	335	-	-	-	-	-	-	-	0.00	0.14
	365	-	-	-	-	-	-	-	-	0.00
	395	-	-	-	-	-	-	-	-	-

Figure 527: MessagePack Greedy StmtLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395
MessagePack	125	1.52	2.18	2.24	2.21	2.63	2.60	2.42	2.39	2.49
	155	-	1.34	1.41	1.41	1.56	1.56	1.39	1.36	1.45
	185	-	-	1.24	1.34	1.58	1.54	1.27	1.21	1.26
	215	-	-	-	1.08	1.32	1.29	1.12	1.08	1.10
	245	-	-	-	-	3.09	2.40	2.26	2.34	2.41
	275	-	-	-	-	-	2.25	2.14	2.25	2.36
	305	-	-	-	-	-	-	1.97	2.10	2.21
	335	-	-	-	-	-	-	-	2.02	2.08
	365	-	-	-	-	-	-	-	-	2.60
	395	-	-	-	-	-	-	-	-	-

Figure 528: MessagePack Greedy MutLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	86.92	86.92	86.92	86.92	86.92	86.92	86.92	86.92	86.92	
	155	-	89.32	89.32	89.32	89.32	89.32	89.32	89.32	89.32	
	185	-	-	89.59	89.59	89.59	89.59	89.59	89.59	89.59	
	215	-	-	-	89.86	89.86	89.86	89.86	89.86	89.86	
	245	-	-	-	-	93.17	93.17	93.17	93.17	93.17	
	275	-	-	-	-	-	92.86	92.86	92.86	92.86	
	305	-	-	-	-	-	-	92.29	92.29	92.29	
	335	-	-	-	-	-	-	-	92.04	92.04	
	365	-	-	-	-	-	-	-	-	91.88	
	395	-	-	-	-	-	-	-	-	-	91.64

Figure 529: MessagePack GE SizRed matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	0.00	0.44	0.57	0.56	1.03	1.04	0.82	1.01	1.01	1.17
	155	-	0.00	0.12	0.12	0.49	0.49	0.49	0.48	14.17	14.20
	185	-	-	0.00	0.00	0.35	0.35	0.35	0.34	13.46	13.43
	215	-	-	-	0.00	0.32	0.32	0.32	0.32	12.57	12.82
	245	-	-	-	-	0.00	0.00	0.00	0.00	11.83	12.01
	275	-	-	-	-	-	0.00	0.00	0.00	11.62	11.81
	305	-	-	-	-	-	-	0.00	0.03	11.29	11.48
	335	-	-	-	-	-	-	-	0.00	11.19	11.37
	365	-	-	-	-	-	-	-	-	0.00	0.30
	395	-	-	-	-	-	-	-	-	-	0.00

Figure 530: MessagePack GE StmtLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	1.34	1.89	2.03	2.00	2.42	2.39	2.22	2.16	2.26	2.58
	155	-	1.60	1.67	1.68	1.92	1.88	1.71	1.67	1.75	2.00
	185	-	-	1.46	1.50	1.76	1.72	1.54	1.53	1.64	1.82
	215	-	-	-	1.45	1.68	1.65	1.48	1.51	1.58	1.98
	245	-	-	-	-	3.30	2.53	2.40	2.60	2.72	3.07
	275	-	-	-	-	-	2.33	2.22	2.37	2.49	2.86
	305	-	-	-	-	-	-	2.93	3.11	3.26	3.61
	335	-	-	-	-	-	-	-	2.90	2.96	3.26
	365	-	-	-	-	-	-	-	-	2.83	3.14
	395	-	-	-	-	-	-	-	-	-	3.12

