

# Department of Statistics

## COURSE STATS 330/762

### Assignment 4, 2012

Instructions: Hand in your completed assignment to the Student Resource Centre by **4pm September 27<sup>th</sup>**.

**Note: There is an extra question in this assignment for STATS 762 students only. This will be posted separately.**

The data set for this assignment is in the file **dust.txt** which is available on the course web page. The data come from a survey of 1246 employees in a factory in Munich, Germany. The survey was designed to ascertain possible risk factors for the prevalence of a chronic bronchial reaction. The variables are

**smoking :** 1=employee smokes , 0=employee doesn't smoke;

**dust :** Dust concentration (mg/cm<sup>3</sup>) at working place;

**years:** Years of exposure to dust;

**branch :** chronic bronchial reaction, no = 0, yes = 1 (response)

**Task 1.** Read in the data and make a data frame. Do the usual checks for typographical errors. Print out the first 10 lines of the data file. [5 marks]

**Task 2.** Draw some plots that will shed light on the relationships (if any) between the response and the explanatory variables. Comment on what you find. [10 marks]

**Task 3.** Fit a logistic regression model to the data, carrying out the usual diagnostic checks. Does this identify any possible risk factors for bronchitis? What is the effect of smoking and dust exposure (both in duration and concentration) on the prevalence of a bronchial reaction? Is there an interaction between smoking and dust exposure? Are these conclusions dependent on the effect of one or two observations?

**Note:** to answer this question, it may be helpful to draw a graph of the probability of having a chronic bronchial reaction, versus concentration, and the same for years of exposure. [15 marks]

**Task 4.** Do the explanatory variables have any ability to predict the prevalence of a bronchial reaction? [10 marks]

**Total for assignment: 40 marks**

**Data set**

Obs	branch	dust	smoke	years	obs	branch	dust	smoke	years	obs	branch	dust	smoke	years
1	0	0.20	1	5	416	0	0.56	1	9	831	0	4.80	0	5
2	0	0.25	1	4	417	1	0.56	1	27	832	0	4.81	1	31
3	0	0.25	1	8	418	0	0.56	1	43	833	1	4.82	1	33
4	0	0.25	1	4	419	0	0.56	0	27	834	0	4.89	1	9
5	0	0.25	1	4	420	0	0.56	0	34	835	0	4.89	1	9
6	0	0.25	1	8	421	0	0.56	1	32	836	0	4.89	1	9
7	0	0.25	1	8	422	1	0.56	1	48	837	0	4.90	1	10
8	0	0.25	1	4	423	0	0.56	0	34	838	0	4.90	1	10
9	1	0.25	1	8	424	0	0.56	1	32	839	0	4.90	1	10
10	0	0.29	1	7	425	0	0.56	1	9	840	0	4.91	1	11
11	0	0.29	0	7	426	0	0.56	1	34	841	0	4.91	1	23
12	0	0.29	1	7	427	0	0.56	1	32	842	0	4.91	1	11
13	0	0.30	0	10	428	0	0.56	1	27	843	0	4.92	1	12
14	0	0.30	1	10	429	0	0.56	1	32	844	0	4.92	0	12
15	0	0.30	1	10	430	0	0.57	0	23	845	0	4.92	1	12
16	0	0.31	1	13	431	1	0.57	1	30	846	0	4.92	0	12
17	0	0.31	0	13	432	0	0.57	1	28	847	0	4.92	0	12
18	0	0.31	1	13	433	0	0.57	1	35	848	0	4.92	1	12
19	0	0.31	1	16	434	0	0.60	1	5	849	0	4.92	0	13
20	0	0.31	1	13	435	1	0.60	0	35	850	0	4.92	1	12
21	0	0.31	1	16	436	0	0.61	1	33	851	1	4.92	1	13
22	0	0.31	1	13	437	0	0.62	1	29	852	1	4.92	0	12
23	1	0.33	1	6	438	0	0.62	1	29	853	0	4.92	1	13
24	0	0.33	0	21	439	0	0.63	1	8	854	0	4.93	1	14
25	0	0.33	0	18	440	1	0.64	1	28	855	0	4.93	1	14
26	0	0.33	1	12	441	0	0.64	0	28	856	0	4.93	1	15
27	1	0.33	1	21	442	1	0.64	1	28	857	0	4.93	1	14
28	0	0.33	0	24	443	0	0.64	1	28	858	0	4.93	1	15
29	0	0.33	1	15	444	0	0.64	1	36	859	0	4.94	0	18
30	0	0.33	1	12	445	0	0.64	1	28	860	0	4.94	0	18
31	0	0.33	1	12	446	0	0.64	1	33	861	1	4.94	1	17
32	0	0.33	0	12	447	0	0.64	1	33	862	0	4.94	1	16
33	0	0.33	1	6	448	0	0.65	1	31	863	0	4.94	0	18
34	0	0.33	1	24	449	0	0.66	0	29	864	1	4.95	1	21

