## Socio-technical analysis result ( GRUB )

	range.date	<del></del>	sop devs 46	32 ml.only.devs	code.only.devs	∞ ml.code.devs	berc.ml.only.devs	0.1304	0.1739 berc.ml.code.devs	$\omega$ sponsored.devs	0.0652 ratio.sponsored	sponsored.core.devs	0.000 000 ratio.sponsored.core	6 num.tz	core.global.devs	ore.mail.devs	core.code.devs	org.silo	prima.donnas	10 radio.silence	o black.cloud	missing.links		st.congruence	communicability	00000 global.turnover	code.turnover
2		18 - 2013 18 - 2013			6 17		0.6957 $0.6279$	0.1304 $0.1977$	0.1739 $0.1744$	9	0.0032 $0.1047$	_	0.0000	_	17 29	27	8	13	0	-	0				0.769	0.0000 $0.2424$	0.0000 $0.1739$
2		1 - 2014		54	4		0.0279 $0.7538$	0.1977 $0.0615$	0.1744 $0.1846$	2	0.1047 $0.0308$	$\frac{3}{0}$	0.0938	15 12		26	o 5	2	0	19	0		0.000		0.8011	0.2424 $0.7285$	0.1739 $0.9583$
		1 - 2014 12 - 2014		49	2		0.7338	0.0615 $0.0625$	0.1540 $0.1562$	3	0.0308 $0.0938$	0		12 7	27 15	20 15	0		3	25 14	1		0.500 $1.000$		1.0000	0.7285 $1.0928$	1.1304
5		12 - 2014 14 - 2014		$\frac{25}{44}$	$\frac{2}{2}$		0.7812	0.0625 $0.0400$	0.1302 $0.0800$	0 0	0.0938	0	0.0000 $0.0000$	ι 5	$\frac{10}{20}$	20	0	0	3 0	22	0		1.000		1.0000 $1.0000$	0.5122	0.7692
6 6		18 - 2014 18 - 2014		27	0		0.7941	0.0400	0.0800 $0.2059$	2	0.0588	0	0.0000	11	16	16	0	0	0	13	0		1.000		1.0000	0.9122 $0.9286$	0.7092 $0.6154$
7		1 - 2014		43	2		0.7941	0.0385	0.2039 $0.1346$	1	0.0388 $0.0192$	0	0.0000	7	26	26	2	0	0	0	0		0.666		0.9259	0.3250 $0.4651$	0.5000
8		12015 $12 - 2015$		34	3		0.6800	0.0600	0.1540 $0.2600$	7	0.0132 $0.1400$	0	0.0000	10	22	22	$\frac{2}{2}$	0	0	0	0		0.666		0.9583	0.4681 $0.5686$	0.4800
9		05 - 2015		31	2		0.7209	0.0465	0.2326	5	0.1163	0	0.0000	18	20	20	$\frac{2}{2}$	0	0	16	0		0.800		0.9500	0.7097	0.7857
10		07 - 2015		53	2		0.8281	0.0312	0.1406	4	0.0625	0	0.0000	10	24	24	1	0	0	11	0		1.000		1.0000	0.3738	0.6957
11		0 - 2016		51	4	-	0.7969	0.0625	0.1406	3	0.0469	1	0.0769	15	28	28	5	2	0	21	0	-	0.555	-	0.8291	0.6094	0.5000
12		2016 - 2016		47	3		0.7581	0.0484	0.1935	3	0.0484	0	0.0000	11	24	$\frac{2}{24}$	1	0	0	19	0		1.000		1.0000	0.6190	0.6429
	Ξ.																										
	core.global.turnover	core.mail.turnover	core.code.turnover		ratio.smelly.quitters	rotio emolly dave	ratio.smeny.devs	global.truck	mail.truck	code.truck	closeness.centr	,	betweenness.centr	degree.centr	global.mod	)	mail.mod		code.mod		density	mail.only.core.devs	code.only.core.devs	ml.code.core.devs	ratio.mail.only.core	ratio.code.only.core	ratio.ml.code.core
