Online Supplement to

Experimental Games on Networks: Underpinnings of Behavior and Equilibrium Selection

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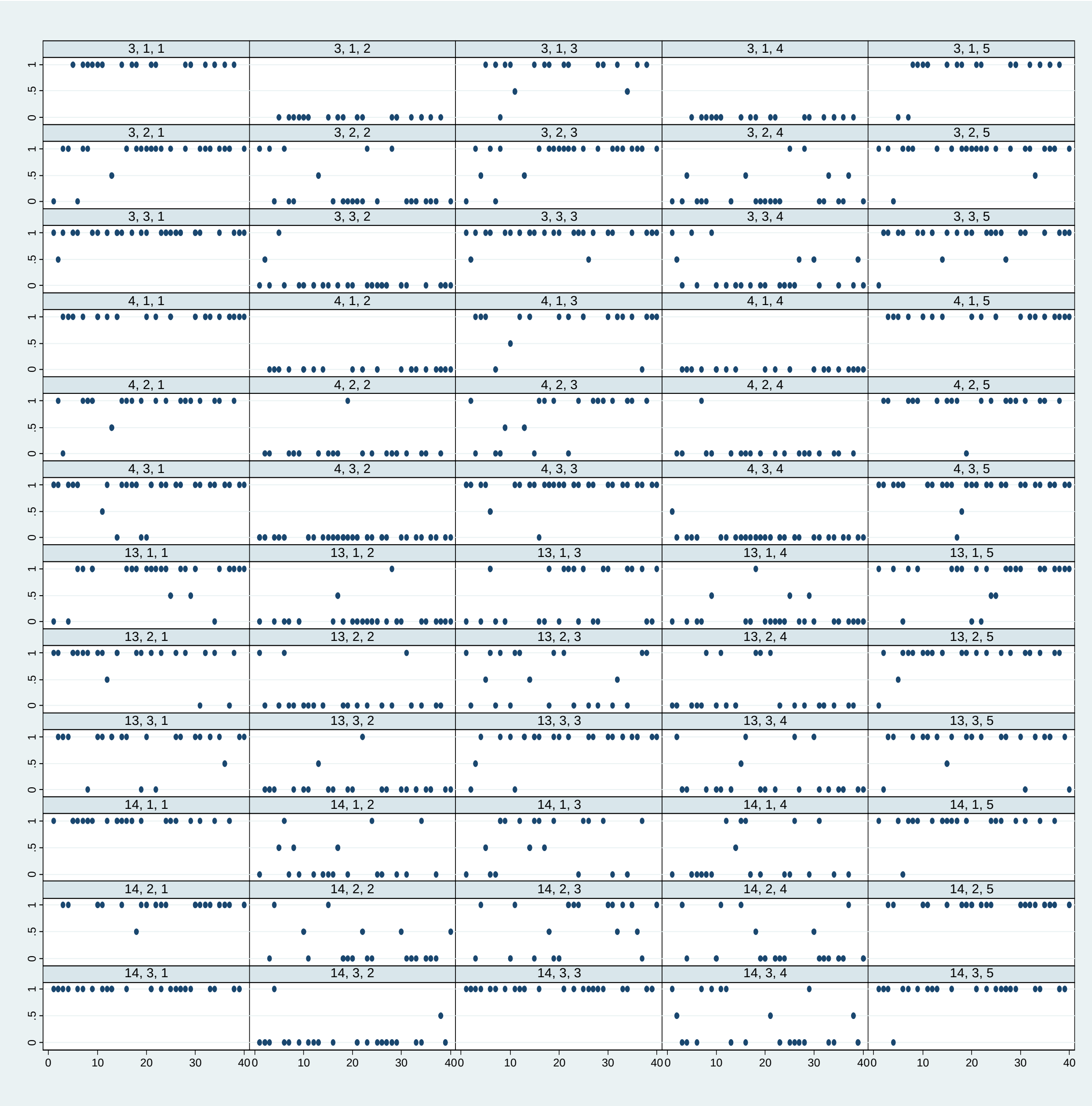
Online Supplement A: Figures by groups