35	0	0.33	0	12	450	0	0.66	1	32	865	0	4.95	1	22
36	0	0.33	1	27	451	0	0.66	1	35	866	1	4.95	1	19
37	0	0.33	1	9	452	0	0.66	0	35	867	0	4.95	1	21
38	0	0.33	1	15	453	0	0.66	1	32	868	1	4.95	1	20
39	1	0.33	1	24	454	0	0.67	0	46	869	1	4.95	1	21
40	0	0.34	1	32	455	0	0.67	1	30	870	1	4.96	1	26
41	0	0.34	1	29	456	0	0.67	1	18	871	1	4.96	1	23
42	0	0.34	1	38	457	0	0.67	0	12	872	1	4.96	1	24
43	0	0.35	1	31	458	0	0.67	1	18	873	1	4.96	1	24
44	1	0.35	1	23	459	0	0.67	0	15	874	1	4.96	1	27
45	0	0.35	1	17	460	0	0.67	0	12	875	1	4.96	1	24
46	0	0.35	1	17	461	0	0.67	0	30	876	1	4.96	1	24
47	0	0.35	1	23	462	0	0.67	0	12	877	0	4.96	1	23
48	0	0.35	0	23	463	0	0.67	1	18	878	1	4.96	0	28
49	0	0.35	1	17	464	1	0.67	0	30	879	0	4.96	0	23
50	1	0.35	1	48	465	0	0.67	1	18	880	0	4.97	1	38
51	0	0.35	1	17	466	0	0.67	0	12	881	1	4.97	1	30
52	1	0.35	1	23	467	0	0.67	1	15	882	1	4.97	1	29
53	0	0.35	0	17	468	0	0.67	0	30	883	1	4.97	0	35
54	0	0.35	0	37	469	0	0.67	1	18	884	0	4.97	0	38
55	1	0.35	1	23	470	0	0.67	1	15	885	1	4.97	1	36
56	0	0.35	1	17	471	0	0.67	1	18	886	0	4.97	1	29
57	0	0.35	1	23	472	0	0.67	1	27	887	0	4.97	0	39
58	1	0.35	1	17	473	0	0.67	0	27	888	1	4.97	1	33
59	0	0.35	1	17	474	0	0.67	1	18	889	1	4.97	1	37
60	1	0.36	1	28	475	1	0.67	1	27	890	0	4.97	1	31
61	0	0.36	0	28	476	0	0.67	1	15	891	1	4.98	1	45
62	0	0.36	1	33	477	1	0.68	1	22	892	0	4.98	1	43
63	0	0.36	1	14	478	1	0.68	0	22	893	1	4.98	1	42
64	0	0.36	0	14	479	0	0.68	0	19	894	0	4.98	1	46
65	1	0.36	1	22	480	1	0.68	0	19	895	0	4.98	1	42
66	0	0.36	0	36	481	1	0.68	1	22	896	1	4.98	1	44
67	0	0.36	1	14	482	1	0.68	1	31	897	1	4.98	1	42
68	0	0.36	1	11	483	0	0.68	1	19	898	0	4.98	1	42
69	0	0.36	1	11	484	0	0.68	0	19	899	0	4.98	1	43
70	0	0.36	0	14	485	0	0.68	1	22	900	1	4.98	1	46
71	1	0.36	1	11	486	0	0.68	1	37	901	0	4.98	0	44
72	0	0.36	0	44	487	0	0.69	1	16	902	0	4.98	1	44
73	1	0.36	1	22	488	0	0.69	1	16	903	1	5.00	1	27
74	0	0.36	0	11	489	0	0.69	1	13	904	1	5.00	1	31
75	0	0.36	0	11	490	1	0.69	1	13	905	0	5.00	0	23