1	0.0000	core.mail.	0.0000	0.00	000	0.260	9 0.630	TROOMS 14 0.60	іё 00 0.85	71 code	closeness 0.0647	0.447	2 0.66	18	$\frac{1}{0.4777}$	0.	1998		$\frac{900}{4924}$		159	15 mail.only.	1	1	0.8824	88 ratio.code.only.	0.0588
1 2	0.0000 0.4783	0.0000 0.4651	0.0000	0.18	000 375	0.260 0.360	9 0.630 5 0.662	180018 14 0.600 18 0.600	福 00 0.85 87 0.75	71 000	0.0647 0.0293	0.447 $0.494$	72 0.66 4 0.68	18 97	0.4777 0.3518	0. 3 0.	1998 1565	-0.	$\frac{90}{4924}$ $\frac{3024}{3024}$	0.0	159 0632	mail.only.	code.only.core.devs	1 3	0.8824 0.7500	0.0588 0.1562	$0.0588 \\ 0.0938$
$\frac{1}{2}$	0.0000 0.4783 0.5000	0.0000 0.4651 0.4906	0.0000 0.0000 0.6154	0.18 $0.40$	000 875 000	0.260 0.360 0.476	9 0.630 5 0.662 9 0.584	1000 14 0.600 18 0.600 16 0.573	記   回   00 0.85   87 0.75   38 0.68	71 00 75	0.0647 0.0293 0.1035	0.447 $0.494$ $0.527$	72 0.66 4 0.68 74 0.72	18 97 76	0.4777 0.3518 0.0076	0. 3 0. 5 0.	1998 1565 1280	-0. -0.	$\frac{90}{4924}$ $\frac{3024}{3006}$	$0.0 \\ 0.1$	159 0632 1005	15 mail.only.	1	1	0.8824	0.0588 0.0000 ratio.code.only.	0.0588 0.0938 0.1923
1 2 3 4	0.0000 0.4783 0.5000 0.9524	0.0000 0.4651 0.4906 0.9268	0.0000 $0.0000$ $0.6154$ $2.0000$	0.18 $0.40$ $0.39$	000 875 000 962	0.260 0.360 0.476 0.468	9 0.630 5 0.662 9 0.584 8 0.531	18 0.600 14 0.600 18 0.600 16 0.573 2 0.500	00 0.85 87 0.75 88 0.68 00 1.00	71 000 75 000	0.0647 0.0293 0.1035 0.1414	0.447 $0.494$ $0.527$ $0.472$	2 0.66 4 0.68 4 0.72 2 0.51	18 97 76 01	0.4777 0.3518 0.0076 0.0300	0. 3 0. 6 0. 0 0.	1998 1565 1280 0300	-0. -0. 0.	$ \frac{$\frac{9}{8}$}{4924} $ $ 3024 $ $ 3006 $ $ 0000 $	0.0 0.1 0.1	159 0632 1005 1028	is in incident in	1	1 3	0.8824 0.7500	0.0588 0.1562 0.0000 0.0000	0.0588 0.0938 0.1923 0.0000
1 2 3 4 5	0.0000 0.4783 0.5000 0.9524 0.5714	0.0000 0.4651 0.4906 0.9268 0.5714	0.0000 0.0000 0.6154 2.0000 0.0000	0.18 $0.40$ $0.39$ $0.38$	000 875 000 962 810	0.260 0.360 0.476 0.468 0.440	9 0.630 5 0.662 9 0.584 8 0.531 0 0.600	14 0.600 18 0.600 16 0.57 12 0.500 10 0.58	70 0.85 87 0.75 38 0.68 00 1.00 33 1.00	71 00 75 00 00	0.0647 0.0293 0.1035 0.1414 0.0510	0.447 0.494 0.527 0.472 0.392	72 0.66 44 0.68 74 0.72 81 0.51 89 0.48	18 97 76 01 82	0.4777 0.3518 0.0076 0.0300 0.1456	0. 3. 0. 3. 0. 4. 0. 6. 0.	1998 1565 1280 0300 1456	-0. -0. 0.		0.0 0.1 0.1 0.0	1159 0632 1005 1028 0833	15 24 21 15 20	1	1 3 5 0 0	0.8824 0.7500 0.8077 1.0000 1.0000	0.0588 0.1562 0.0000 0.0000 0.0000	0.0588 0.0938 0.1923 0.0000 0.0000