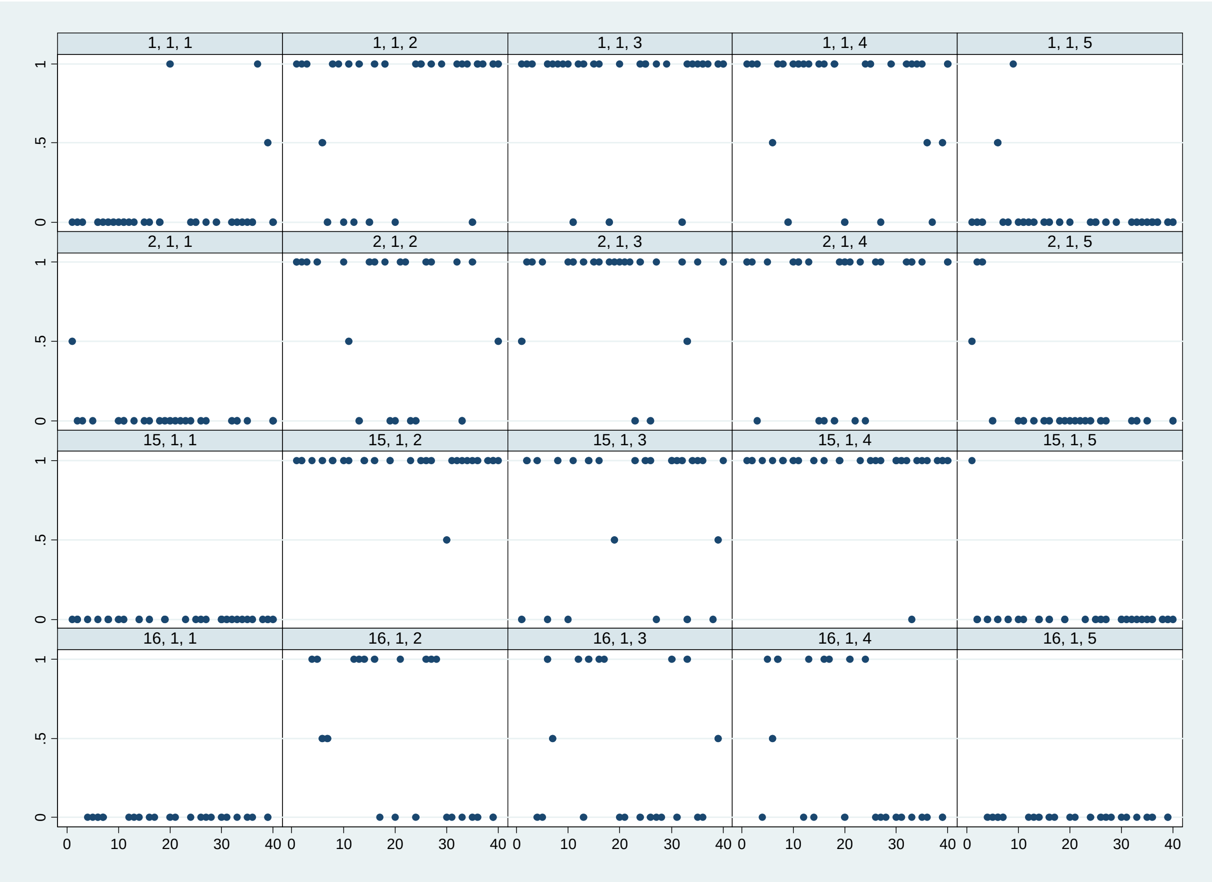
(x,y,z) means group x, network y position z where **Network:** *Orange* = 1, *Green* = 2, *Purple* =3 **Position:** A = 1, B = 2, C = 3, D = 4, E = 5.

Figure B.1: Complete information and substitutes: Relative frequencies of active choices across periods, by group, network and position.