76	0	0.36	0	11	491	0	0.69	1	13	906	0	5.00	0	26
77	0	0.36	1	22	492	0	0.69	1	16	907	0	5.02	0	43
78	0	0.36	1	11	493	0	0.69	1	26	908	0	5.03	1	33
79	1	0.36	0	39	494	0	0.69	1	16	909	0	5.03	1	35
80	0	0.36	1	14	495	0	0.69	0	35	910	0	5.04	1	28
81	0	0.36	1	22	496	0	0.69	0	16	911	0	5.04	1	25
82	1	0.36	1	28	497	0	0.69	1	16	912	1	5.06	1	33
83	0	0.36	1	45	498	0	0.69	0	36	913	0	5.07	0	29
84	0	0.36	1	36	499	1	0.69	0	16	914	0	5.07	0	29
85	0	0.36	1	36	500	0	0.69	1	13	915	0	5.08	0	24
86	0	0.36	1	11	501	0	0.69	1	13	916	1	5.09	1	44
87	1	0.36	1	28	502	0	0.69	1	16	917	1	5.09	1	45
88	0	0.36	1	14	503	0	0.69	0	16	918	1	5.10	1	41
89	0	0.36	1	11	504	0	0.69	0	13	919	0	5.14	1	36
90	0	0.37	1	35	505	1	0.69	1	16	920	0	5.15	1	26
91	1	0.37	0	30	506	0	0.70	0	40	921	0	5.15	1	34
92	0	0.37	0	41	507	0	0.70	1	10	922	0	5.15	1	40
93	1	0.37	1	30	508	1	0.70	1	37	923	0	5.16	0	25
94	0	0.37	1	30	509	0	0.70	1	20	924	0	5.17	1	35
95	1	0.37	1	19	510	1	0.70	0	43	925	0	5.18	1	33
96	0	0.37	1	27	511	1	0.70	1	33	926	0	5.19	1	21
97	0	0.37	1	41	512	0	0.70	0	20	927	0	5.19	1	37
98	0	0.37	1	38	513	1	0.70	0	27	928	0	5.20	0	20
99	0	0.37	0	52	514	1	0.70	0	23	929	1	5.21	1	43
100	0	0.37	1	19	515	1	0.71	0	24	930	0	5.21	1	28
101	0	0.37	1	19	516	0	0.71	1	21	931	0	5.22	0	27
102	1	0.37	1	19	517	1	0.71	1	21	932	0	5.23	0	26
103	1	0.37	1	49	518	0	0.71	1	14	933	0	5.23	1	40
104	1	0.37	1	49	519	0	0.71	0	14	934	1	5.24	0	38
105	1	0.37	1	19	520	0	0.71	0	14	935	0	5.25	0	28
106	0	0.37	1	30	521	1	0.71	1	17	936	1	5.29	0	21
107	0	0.37	1	19	522	0	0.71	1	17	937	1	5.29	1	14
108	1	0.37	1	38	523	0	0.71	0	14	938	1	5.32	1	28
109	0	0.37	0	19	524	0	0.71	0	17	939	0	5.35	1	23
110	0	0.37	1	46	525	0	0.71	1	14	940	0	5.36	1	39
111	0	0.37	0	41	526	1	0.71	1	17	941	0	5.36	0	11
112	1	0.37	1	41	527	1	0.71	1	35	942	0	5.37	0	35
113	1	0.38	1	34	528	0	0.71	0	14	943	0	5.38	1	32
114	0	0.38	1	16	529	0	0.71	1	14	944	0	5.41	0	41
115	0	0.38	1	8	530	0	0.71	0	17	945	0	5.43	1	28
116	0	0.38	0	37	531	1	0.71	0	42	946	1	5.44	1	32

117	0	0.38	0	13	532	0	0.71	1	17	947	0	5.46	0	24
118	0	0.38	1	29	533	0	0.71	1	17	948	0	5.48	1	21
119	0	0.38	0	40	534	1	0.71	1	14	949	0	5.50	1	38
120	0	0.38	1	8	535	0	0.71	1	14	950	0	5.50	1	22
121	0	0.38	1	26	536	0	0.71	1	21	951	0	5.50	0	48
122	0	0.38	1	16	537	0	0.71	0	14	952	0	5.50	1	32
123	0	0.38	0	21	538	1	0.71	1	17	953	0	5.52	0	21
124	0	0.38	0	21	539	0	0.71	1	21	954	0	5.53	1	19
125	0	0.38	0	21	540	0	0.71	1	14	955	0	5.53	1	36
126	0	0.38	1	29	541	0	0.71	1	24	956	0	5.54	1	35
127	0	0.38	0	21	542	1	0.71	0	17	957	0	5.54	1	35
128	0	0.38	0	13	543	0	0.71	0	41	958	0	5.55	1	11
129	0	0.38	1	29	544	1	0.71	1	14	959	0	5.55	1	11
130	1	0.38	1	34	545	0	0.71	1	14	960	0	5.55	1	11
131	0	0.38	1	13	546	0	0.71	1	14	961	1	5.56	1	9
132	1	0.38	1	29	547	0	0.71	0	14	962	0	5.56	1	9
133	0	0.38	0	39	548	1	0.71	1	24	963	0	5.56	1	9
134	0	0.38	0	13	549	0	0.71	1	48	964	0	5.57	1	14
135	0	0.38	1	8	550	0	0.71	1	49	965	0	5.57	1	28
136	0	0.38	1	13	551	0	0.71	1	31	966	0	5.57	0	28
137	0	0.38	1	13	552	0	0.71	0	14	967	0	5.57	1	28
138	1	0.39	1	23	553	1	0.72	0	39	968	1	5.58	1	19
139	0	0.39	1	33	554	1	0.72	1	25	969	0	5.58	0	31
140	0	0.39	1	18	555	0	0.72	1	46	970	1	5.58	1	19
141	1	0.39	1	28	556	1	0.72	1	32	971	0	5.58	1	36
142	0	0.39	1	31	557	0	0.73	1	15	972	1	5.59	1	22
143	0	0.39	1	23	558	0	0.75	1	16	973	1	5.60	1	25
144	0	0.39	0	38	559	1	0.75	1	12	974	0	5.60	1	10
145	0	0.39	1	28	560	1	0.75	0	44	975	0	5.60	1	10
146	0	0.39	1	51	561	0	0.76	0	38	976	0	5.60	1	25
147	0	0.39	0	18	562	0	0.77	1	30	977	0	5.60	1	5
148	0	0.39	1	28	563	0	0.78	0	27	978	1	5.60	1	20
149	0	0.39	0	31	564	0	0.78	1	23	979	1	5.61	1	49
150	0	0.39	1	31	565	0	0.78	1	32	980	0	5.61	1	44
151	0	0.39	1	41	566	0	0.78	1	32	981	0	5.61	1	28
152	0	0.39	0	38	567	0	0.79	0	33	982	1	5.61	1	18
153	0	0.39	1	18	568	0	0.79	1	28	983	0	5.61	0	46
154	0	0.39	1	28	569	0	0.79	1	29	984	0	5.61	1	28
155	0	0.39	1	18	570	0	0.79	1	29	985	1	5.61	1	23
156	0	0.39	1	18	571	0	0.81	1	26	986	1	5.61	1	41
157	1	0.39	1	38	572	0	0.81	1	26	987	0	5.61	0	41