$ \begin{array}{r} 1\\2\\3\\4\\5\\6 \end{array} $	0.0000 0.4783 0.5000 0.9524 0.5714 0.7778	0.0000 0.4651 0.4906 0.9268 0.5714 0.7778	0.0000 0.0000 0.6154 2.0000 0.0000	0.18 0.40 0.39 0.38 0.41	000 875 000 962 810	0.260° 0.360° 0.476° 0.468° 0.440° 0.382°	9 0.630 5 0.662 9 0.584 8 0.531 0 0.600 4 0.529	170 170 170 170 170 170 170 170 170 170	Te	71 00 75 00 00 00	0.0647 0.0293 0.1035 0.1414 0.0510 0.1657	0.447 0.494 0.527 0.472 0.392 0.688	72 0.66 4 0.68 74 0.72 81 0.51 89 0.48 60 0.68	18 97 76 01 82 81	0.4777 0.3518 0.0076 0.0300 0.1456 0.1624	7 0. 8 0. 8 0. 9 0. 9 0. 9 0.	1998 1565 1280 0300 1456 1624	-0. -0. 0. 0.	4924 3024 3006 0000 0000 0000	0.0 0.1 0.1 0.0 0.0	1159 1632 1005 1028 1833 1998	.kiuo:lisuu 15 24 21 15 20 16	1	1 3 5 0	0.8824 0.7500 0.8077 1.0000 1.0000	0.0588 0.1562 0.0000 0.0000 0.0000 0.0000	0.0588 0.0938 0.1923 0.0000 0.0000 0.0000
3 4 5 6 7	0.0000 0.4783 0.5000 0.9524 0.5714 0.7778 0.4762	0.0000 0.4651 0.4906 0.9268 0.5714 0.7778 0.4762	0.0000 0.0000 0.6154 2.0000 0.0000 0.0000	0.18 0.40 0.39 0.38 0.41 0.40	000 875 000 962 810 103	0.260 0.360 0.476 0.468 0.440 0.382 0.038	9 0.630 5 0.662 9 0.584 8 0.531 0 0.600 4 0.529 5 0.500	100 100 100 100 100 100 100 100 100 100	Te	71 -00 -75 -00 -00 -00 -78	0.0647 0.0293 0.1035 0.1414 0.0510 0.1657 0.1477	0.447 0.494 0.527 0.472 0.392 0.688 0.576	72 0.66 44 0.68 74 0.72 71 0.51 79 0.48 70 0.68 77 0.53	18 (97 (76 (76 (77 (77 (77 (77 (77 (77 (77 (7	0.4777 $0.3518$ $0.0076$ $0.0300$ $0.1456$ $0.1624$ $0.5096$	7 0. 8 0. 9 0. 9 0. 9 0. 9 0. 9 0. 9 0.	1998 1565 1280 0300 1456 1624 5311	-0. -0. 0. 0. -0.	4924 3024 3006 0000 0000 3815	0.0 0.1 0.1 0.0 0.0 0.0	1159 0632 1005 1028 0833 0998	's fuoriem 15 24 21 15 20 16 25	1	1 3 5 0 0 0 1	0.8824 0.7500 0.8077 1.0000 1.0000 0.9259	0.0588 0.1562 0.0000 0.0000 0.0000 0.0000 0.0370	0.0588 0.0938 0.1923 0.0000 0.0000 0.0000 0.0370
3 4 5 6 7 8	0.0000 0.4783 0.5000 0.9524 0.5714 0.7778 0.4762 0.6667	0.0000 0.4651 0.4906 0.9268 0.5714 0.7778 0.4762 0.6667	0.0000 0.0000 0.6154 2.0000 0.0000 0.0000 0.0000	0.18 0.40 0.39 0.38 0.41 0.40 0.03	000 875 000 962 810 103 000	0.260 0.360 0.476 0.468 0.440 0.382 0.038 0.040	9 0.630 5 0.662 9 0.584 8 0.531 0 0.600 4 0.529 5 0.500 0 0.560	780 780 780 780 780 780 780 780 780 780	R	71 000 775 000 000 000 778 550	0.0647 0.0293 0.1035 0.1414 0.0510 0.1657 0.1477 0.1058	0.447 0.494 0.527 0.472 0.392 0.688 0.576 0.548	2 0.66 4 0.68 4 0.72 1 0.51 29 0.48 60 0.68 67 0.53 63 0.75	18 (97 (76 (76 (76 (77 (77 (77 (77 (77 (77 (7	0.4777 0.3518 0.0076 0.0300 0.1456 0.1624 0.5096 0.4613	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	1998 1565 1280 0300 1456 1624 5311 4579	-0. -0. 