Figure 531: MessagePack GE MutLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395
MessagePack	125	87.62	87.62	87.62	87.62	87.62	87.62	87.62	87.62	87.62
	155	-	89.50	89.50	89.50	89.50	89.50	89.50	89.50	89.50
	185	-	-	89.89	89.89	89.89	89.89	89.89	89.89	89.89
	215	-	-	-	89.86	89.86	89.86	89.86	89.86	89.86
	245	-	-	-	-	93.26	93.26	93.26	93.26	93.26
	275	-	-	-	-	-	93.04	93.04	93.04	93.04
	305	-	-	-	-	-	-	92.46	92.46	92.46
	335	-	-	-	-	-	-	-	92.21	92.21
	365	-	-	-	-	-	-	-	-	92.14
	395	-	-	-	-	-	-	-	-	-
										91.72

Figure 532: MessagePack GRE SizRed matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395
MessagePack	125	0.00	0.40	0.52	0.48	0.69	0.69	0.69	0.68	0.67
	155	-	0.00	0.12	0.12	0.37	0.37	0.37	0.36	14.10
	185	-	-	0.00	0.00	0.23	0.23	0.23	0.23	13.36
	215	-	-	-	0.00	0.21	0.22	0.22	0.21	12.48
	245	-	-	-	-	0.00	0.00	0.00	0.00	11.83
	275	-	-	-	-	-	0.00	0.00	0.00	11.62
	305	-	-	-	-	-	-	0.00	0.10	11.35
	335	-	-	-	-	-	-	-	0.00	11.28
	365	-	-	-	-	-	-	-	-	0.00
	395	-	-	-	-	-	-	-	-	-
										0.83
										14.10
										13.59
										12.73
										12.01
										11.81
										11.53
										11.46
										0.39
										0.00

Figure 533: MessagePack GRE StmtLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395
MessagePack	125	1.09	1.93	2.03	1.93	2.07	2.02	2.01	1.74	1.87
	155	-	1.20	1.37	1.35	1.40	1.30	1.20	1.11	1.29
	185	-	-	2.27	2.19	2.19	2.00	1.96	1.74	1.85
	215	-	-	-	1.25	1.26	1.18	1.12	0.99	1.10
	245	-	-	-	-	2.92	3.33	3.24	3.30	3.44
	275	-	-	-	-	-	3.28	3.20	3.23	3.37
	305	-	-	-	-	-	-	3.27	3.37	3.52
	335	-	-	-	-	-	-	-	3.04	3.15
	365	-	-	-	-	-	-	-	-	3.19
	395	-	-	-	-	-	-	-	-	-
										2.19
										1.48
										2.37
										1.58
										3.82
										3.74
										3.85
										3.47
										3.54
										3.29

Figure 534: MessagePack GRE MutLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	87.62	87.62	87.62	87.62	87.62	87.62	87.62	87.62	87.62	
	155	-	89.50	89.50	89.50	89.50	89.50	89.50	89.50	89.50	
	185	-	-	89.74	89.74	89.74	89.74	89.74	89.74	89.74	
	215	-	-	-	90.00	90.00	90.00	90.00	90.00	90.00	
	245	-	-	-	-	93.35	93.35	93.35	93.35	93.35	
	275	-	-	-	-	-	93.13	93.13	93.13	93.13	
	305	-	-	-	-	-	-	92.46	92.46	92.46	
	335	-	-	-	-	-	-	-	92.21	92.21	
	365	-	-	-	-	-	-	-	-	91.97	
	395	-	-	-	-	-	-	-	-	-	91.72

Figure 535: MessagePack HGS SizRed matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	0.00	0.40	0.52	0.48	0.69	0.69	0.69	0.68	0.67	
	155	-	0.00	0.25	0.21	0.45	0.45	0.37	0.44	14.17	
	185	-	-	0.00	0.00	0.23	0.23	0.23	0.34	13.46	
	215	-	-	-	0.00	0.21	0.22	0.22	0.28	12.57	
	245	-	-	-	-	0.00	0.00	0.00	0.00	11.83	
	275	-	-	-	-	-	0.00	0.00	0.07	11.71	
	305	-	-	-	-	-	-	0.00	0.03	11.29	
	335	-	-	-	-	-	-	-	0.00	11.19	
	365	-	-	-	-	-	-	-	-	0.00	
	395	-	-	-	-	-	-	-	-	-	0.00