158	0	0.39	1	31	573	0	0.81	1	43	988	0	5.61	1	38
159	0	0.39	1	33	574	0	0.82	1	11	989	1	5.61	1	33
160	0	0.39	1	23	575	0	0.82	0	11	990	1	5.61	1	18
161	0	0.39	1	41	576	0	0.82	0	11	991	1	5.61	0	41
162	1	0.39	1	28	577	0	0.83	1	12	992	1	5.61	0	38
163	0	0.39	1	36	578	0	0.84	1	19	993	0	5.62	1	13
164	0	0.40	1	30	579	0	0.90	1	42	994	1	5.62	0	29
165	0	0.40	0	10	580	0	0.91	0	11	995	0	5.62	0	26
166	0	0.40	1	35	581	0	0.92	1	26	996	0	5.62	1	29
167	0	0.40	1	30	582	0	0.97	1	34	997	1	5.62	1	21
168	0	0.40	1	20	583	0	1.00	0	32	998	0	5.62	1	21
169	0	0.40	0	15	584	0	1.06	1	32	999	1	5.62	0	21
170	0	0.40	1	47	585	0	1.07	1	44	1000	0	5.62	0	21
171	0	0.40	0	20	586	0	1.11	1	35	1001	0	5.62	1	21
172	1	0.40	1	10	587	0	1.15	1	26	1002	0	5.62	1	13
173	0	0.40	1	10	588	0	1.19	1	43	1003	0	5.62	1	29
174	0	0.40	1	20	589	0	1.19	1	31	1004	1	5.63	1	43
175	0	0.40	1	20	590	1	1.20	0	41	1005	0	5.63	0	51
176	0	0.40	1	10	591	0	1.20	1	30	1006	0	5.63	1	43
177	0	0.40	0	15	592	0	1.20	1	10	1007	1	5.63	1	32
178	0	0.40	0	50	593	0	1.20	1	25	1008	0	5.63	0	35
179	0	0.40	1	10	594	1	1.21	1	28	1009	1	5.63	1	24
180	0	0.40	1	15	595	0	1.23	1	26	1010	1	5.63	1	32
181	0	0.40	1	35	596	1	1.24	1	29	1011	1	5.63	1	27
182	0	0.40	1	43	597	0	1.24	0	41	1012	0	5.65	1	23
183	0	0.40	0	10	598	0	1.24	1	25	1013	0	5.65	1	26
184	0	0.40	1	5	599	0	1.26	0	27	1014	0	5.67	1	21
185	0	0.40	1	40	600	1	1.26	0	38	1015	1	5.70	1	40
186	0	0.40	0	45	601	0	1.27	1	33	1016	0	5.70	1	23
187	0	0.40	1	10	602	0	1.27	1	33	1017	0	5.71	1	34
188	0	0.40	0	20	603	0	1.28	1	29	1018	0	5.74	1	27
189	1	0.40	1	48	604	0	1.29	1	31	1019	0	5.75	1	24
190	0	0.40	0	10	605	0	1.29	0	31	1020	0	5.75	1	24
191	0	0.40	0	20	606	0	1.30	1	33	1021	0	5.80	1	30
192	0	0.40	1	20	607	0	1.30	1	37	1022	0	5.80	0	25
193	0	0.40	1	20	608	0	1.31	1	32	1023	0	5.81	0	21
194	0	0.40	1	15	609	0	1.31	1	39	1024	1	5.81	1	36
195	0	0.40	1	15	610	0	1.31	0	39	1025	0	5.81	0	27
196	0	0.41	1	17	611	0	1.34	0	35	1026	0	5.82	0	45
197	0	0.41	1	22	612	1	1.35	1	40	1027	1	5.85	1	26
198	1	0.41	1	44	613	0	1.36	0	36	1028	0	5.86	0	36