0. 0. -0.	4924 3024 3006 0000 0000 3815 0680	0.0 0.1 0.1 0.0 0.0 0.0 0.1	159 0632 1005 1028 0833 0998 0701 1029	15 24 21 15 20 16 25 20	1	1 3 5 0 0 0 1 2	0.8824 0.7500 0.8077 1.0000 1.0000 0.9259 0.9091	0.0588 0.1562 0.0000 0.0000 0.0000 0.0000 0.0370 0.0000	0.0588 0.0938 0.1923 0.0000 0.0000 0.0000 0.0370 0.0909
3 4 5 6 7 8 9	0.0000 0.4783 0.5000 0.9524 0.5714 0.7778 0.4762 0.6667 0.6190	0.0000 0.4651 0.4906 0.9268 0.5714 0.7778 0.4762 0.6667 0.6190	0.0000 0.0000 0.6154 2.0000 0.0000 0.0000 0.0000 0.0000	0.18 0.40 0.39 0.38 0.41 0.40 0.03	000 375 000 962 310 103 000 345 303	0.260° 0.360° 0.476° 0.468° 0.440° 0.382° 0.038° 0.040° 0.372°	9 0.630 5 0.662 9 0.584 8 0.531 0 0.600 4 0.529 5 0.500 0 0.560 1 0.534	78000000000000000000000000000000000000	R	71 000 75 000 000 000 78 50 633	0.0647 0.0293 0.1035 0.1414 0.0510 0.1657 0.1477 0.1058 0.1719	0.447 0.494 0.527 0.472 0.392 0.688 0.576 0.548	72     0.66       .4     0.68       .4     0.72       .1     0.51       .9     0.48       .60     0.68       .7     0.53       .3     0.75       .6     0.80	18 (97 (97 (97 (97 (97 (97 (97 (97 (97 (97	0.4777 $0.3518$ $0.0076$ $0.0300$ $0.1456$ $0.1624$ $0.5096$ $0.4613$ $0.1769$	0.000	1998 1565 1280 0300 1456 1624 5311 4579 1270	-0. -0. 0. 0. -0. -0.	4924 3024 3006 0000 0000 0000 3815 0680 4006	0.0 0.1 0.1 0.0 0.0 0.0 0.1 0.0	159 0632 1005 1028 0833 0998 0701 1029	xion: is with the second of th	1	1 3 5 0 0 0 1	0.8824 0.7500 0.8077 1.0000 1.0000 0.9259 0.9091 0.9000	0.0588 0.1562 0.0000 0.0000 0.0000 0.0370 0.0000 0.0000	0.0588 0.0938 0.1923 0.0000 0.0000 0.0000 0.0370 0.0909 0.1000
3 4 5 6 7 8 9	0.0000 0.4783 0.5000 0.9524 0.5714 0.7778 0.4762 0.6667 0.6190 0.5909	0.0000 0.4651 0.4906 0.9268 0.5714 0.7778 0.4762 0.6667 0.6190 0.5909	0.0000 0.0000 0.6154 2.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.6667	0.18 0.40 0.39 0.38 0.41 0.40 0.03 0.03	000 875 000 962 810 103 000 845 803	0.260 0.360 0.476 0.468 0.440 0.382 0.038 0.040 0.372 0.171	9 0.630 5 0.662 9 0.584 8 0.531 0 0.600 4 0.529 5 0.500 0 0.560 1 0.534 9 0.625	1	Te	771 000 775 000 000 778 750 333 991	0.0647 0.0293 0.1035 0.1414 0.0510 0.1657 0.1477 0.1058 