Figure 536: MessagePack HGS StmtLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	1.92	2.82	2.90	2.81	3.01	2.87	2.89	2.52	2.65	
	155	-	2.07	2.32	2.14	2.21	2.00	1.99	1.92	2.03	
	185	-	-	1.99	1.97	2.01	1.94	1.90	1.77	1.94	
	215	-	-	-	1.08	1.15	1.10	1.01	0.94	1.04	
	245	-	-	-	-	3.30	2.67	2.55	2.42	2.54	
	275	-	-	-	-	-	2.56	2.48	2.37	2.51	
	305	-	-	-	-	-	-	2.28	2.22	2.38	
	335	-	-	-	-	-	-	-	2.16	2.20	
	365	-	-	-	-	-	-	-	-	2.22	
	395	-	-	-	-	-	-	-	-	-	2.23

Figure 537: MessagePack HGS MutLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	87.62	87.62	87.62	87.62	87.62	87.62	87.62	87.62	87.62	
	155	-	89.50	89.50	89.50	89.50	89.50	89.50	89.50	89.50	
	185	-	-	89.89	89.89	89.89	89.89	89.89	89.89	89.89	
	215	-	-	-	90.00	90.00	90.00	90.00	90.00	90.00	
	245	-	-	-	-	93.35	93.35	93.35	93.35	93.35	
	275	-	-	-	-	-	93.13	93.13	93.13	93.13	
	305	-	-	-	-	-	-	92.55	92.55	92.55	
	335	-	-	-	-	-	-	-	92.30	92.30	
	365	-	-	-	-	-	-	-	-	92.14	
	395	-	-	-	-	-	-	-	-	-	91.81

Figure 538: MessagePack ILP SizRed matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	0.00	0.40	0.52	0.39	0.99	1.00	0.77	0.97	0.97	1.12
	155	-	0.00	0.45	0.49	0.69	0.62	0.41	0.56	0.72	0.68
	185	-	-	0.00	0.00	0.35	0.35	0.35	0.34	0.53	0.91
	215	-	-	-	0.00	0.32	0.32	0.32	0.32	0.49	0.88
	245	-	-	-	-	0.00	0.00	0.00	0.00	11.83	12.07
	275	-	-	-	-	-	0.00	0.00	0.00	11.62	11.87
	305	-	-	-	-	-	-	0.00	0.10	11.35	11.59
	335	-	-	-	-	-	-	-	0.00	11.19	11.40
	365	-	-	-	-	-	-	-	-	0.00	0.44
	395	-	-	-	-	-	-	-	-	-	0.00

Figure 539: MessagePack ILP StmtLoss matrix for SAR

Version	125	155	185	215	245	275	305	335	365	395	
MessagePack	125	2.00	2.04	2.17	2.14	2.45	2.43	2.28	2.20	2.29	2.62
	155	-	1.84	2.19	2.23	2.11	2.00	1.80	1.82	1.79	2.00
	185	-	-	1.84	1.88	2.04	2.03	1.90	1.83	1.88	2.32
	215	-	-	-	1.56	1.71	1.62	1.51	1.45	1.47	1.87
	245	-	-	-	-	3.28	3.62	3.50	3.45	3.57	3.97
	275	-	-	-	-	-	3.52	3.46	3.31	3.44	3.86
	305	-	-	-	-	-	-	2.98	3.13	3.28	3.66
	335	-	-	-	-	-	-	-	3.23	3.38	3.76
	365	-	-	-	-	-	-	-	-	3.42	3.80
	395	-	-	-	-	-	-	-	-	-	3.31

Figure 540: MessagePack ILP MutLoss matrix for SAR