199	0	0.41	1	37	614	0	1.37	1	35	1029	0	5.86	1	29
200	0	0.41	1	34	615	0	1.37	0	30	1030	1	5.88	1	34
201	1	0.41	1	49	616	0	1.38	1	40	1031	1	5.90	1	21
202	0	0.41	1	22	617	0	1.38	0	32	1032	0	5.91	0	22
203	0	0.41	1	32	618	0	1.39	1	31	1033	1	5.95	1	22
204	0	0.41	1	41	619	0	1.40	1	35	1034	1	5.95	1	22
205	0	0.41	1	32	620	0	1.40	1	5	1035	0	5.96	1	27
206	0	0.41	0	27	621	0	1.40	0	5	1036	0	5.97	1	32
207	0	0.41	1	27	622	0	1.40	1	5	1037	0	6.00	0	19
208	0	0.41	1	17	623	0	1.40	1	5	1038	0	6.00	1	22
209	0	0.41	1	41	624	0	1.41	1	29	1039	0	6.03	1	32
210	0	0.41	1	37	625	0	1.41	1	39	1040	0	6.05	0	38
211	0	0.41	1	29	626	0	1.41	1	27	1041	0	6.06	1	33
212	0	0.41	1	29	627	0	1.42	1	33	1042	0	6.06	1	35
213	0	0.41	1	27	628	0	1.43	1	7	1043	1	6.08	0	38
214	1	0.41	1	44	629	0	1.43	1	7	1044	0	6.09	0	22
215	0	0.41	1	39	630	0	1.43	0	7	1045	0	6.11	1	47
216	1	0.41	1	32	631	0	1.43	0	7	1046	0	6.12	1	25
217	0	0.42	1	24	632	0	1.43	0	7	1047	0	6.12	1	25
218	0	0.42	1	31	633	0	1.43	1	7	1048	0	6.12	1	26
219	0	0.42	1	33	634	0	1.43	0	7	1049	0	6.13	1	32
220	1	0.42	1	26	635	0	1.43	1	7	1050	0	6.13	0	24
221	0	0.42	1	19	636	0	1.43	1	7	1051	0	6.13	1	40
222	0	0.42	1	12	637	0	1.44	0	9	1052	0	6.14	1	21
223	0	0.42	1	19	638	0	1.44	1	36	1053	0	6.14	0	7
224	0	0.42	1	19	639	0	1.44	1	32	1054	0	6.14	1	7
225	1	0.42	1	19	640	0	1.44	0	9	1055	0	6.14	1	7
226	1	0.42	0	19	641	0	1.44	1	9	1056	0	6.14	1	35
227	0	0.42	1	12	642	0	1.44	0	9	1057	0	6.17	0	6
228	0	0.42	1	31	643	0	1.44	1	9	1058	0	6.17	1	6
229	0	0.42	1	12	644	0	1.44	1	9	1059	1	6.17	1	40
230	0	0.42	1	12	645	1	1.45	1	11	1060	0	6.17	0	46
231	0	0.42	1	38	646	1	1.45	0	11	1061	0	6.21	0	14
232	1	0.42	1	31	647	0	1.45	1	11	1062	0	6.22	1	9
233	0	0.42	1	26	648	0	1.45	1	11	1063	0	6.22	1	27
234	1	0.42	1	33	649	0	1.45	1	11	1064	0	6.23	0	26
235	0	0.42	1	36	650	0	1.45	1	11	1065	1	6.24	1	21
236	0	0.43	1	42	651	0	1.45	0	11	1066	0	6.24	1	21
237	0	0.43	0	42	652	0	1.45	1	11	1067	1	6.24	1	17
238	0	0.43	0	30	653	0	1.45	1	11	1068	1	6.25	1	16
239	1	0.43	1	21	654	0	1.46	1	13	1069	0	6.25	0	24