0.1719 0.0777	0.447 0.494 0.527 0.472 0.392 0.688 0.576 0.548 0.691 0.642	72     0.66       .4     0.68       .4     0.72       .1     0.51       .9     0.48       .6     0.68       .7     0.53       .3     0.75       .6     0.80       .9     0.71	18 (97 (76 (76 (77 (77 (77 (77 (77 (77 (77 (7	0.4777 0.3518 0.0076 0.0300 0.1456 0.1624 0.5096 0.4613 0.1769 0.3551	7 0. 8 0. 6 0. 6 0. 6 0. 6 0. 7 0. 8 0. 9 0.	1998 1565 1280 0300 1456 1624 5311 4579 1270 3540	-0. -0. 0. 0. -0. -0.	4924 3024 3006 0000 0000 3815 0680 4006 5000	0.0 0.1 0.1 0.0 0.0 0.0 0.1 0.0	1159 0632 1005 1028 0833 0998 0701 1029 0952	'Arion Signal Si	1	1 3 5 0 0 1 2 2	0.8824 0.7500 0.8077 1.0000 1.0000 0.9259 0.9091 0.9000 0.9583	0.0588 0.1562 0.0000 0.0000 0.0000 0.0370 0.0000 0.0000 0.0000	0.0588 0.0938 0.1923 0.0000 0.0000 0.0000 0.0370 0.0909 0.1000 0.0417
3 4 5 6 7 8 9	0.0000 0.4783 0.5000 0.9524 0.5714 0.7778 0.4762 0.6667 0.6190	0.0000 0.4651 0.4906 0.9268 0.5714 0.7778 0.4762 0.6667 0.6190	0.0000 0.0000 0.6154 2.0000 0.0000 0.0000 0.0000 0.0000	0.18 0.40 0.39 0.38 0.41 0.40 0.03	000 875 000 962 810 103 000 845 803 000 795	0.260° 0.360° 0.476° 0.468° 0.440° 0.382° 0.038° 0.040° 0.372°	9 0.630 5 0.662 9 0.584 8 0.531 0 0.600 4 0.529 5 0.500 0 0.560 1 0.534 9 0.625 6 0.562	1	100   0.85   87   0.75   38   0.68   00   1.00   33   1.00   94   1.00   00   0.77   19   0.87   22   0.83   29   0.90   33   0.61	900 71 000 775 000 000 78 750 33 91 54	0.0647 0.0293 0.1035 0.1414 0.0510 0.1657 0.1477 0.1058 0.1719	0.447 0.494 0.527 0.472 0.392 0.688 0.576 0.548	2         0.66           .4         0.68           .4         0.72           .1         0.51           .9         0.48           .0         0.68           .7         0.53           .3         0.75           .6         0.80           .0         0.71           .5         0.76	18 (97 (76 (76 (76 (76 (76 (76 (76 (76 (76 (7	0.4777 $0.3518$ $0.0076$ $0.0300$ $0.1456$ $0.1624$ $0.5096$ $0.4613$ $0.1769$	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	1998 1565 1280 0300 1456 1624 5311 4579 1270	-0. -0. 0. 0. -0. -0. -0. -0.	4924 3024 3006 0000 0000 0000 3815 0680 4006	0.0 0.1 0.1 0.0 0.0 0.0 0.1 0.0 0.0	159 0632 1005 1028 0833 0998 0701 1029	xion: is with the second of th	1	1 3 5 0 0 0 1 2	0.8824 0.7500 0.8077 1.0000 1.0000 0.9259 0.9091 0.9000	0.0588 0.1562 0.0000 0.0000 0.0000 0.0370 0.0000 0.0000	0.0588 0.0938 0.1923 0.0000 0.0000 0.0000 0.0370 0.0909 0.1000