Period

Figure B.2: Complete information and complements: Relative frequencies of active choices across periods, by group and position in the *Orange* network.



Online Supplement B: Econometric model (Variables and Estimations)

Experiments 1 and 2

Network:

<u>Experiment 1</u>
Orange = 1,
Green = 2,
Purple = 3
<u>Experiment 2</u>
Blue = 1,
Red = 2,
Brown = 3

Position:

A = 1,
B = 2,
C = 3,
D = 4,
E = 5.

Complete information

dij = 1 if network=i and position = j , 0 otherwise
tij: interaction between dij and period

Incomplete information

d1=1 if p=0.8, 0 otherwise
degree2 = 1 if player's degree=2, 0 otherwise
degree3 = 1 if player's degree=3, 0 otherwise
d1_period: interaction between period and d1
d1_degree2: interaction between d1 and degree2
d1_degree3: interaction between d1 and degree3
deg2_period: interaction between degree2 and period
deg3_period: interaction between degree3 and period
deg2_per_d1: interaction between degree2, period and d1
deg3_per_d1: interaction between degree3, period and d1.

Risk: investment into the risky option in the first decision of Part 2 of the experiment
risk_0_1: marginal effect of risk when d1=0 and degree==1
risk_0_2: marginal effect of risk when d1=0 and degree==2
risk_0_3: marginal effect of risk when d1=0 and degree==3
risk_1_1: marginal effect of risk when d1=1 and degree==1
risk_1_2: marginal effect of risk when d1=1 and degree==2
risk_1_3: marginal effect of risk when d1=1 and degree==3

Experiment 1

Complete information - Strategic Substitutes

Log likelihood = -388.50483						
Choice	Coef.	Std. Err.	z	P>z	[95% Conf.Interval]	
Period	0.030663	0.047141	0.65	0.515	-0.06173	0.123057
d12	-8.40485	1.7711	-4.75	0	-11.8761	-4.93356
d13	-3.90144	1.265561	-3.08	0.002	-6.38189	-1.42098
d14	-6.95259	1.5288	-4.55	0	-9.94899	-3.9562
d15	-1.80211	1.416295	-1.27	0.203	-4.578	0.973777
d21	-2.43685	1.350567	-1.8	0.071	-5.08391	0.210213
d22	-5.75513	1.357171	-4.24	0	-8.41514	-3.09512
d23	-4.33103	1.260564	-3.44	0.001	-6.80169	-1.86037
d24	-5.59522	1.326514	-4.22	0	-8.19514	-2.9953
d25	-1.22466	1.440592	-0.85	0.395	-4.04816	1.598853
d31	-0.87704	1.366207	-0.64	0.521	-3.55476	1.800676
d32	-6.18386	1.418038	-4.36	0	-8.96316	-3.40455
d33	-2.10023	1.34226	-1.56	0.118	-4.73101	0.530551
d34	-4.85752	1.249787	-3.89	0	-7.30706	-2.40798
d35	-1.86108	1.328373	-1.4	0.161	-4.46464	0.742488
t12	-0.03139	0.073418	-0.43	0.669	-0.17528	0.112509
t13	0.02826	0.053593	0.53	0.598	-0.07678	0.133299
t14	-0.06707	0.065325	-1.03	0.305	-0.19511	0.060959
t15	0.053105	0.068362	0.78	0.437	-0.08088	0.187091
t21	0.078902	0.061831	1.28	0.202	-0.04228	0.200088
t22	-0.0878	0.059385	-1.48	0.139	-0.20419	0.028597
t23	0.046098	0.053475	0.86	0.389	-0.05871	0.150906
t24	-0.0617	0.05645	-1.09	0.274	-0.17234	0.048942
t25	0.050011	0.074264	0.67	0.501	-0.09554	0.195565
t31	0.005485	0.061208	0.09	0.929	-0.11448	0.125452
t32	-0.13539	0.06704	-2.02	0.043	-0.26678	-0.00399
t33	0.106867	0.072718	1.47	0.142	-0.03566	0.249391
t34	-0.09514	0.05377	-1.77	0.077	-0.20053	0.010246
t35	0.040081	0.058256	0.69	0.491	-0.0741	0.154262
Risk	0.008371	0.011682	0.72	0.474	-0.01453	0.031267
_cons	3.491075	1.312174	2.66	0.008	0.919263	6.062888