240	0	0.43	1	28	655	0	1.46	1	13	1070	1	6.25	0	16
241	0	0.43	1	23	656	0	1.46	1	13	1071	0	6.25	1	8
242	0	0.43	1	21	657	0	1.47	1	15	1072	1	6.25	1	32
243	0	0.43	1	23	658	1	1.47	1	17	1073	1	6.25	1	32
244	1	0.43	1	30	659	0	1.47	1	17	1074	1	6.25	1	32
245	0	0.43	1	23	660	1	1.47	1	32	1075	1	6.26	1	42
246	0	0.43	0	21	661	0	1.47	1	17	1076	1	6.26	0	19
247	0	0.43	1	23	662	1	1.47	1	30	1077	1	6.26	1	38
248	0	0.43	1	7	663	0	1.47	0	32	1078	1	6.26	1	31
249	0	0.43	1	28	664	1	1.47	1	19	1079	1	6.26	1	23
250	0	0.43	1	46	665	1	1.48	1	29	1080	1	6.26	1	23
251	0	0.43	0	23	666	1	1.48	1	21	1081	1	6.26	0	35
252	0	0.43	1	21	667	1	1.48	1	29	1082	0	6.26	1	38
253	1	0.44	1	16	668	0	1.48	1	21	1083	0	6.26	1	19
254	1	0.44	1	34	669	0	1.48	0	21	1084	1	6.26	1	38
255	0	0.44	0	36	670	0	1.48	1	33	1085	1	6.26	0	42
256	0	0.44	1	18	671	0	1.48	0	27	1086	0	6.26	1	38
257	0	0.44	1	39	672	0	1.48	1	27	1087	0	6.26	1	35
258	0	0.44	1	34	673	0	1.48	0	21	1088	0	6.26	1	42
259	0	0.44	1	9	674	0	1.48	1	29	1089	0	6.27	1	15
260	0	0.44	0	27	675	1	1.48	0	21	1090	0	6.27	0	40
261	1	0.44	1	45	676	1	1.48	1	23	1091	1	6.27	1	15
262	0	0.44	1	9	677	0	1.49	1	41	1092	1	6.27	1	22
263	0	0.44	1	32	678	1	1.49	1	43	1093	0	6.27	1	26
264	0	0.44	1	18	679	1	1.49	1	43	1094	0	6.27	0	26
265	0	0.44	0	32	680	0	1.49	1	35	1095	0	6.27	0	15
266	0	0.44	0	16	681	0	1.50	1	32	1096	0	6.27	1	22
267	1	0.44	1	39	682	0	1.50	1	10	1097	1	6.27	1	30
268	1	0.44	1	36	683	0	1.50	1	6	1098	0	6.27	1	41
269	0	0.44	1	32	684	0	1.50	1	6	1099	1	6.27	1	11
270	1	0.44	1	43	685	0	1.50	1	12	1100	1	6.27	1	22
271	0	0.44	1	16	686	0	1.50	1	6	1101	0	6.27	1	51
272	0	0.44	0	18	687	0	1.50	1	10	1102	0	6.27	1	15
273	0	0.44	1	9	688	0	1.50	1	4	1103	0	6.27	1	22
274	0	0.44	1	43	689	0	1.50	1	8	1104	1	6.27	1	40
275	0	0.44	1	36	690	0	1.50	1	6	1105	1	6.27	1	37
276	0	0.44	1	32	691	0	1.50	1	12	1106	1	6.28	1	25
277	0	0.44	1	18	692	0	1.50	1	10	1107	1	6.28	0	47
278	1	0.44	1	39	693	0	1.50	0	10	1108	0	6.28	1	18
279	1	0.44	1	32	694	1	1.50	1	8	1109	0	6.28	1	18
280	0	0.44	0	16	695	0	1.50	0	4	1110	0	6.28	1	18

281	0	0.44	1	39	696	0	1.50	1	14	1111	0	6.32	1	25
282	1	0.44	1	27	697	1	1.50	1	38	1112	0	6.32	1	25
283	1	0.44	1	25	698	0	1.50	0	8	1113	0	6.35	1	17
284	1	0.45	1	29	699	0	1.50	0	4	1114	0	6.35	0	23
285	0	0.45	1	33	700	0	1.50	1	6	1115	0	6.36	1	33
286	0	0.45	1	40	701	0	1.50	1	4	1116	0	6.38	1	16
287	1	0.45	0	47	702	0	1.50	0	4	1117	0	6.39	0	18
288	0	0.45	1	11	703	0	1.50	0	10	1118	0	6.42	0	26
289	0	0.45	1	20	704	1	1.50	0	66	1119	0	6.43	1	7
290	0	0.45	0	44	705	0	1.50	0	38	1120	0	6.44	1	25
291	0	0.45	1	47	706	0	1.50	1	8	1121	0	6.45	1	20
292	0	0.45	1	31	707	0	1.50	1	10	1122	0	6.50	0	24
293	0	0.45	1	44	708	0	1.50	1	6	1123	0	6.52	0	23
294	0	0.45	1	29	709	0	1.50	0	4	1124	0	6.52	1	21
295	0	0.45	1	11	710	0	1.50	0	44	1125	1	6.55	1	20
296	0	0.45	1	31	711	0	1.50	1	8	1126	1	6.59	1	17
297	0	0.45	1	11	712	0	1.50	0	10	1127	1	6.61	1	18
298	0	0.45	1	40	713	1	1.50	0	50	1128	0	6.68	1	34
299	0	0.45	1	20	714	0	1.50	0	14	1129	0	6.68	1	28
300	0	0.45	1	29	715	0	1.50	0	16	1130	0	6.83	1	18
301	1	0.45	0	38	716	0	1.50	0	8	1131	0	6.86	1	29
302	1	0.45	1	38	717	0	1.51	1	37	1132	0	6.88	0	33
303	0	0.45	0	20	718	0	1.51	1	41	1133	0	7.00	0	18
304	0	0.46	0	39	719	0	1.52	1	44	1134	0	7.00	1	27
305	1	0.46	1	13	720	0	1.53	1	36	1135	0	7.13	1	31
306	0	0.46	1	28	721	0	1.54	1	26	1136	0	7.15	1	27
307	0	0.46	1	26	722	0	1.55	0	29	1137	0	7.25	1	24
308	1	0.47	1	34	723	0	1.55	0	11	1138	0	7.30	1	23
309	0	0.47	1	32	724	0	1.57	1	46	1139	0	7.36	1	22
310	0	0.47	1	43	725	1	1.57	1	37	1140	0	7.41	1	22
311	1	0.49	1	35	726	0	1.58	1	31	1141	1	7.41	1	22
312	0	0.49	1	47	727	0	1.58	1	31	1142	0	7.42	0	26
313	0	0.50	1	34	728	0	1.59	1	37	1143	0	7.45	1	38
314	0	0.50	0	16	729	0	1.62	1	34	1144	0	7.46	0	28
315	0	0.50	1	12	730	1	1.63	0	8	1145	1	7.51	1	37
316	0	0.50	1	10	731	0	1.64	0	25	1146	1	7.52	1	29
317	0	0.50	1	10	732	0	1.64	1	25	1147	0	7.55	0	29
318	0	0.50	1	36	733	0	1.65	1	31	1148	0	7.58	1	19
319	0	0.50	0	16	734	0	1.69	1	29	1149	0	7.58	1	36
320	1	0.50	1	10	735	0	1.70	1	33	1150	0	7.60	1	25
321	0	0.50	1	12	736	0	1.71	1	31	1151	0	7.60	1	47