	Community smells: Pearson's correlation (GRUB)																						
	devs	ml.only.devs	code.only.devs	ml.code.devs	perc.ml.only.devs	perc.code.only.devs	perc.ml.code.devs	sponsored.devs	ratio.sponsored	sponsored.core.devs	ratio.sponsored.core	num.tz	core.global.devs	core.mail.devs	core.code.devs	org.silo	prima.donnas	radio.silence	black.cloud	missing.links	st.congruence	communicability	global.turnover
org.silo	0.72	0.45	0.98	0.57	-0.63	0.88	-0.01	0.65	0.24	0.96	0.81	0.40	0.50	0.39	0.83	-	-0.13	0.28	-0.13	0.82	-0.72	-0.90	-0.51
prima.donnas	-0.46	-0.48	-0.14	-0.40	0.08	-0.01	-0.11	-0.06	0.22	-0.12	-0.13	-0.32	-0.48	-0.48	-0.30	-0.13	-	-0.01	1.00	-0.19	0.27	0.23	0.65
radio.silence	0.33	0.37	0.22	0.06	0.10	0.14	-0.29	-0.15	-0.33	0.27	0.33	0.32	0.20	0.17	0.31	0.28	-0.01	-	-0.02	0.44	-0.00	-0.25	0.09
black.cloud	-0.48	-0.52	-0.13	-0.42	0.06	0.02	-0.11	-0.07	0.22	-0.13	-0.15	-0.34	-0.55	-0.57	-0.30	-0.13	1.00	-0.02	-	-0.20	0.27	0.22	0.65
missing.links	0.73	0.52	0.79	0.63	-0.53	0.69	0.05	0.44	0.06	0.73	0.64	0.44	0.64	0.54	0.92	0.82	-0.19	0.44	-0.20	-	-0.69	-0.89	-0.35
		core.global.turnover	core.mail.turnover	core.code.turnover	ratio.smelly.quitters	ratio.smelly.devs	global.truck	mail.truck	code.truck	closeness.centr	betweenness.centr	degree.centr	global.mod	mail.mod	code.mod	density	mail.only.core.devs	code.only.core.devs	ml.code.core.devs	ratio.mail.only.core	ratio.code.only.core	ratio.ml.code.core	