Marginal effects of risk

	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Risk	.0083711	.01168	0.72	0.474	-.014525	.031267

Complete information - Strategic Complements

Log likelihood = -280.54602						
Choice	Coef.	Std. Err.	z	P>z	[95% Conf.Interval]	
Period	0.012517	0.045182	0.28	0.782	-0.07604	0.101071
d12	7.203613	1.407627	5.12	0	4.444714	9.962512
d13	5.912277	1.359848	4.35	0	3.247023	8.57753
d14	7.21883	1.402497	5.15	0	4.469987	9.967673
d15	4.015273	1.500287	2.68	0.007	1.074765	6.955781
d21	1.862151	2.698071	0.69	0.49	-3.42597	7.150273
d22	2.566745	1.610425	1.59	0.111	-0.58963	5.723119
d23	5.055612	1.463772	3.45	0.001	2.186673	7.924552
d24	2.257243	1.837471	1.23	0.219	-1.34413	5.85862
d25	1.806821	2.147597	0.84	0.4	-2.40239	6.016034
d31	4.098842	2.678017	1.53	0.126	-1.14998	9.347658
d32	4.726608	1.400217	3.38	0.001	1.982232	7.470983
d33	1.841959	2.148467	0.86	0.391	-2.36896	6.052878
d34	3.49502	1.504369	2.32	0.02	0.546511	6.443529
d35	3.505376	2.435331	1.44	0.15	-1.26779	8.278537
t12	-0.04634	0.051205	-0.9	0.365	-0.1467	0.05402
t13	-0.01217	0.050444	-0.24	0.809	-0.11104	0.086698
t14	-0.05783	0.050785	-1.14	0.255	-0.15737	0.041705
t15	-0.35341	0.138617	-2.55	0.011	-0.62509	-0.08172
t21	-0.36076	0.413782	-0.87	0.383	-1.17175	0.450241
t22	-0.1474	0.088299	-1.67	0.095	-0.32047	0.025659
t23	-0.25116	0.083561	-3.01	0.003	-0.41494	-0.08738
t24	-0.23798	0.174672	-1.36	0.173	-0.58033	0.104369
t25	-0.2018	0.16164	-1.25	0.212	-0.51861	0.115004
t31	-0.97318	0.975	-1	0.318	-2.88415	0.93778
t32	-0.15397	0.062666	-2.46	0.014	-0.2768	-0.03115
t33	-0.31792	0.270881	-1.17	0.241	-0.84884	0.212999
t34	-0.20028	0.090852	-2.2	0.027	-0.37835	-0.02222
t35	-0.61405	0.566495	-1.08	0.278	-1.72436	0.496265
Risk	0.027471	0.007972	3.45	0.001	0.011846	0.043095
_cons	-6.23145	1.347641	-4.62	0	-8.87277	-3.59012

Marginal effects of risk

	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Risk	.0274705	.00797	3.45	0.001	.011846	.043095

Incomplete information - Strategic Substitutes

Log likelihood = -835.0852

Choice	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Period	.0353746	.0157977	2.24	0.025	.0044117	.0663375
d1	-.6814024	.6378184	-1.07	0.285	-1.931503	.5686988
degree2	-4.581403	.4443026	-10.31	0.000	-5.45222	-3.710586
degree3	-7.392577	1.027527	-7.19	0.000	-9.406494	-5.37866
d1_period	.0466369	.0242576	1.92	0.055	-.0009071	.094181
d1_degree2	1.671407	.6139628	2.72	0.006	.4680618	2.874752
d1_degree3	2.461545	1.148353	2.14	0.032	.210815	4.712274
deg2_period	-.0500117	.0189244	-2.64	0.008	-.0871029	-.0129206
deg3_period	-.162495	.0831316	-1.95	0.051	-.32543	.0004399
deg2_per_d1	.0302095	.0289505	1.04	0.297	-.0265325	.0869514
deg3_per_d1	.0148065	.0875422	0.17	0.866	-.1567731	.1863861
Risk	-.0158006	.0069383	-2.28	0.023	-.0293993	-.0022018
_cons	4.136116	.5870075	7.05	0.000	2.985603	5.28663