322	0	0.50	1	16	737	0	1.71	1	28	1152	0	7.62	1	47
323	0	0.50	0	14	738	0	1.71	0	28	1153	0	7.63	0	49
324	0	0.50	1	6	739	0	1.75	1	40	1154	0	7.67	1	24
325	0	0.50	1	8	740	0	1.77	1	35	1155	0	7.68	1	28
326	0	0.50	1	14	741	0	1.77	1	43	1156	0	7.71	1	17
327	0	0.50	0	10	742	0	1.79	0	29	1157	0	7.72	1	25
328	0	0.50	0	12	743	0	1.86	1	28	1158	1	7.73	1	30
329	0	0.50	1	14	744	0	1.89	1	9	1159	0	7.75	1	24
330	0	0.50	0	16	745	0	1.90	1	31	1160	0	7.81	1	43
331	0	0.50	1	10	746	0	1.96	1	25	1161	0	7.87	1	38
332	0	0.50	1	26	747	0	2.00	1	25	1162	0	7.89	1	18
333	0	0.50	1	8	748	0	2.00	1	28	1163	0	7.90	0	40
334	1	0.50	1	12	749	0	2.16	0	45	1164	1	8.00	1	32
335	0	0.50	0	16	750	0	2.21	1	28	1165	1	8.00	1	26
336	0	0.50	1	16	751	0	2.28	1	29	1166	1	8.00	1	29
337	1	0.50	0	16	752	0	2.29	1	35	1167	0	8.00	1	3
338	0	0.50	1	14	753	0	2.32	0	31	1168	1	8.00	1	30
339	0	0.50	1	10	754	0	2.37	1	19	1169	1	8.00	1	26
340	0	0.50	1	12	755	0	2.40	0	30	1170	1	8.00	1	38
341	0	0.50	1	6	756	0	2.41	0	29	1171	0	8.00	0	5
342	1	0.50	1	40	757	0	2.50	0	26	1172	1	8.00	1	18
343	0	0.50	1	16	758	0	2.52	1	25	1173	1	8.00	1	46
344	0	0.50	0	32	759	0	2.63	0	16	1174	1	8.00	1	32
345	0	0.50	0	10	760	0	2.74	1	27	1175	1	8.00	0	13
346	0	0.50	1	8	761	0	2.76	1	25	1176	1	8.00	0	34
347	0	0.50	1	14	762	1	3.13	1	16	1177	0	8.00	0	10
348	0	0.50	0	4	763	0	3.42	0	24	1178	0	8.00	1	38
349	0	0.50	1	8	764	0	3.50	1	22	1179	0	8.00	1	18
350	0	0.50	0	10	765	0	3.57	1	23	1180	1	8.00	1	44
351	0	0.50	1	14	766	0	3.59	1	27	1181	0	8.00	1	23
352	0	0.51	0	35	767	0	3.73	1	11	1182	0	8.00	0	8
353	0	0.51	1	35	768	0	3.80	0	10	1183	0	8.00	0	8
354	1	0.52	1	25	769	0	3.83	0	24	1184	0	8.00	1	10
355	0	0.52	1	25	770	0	3.85	1	40	1185	1	8.00	1	49
356	0	0.52	1	23	771	0	3.88	0	25	1186	1	8.00	1	22
357	0	0.52	1	21	772	0	3.90	1	21	1187	1	8.00	1	14
358	0	0.52	1	31	773	0	3.92	1	26	1188	0	8.00	1	7
359	0	0.52	1	46	774	0	3.94	1	31	1189	1	8.00	1	18
360	0	0.52	1	40	775	1	3.96	0	27	1190	0	8.00	1	22
361	1	0.52	1	23	776	1	3.96	1	28	1191	1	8.00	1	35
362	1	0.52	1	31	777	0	4.00	1	19	1192	0	8.00	0	6