-0.28

-0.28

-0.09

-0.34

-0.26

0.08

-0.48

0.15

-0.49

0.19

0.14

-0.41

-0.77

-0.41

-0.12

-0.20

-0.42

-0.80

-0.42

-0.24

-0.13

0.37

-0.08

0.36

-0.14

-0.42

0.28

-0.15

0.38

-0.24

0.31

-0.47

0.02

-0.58

0.34

0.95

-0.13

0.05

-0.12

0.68

0.39

-0.31

0.40

-0.33

0.72

-0.75

0.35

-0.27

0.34

-0.89

0.92

-0.14

-0.00

-0.12

0.65

0.29

-0.34

0.34

-0.34

0.66

org.silo

prima.donnas

radio.silence

missing.links

black.cloud

-0.42

0.76

-0.09

0.76

-0.55

-0.45

0.73

-0.11

0.73

-0.58

-0.22

0.77

0.16

0.77

-0.19

-0.21

0.25

0.15

0.25

-0.11

0.17

0.33

0.89

0.32

0.30

0.59

-0.30

0.39

-0.28

0.44

0.42

-0.38

0.42

-0.37

0.34

-0.42

0.37

-0.18

0.37

-0.67

-0.58

0.26

-0.34

0.25

-0.46

## Community smells: Pearson's correlation - p-values ( GRUB )

					_	·		J ~				<b>,11</b>	001		au.	r	• • •	uu	' '	<b>4100</b>	,						
		devs	ml.only.devs	code.only.devs	ml.code.devs	perc.ml.onlv.devs	perc.code.only.devs	perc.ml.code.devs	sponsored.devs	ratio.sponsored	enoncara deves	aponeacone conde	ratio.sponsored.core	num.tz	core.global.devs	core.mail.devs	-	core.code.devs	org.silo	prima.donnas	radio.silence	black.cloud	missing.links	st.congruence	communicability	global.turnover	code.turnover
org.	.silo	0.01	0.15	0.00	0.05	0.03	0.00	0.97	0.02	0.46	0.0	0 0.	00 (	0.20	0.10	0.21	0.0	0	- 0.	.68 (	0.39	0.70	0.00	0.01	0.00	0.11	0.05
prima.don	nnas	0.13	0.12	0.67	0.19	0.79	0.96	0.73	0.85	0.50	0.7	1 0.	68	0.31	0.11	0.11	0.3	5 0.6	68	- (	0.98	0.00	0.55	0.39	0.46	0.03	0.05
radio.sile	ence	0.29	0.24	0.50	0.85	0.77	0.67	0.36	0.65	0.29	0.39	9 0.	29 (	0.31	0.53	0.59	0.3		39 O.	.98	-	0.95	0.15	1.00	0.43	0.79	0.45
black.cl		0.13	0.10	0.71	0.20	0.86		0.75	0.84	0.52				0.31	0.08	0.07	0.3				0.95	-	0.56	0.42	0.52	0.03	0.05
missing.li	inks	0.01	0.08	0.00	0.03	0.07	0.01	0.87	0.15	0.84	0.0	1 0.	02 (	0.15	0.03	0.07	0.0	0.0	00 0.	.55 (	0.15	0.56	-	0.01	0.00	0.29	0.34
_				core.global.turnover	core.mail.turnover	core.code.turnover	ratio.smelly.quitters	ratio.smelly.devs	global.truck	mail.truck	code.truck	closeness.centr	betweenness centr		degree.centr	global.mod	mail.mod	code.mod	density	mail.only.core.devs	code.only.		ml.code.core.devs	ratio.mail.only.core	ratio.code.only.core	ratio.ml.code.core	
		org.si										0.05	0.38					0.68	0.18	0.32						.37	
	-	a.donn										0.41	0.37					0.23	0.39	0.13						.28	
		io.silen										0.28	0.78					0.80	0.65	0.94						.28	
		ick.cloi										0.46	0.31					0.27	0.25	0.06						.30	
_	miss	ing.lin	ks $0$ .	.08 0	.06 0	.57 (	).74 (	.34 0	.15 0.	28 C	.02	0.13	0.41	0.5	o6 0.	70 0	.45	0.66	0.45	0.28	0.01	1 0.0	01 0.	00 0	.02 0	.02	

## Community smells: Spearman's correlation ( $\operatorname{GRUB}$ )

	devs	ml.only.devs	code.only.devs	ml.code.devs	perc.ml.only.devs	perc.code.only.devs	perc.ml.code.devs	sponsored.devs	ratio.sponsored	sponsored.core.devs	ratio.sponsored.core	num.tz	core.global.devs	core.mail.devs	core.code.devs	org.silo	, prima.donnas	radio.silence	black.cloud	missing.links	st.congruence	communicability	global.turnover
org.silo	0.58	0.51	0.87	0.42	-0.46	0.76		0.21	0.01	0.71	0.71	0.44	0.56	0.50	0.78	-	-0.21	0.38	-0.19	0.87	-0.86	-0.86	-0.20
prima.donnas	-0.48	-0.48	-0.23	-0.40	0.04	0.26		0.00	0.22	-0.13	-0.13	-0.35	-0.48	-0.48	-0.40	-0.21	-	-0.04	1.00	-0.32	0.32	0.32	0.50
radio.silence	0.40	0.40	0.26		0.11	0.24	-0.13	-0.22	-0.41	0.35	0.35	0.37	0.33	0.31	0.17	0.38		-	-0.10	0.20	-0.02	-0.08	0.16
black.cloud	-0.50	-0.50	-0.21	-0.40	0.00	0.35	-0.10	0.00	0.20	-0.15	-0.15	-0.35	-0.50	-0.50	-0.41	-0.19		-0.10	-	-0.32	0.32	0.31	0.50
missing.links	0.55	0.42	0.80	0.56		0.67	0.11	0.29	0.12	0.62	0.62	0.52	0.65	0.60	0.96	0.87	-0.32	0.20	-0.32		-0.96	-0.97	-0.26
		core.global.turnover	core.mail.turnover	core.code.turnover	ratio.smelly.quitters	ratio.smelly.devs	global.truck	mail.truck	code.truck	closeness.centr	betweenness.centr	degree.centr	global.mod	mail.mod	code.mod	density	mail.only.core.devs	code.only.core.devs	ml.code.core.devs	ratio.mail.only.core	ratio.code.only.core	ratio.ml.code.core	
	_					0.22								-0.16	-0.10	-0.14	0.19	0.52		-0.84	0.55	0.65	ļ
prima.do		0.50	0.50	0.58										-0.48	0.31	0.31	-0.44	-0.17	-0.40			-0.40	!
radio.sil	ence	-0.25	-0.30	0.07	-0.13	0.80	0.29	0.25 -	-0.19	-0.39				-0.63	0.07	-0.25	0.12	-0.30			-0.29	0.32	ļ
	_																						
black.c missing.		$0.50 \\ -0.65$	0.50 -0.68	0.58 -0.42		$0.40 \\ 0.03$	-0.30 - 0.28	-0.40 0.15				-0.40 $0.26$		-0.50 -0.05	0.30	0.40 -0.14	-0.51 $0.30$	-0.15 $0.53$	-0.41 $0.85$	0.40 -0.97	-0.15 $0.54$	-0.40 $0.82$	