363	0	0.52	1	33	778	0	4.00	0	28	1193	0	8.00	0	18
364	1	0.53	1	19	779	0	4.00	0	22	1194	0	8.00	0	41
365	1	0.53	1	36	780	0	4.00	1	19	1195	0	8.00	1	5
366	1	0.53	1	30	781	1	4.00	1	23	1196	0	8.00	1	14
367	0	0.53	1	38	782	0	4.03	1	29	1197	0	8.00	1	19
368	0	0.53	1	19	783	0	4.03	0	29	1198	1	8.00	1	47
369	0	0.53	1	36	784	0	4.04	0	28	1199	0	8.00	1	45
370	0	0.53	0	32	785	0	4.04	1	24	1200	1	8.00	1	13
371	0	0.53	1	36	786	0	4.06	0	31	1201	0	8.00	1	39
372	0	0.53	1	30	787	0	4.08	1	36	1202	1	8.00	1	15
373	1	0.53	1	17	788	0	4.09	1	22	1203	0	8.00	0	16
374	0	0.53	1	36	789	0	4.09	1	11	1204	1	8.00	1	28
375	0	0.53	1	17	790	0	4.10	1	31	1205	1	8.00	1	14
376	0	0.53	0	17	791	0	4.12	1	25	1206	1	8.00	1	46
377	1	0.53	0	30	792	0	4.12	1	25	1207	0	8.00	0	22
378	1	0.53	1	32	793	0	4.13	1	32	1208	0	8.00	1	47
379	0	0.54	1	13	794	0	4.15	0	47	1209	1	8.00	1	31
380	0	0.54	0	13	795	0	4.16	1	25	1210	1	8.00	0	20
381	0	0.54	1	37	796	1	4.17	1	29	1211	1	8.00	1	23
382	1	0.54	1	39	797	0	4.18	1	11	1212	1	8.00	1	13
383	0	0.54	0	35	798	0	4.23	1	30	1213	1	8.00	1	33
384	0	0.54	1	46	799	0	4.27	1	22	1214	0	8.00	1	38
385	0	0.54	0	28	800	1	4.29	1	21	1215	1	8.00	0	53
386	0	0.54	1	35	801	0	4.30	1	33	1216	1	8.00	0	44
387	0	0.54	1	13	802	0	4.36	1	36	1217	0	8.00	1	15
388	1	0.54	1	48	803	1	4.37	1	38	1218	0	8.00	0	6
389	1	0.54	1	41	804	0	4.41	0	22	1219	1	8.00	1	32
390	0	0.54	1	13	805	0	4.45	1	31	1220	0	8.00	1	19
391	0	0.54	1	41	806	0	4.45	1	31	1221	0	8.00	0	14
392	1	0.54	0	41	807	0	4.46	1	28	1222	0	8.00	1	14
393	0	0.54	1	41	808	0	4.48	0	25	1223	0	8.00	1	11
394	0	0.55	1	33	809	0	4.49	1	45	1224	1	8.00	1	28
395	0	0.55	1	29	810	0	4.52	1	42	1225	0	8.00	0	10
396	0	0.55	1	11	811	0	4.52	1	29	1226	1	8.00	1	30
397	0	0.55	1	49	812	0	4.52	0	23	1227	0	8.15	0	55
398	0	0.55	1	49	813	0	4.56	0	39	1228	1	8.19	1	42
399	0	0.55	1	33	814	0	4.56	0	27	1229	0	8.23	0	22
400	0	0.55	1	33	815	0	4.57	0	35	1230	0	8.38	1	29
401	0	0.55	0	31	816	1	4.62	1	21	1231	0	8.46	0	28
402	1	0.55	1	31	817	1	4.69	1	35	1232	0	8.57	1	14
403	0	0.55	1	11	818	0	4.70	1	30	1233	0	8.68	1	34

404	0	0.55	0	20	819	0	4.71	1	34	1234	0	8.91	1	22
405	0	0.55	0	11	820	0	4.72	1	36	1235	0	8.93	0	27
406	0	0.55	1	38	821	0	4.73	1	15	1236	0	9.00	1	23
407	1	0.55	0	33	822	0	4.74	1	19	1237	0	9.11	0	28
408	0	0.55	0	31	823	0	4.74	1	27	1238	0	9.27	0	45
409	0	0.55	1	11	824	0	4.75	1	4	1239	0	10.30	1	23
410	1	0.55	1	31	825	0	4.75	1	4	1240	1	10.82	1	39
411	0	0.55	1	20	826	0	4.76	1	45	1241	1	12.07	1	41
412	0	0.55	1	11	827	1	4.77	1	48	1242	0	12.40	1	30
413	0	0.55	0	20	828	0	4.77	0	30	1243	0	14.48	1	23
414	0	0.56	1	9	829	0	4.78	1	32	1244	0	15.00	1	26
415	1	0.56	0	43	830	0	4.80	1	5	1245	0	15.04	0	27
										1246	0	24.00	1	15