## Community smells: Spearman's correlation - p-values ( GRUB )

		devs	ml.only.devs	code.only.devs	ml.code.devs	perc.ml.only.devs	perc.code.only.devs	perc.ml.code.devs	sponsored.devs	ratio.sponsored	-	sponsored.core.devs	ratio.sponsored.core	num.tz	core.global.devs	core.mail.devs	-		org.silo	prima.donnas	radio.silence	black.cloud	missing.links	st.congruence	communicability	global.turnover	code.turnover
_	.silo	0.05	0.09	0.00	0.18	0.13	0.00	0.85	0.51	0.97				0.15	0.06	0.10	0.0					0.57	0.00	0.00	0.00	0.55	0.39
prima.dor		0.11	0.11	0.48	0.20	0.89 $0.74$	0.41	0.68	1.00	0.50				0.26	0.11	0.11	0.1					0.00	0.31	0.31	0.32	0.12	0.12
radio.sile black.cl		$0.20 \\ 0.12$	$0.19 \\ 0.12$	$0.42 \\ 0.53$	$0.76 \\ 0.22$	0.74 $1.00$	$0.45 \\ 0.29$	$0.68 \\ 0.77$	0.50 $1.00$	0.18 $0.56$				0.24 $0.29$	0.29 $0.12$	$0.32 \\ 0.11$	$0.5 \\ 0.2$			.89 .00 (	- ).77	0.77	$0.53 \\ 0.34$	$0.94 \\ 0.34$	$0.80 \\ 0.35$	$0.63 \\ 0.12$	$0.32 \\ 0.12$
missing.l		0.12 $0.06$	0.12 $0.18$	0.00	0.22	0.05	0.29 $0.02$	0.74	0.35	0.50				0.29	0.12 $0.02$	0.11	0.2					0.34	0.04	0.00	0.00	0.12 $0.44$	0.12 $0.23$
				core.global.turnover	core.mail.turnover	core.code.turnover	ratio.smelly.quitters	ratio.smelly.devs	${ m global.truck}$	mail.truck	code.truck	closeness.centr	7-1		degree.centr	global.mod	mail.mod	code.mod	density	mail.only.core.devs			ml.code.core.devs	ratio.mail.only.core	ratio.code.only.core	ratio.ml.code.core	
		org.si									0.01	0.02	0.2				.61	0.75	0.67	0.55						.02	
	-	a.donn lo.silen									).20 ).55	$0.50 \\ 0.21$	$0.33 \\ 0.7$				.11 .03	$0.33 \\ 0.84$	0.33 $0.43$	$0.15 \\ 0.72$						.20 .31	
		ick.cloi									0.22	0.21 $0.56$	0.7				.03	0.36	0.43 $0.22$	0.12	0.66					.22	
		ing.lin									0.00	0.20	0.4				.87	0.91	0.67	0.35						.00	