Marginal effect of risk

risk_0_1	-.0002897	.0001697	-1.71	0.088	-.0006223	.0000429
risk_0_2	-.0021784	.0010144	-2.15	0.032	-.0041666	-.0001901
risk_0_3	-.0000198	.0000251	-0.79	0.431	-.000069	.0000294
risk_1_1	-.0002272	.0001254	-1.81	0.070	-.0004729	.0000185
risk_1_2	-.0032382	.0014454	-2.24	0.025	-.0060711	-.0004052
risk_1_3	-.0003819	.0002303	-1.66	0.097	-.0008333	.0000695

Incomplete information - Strategic Complements

Log likelihood = -708.07396

Choice	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Period	-.1447516	.0408935	-3.54	0.000	-.2249014	-.0646018
d1	-.5010158	.8928432	-0.56	0.575	-2.250956	1.248925
degree2	4.341514	.5878049	7.39	0.000	3.189437	5.49359
degree3	7.213081	.7566286	9.53	0.000	5.730116	8.696045
d1_period	.0096085	.0590735	0.16	0.871	-.1061734	.1253905
d1_degree2	1.385479	.8816709	1.57	0.116	-.3425639	3.113522
d1_degree3	1.891547	1.03034	1.84	0.066	-.1278814	3.910976
deg2_period	-.0436345	.0444213	-0.98	0.326	-.1306986	.0434297
deg3_period	-.0674082	.047188	-1.43	0.153	-.1598949	.0250785
deg2_per_d1	.016171	.0639297	0.25	0.800	-.1091288	.1414708
deg3_per_d1	-.0309548	.0656667	-0.47	0.637	-.1596591	.0977496
Risk	-.0019786	.0082606	-0.24	0.811	-.0181691	.0142118
_cons	-3.559826	.797559	-4.46	0.000	-5.123013	-1.996639

Marginal effect of risk

risk_0_1	-2.75e-06	.0000119	-0.23	0.817	-.000026	.0000205
risk_0_2	-.0000811	.0003397	-0.24	0.811	-.000747	.0005848
risk_0_3	-.0004371	.0018246	-0.24	0.811	-.0040132	.0031391
risk_1_1	-2.02e-06	8.78e-06	-0.23	0.818	-.0000192	.0000152
risk_1_2	-.0002572	.0010765	-0.24	0.811	-.002367	.0018527
risk_1_3	-.0004869	.0020325	-0.24	0.811	-.0044706	.0034969

Incomplete information - Strategic Complements - p = 0.95

Log likelihood = -412.52192

Choice	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Period	-0.06831	0.020013	-3.41	0.001	-0.10754	-0.02909
degree2	6.656791	0.632275	10.53	0	5.417555	7.896027
degree3	8.786581	0.654056	13.43	0	7.504655	10.06851
deg2_period	-0.01938	0.026316	-0.74	0.461	-0.07096	0.032195
deg3_period	-0.07553	0.025416	-2.97	0.003	-0.12535	-0.02572
Risk	0.00991	0.014227	0.7	0.486	-0.01798	0.037794
_cons	-3.95017	0.878676	-4.5	0	-5.67234	-2.228

Experiment 2

Complete information

Log likelihood = -403.98366

Choice	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Period	-0.78131	0.953394	-0.82	0.412	-2.64993	1.087306
d212	7.296092	2.976187	2.45	0.014	1.462872	13.12931
d213	8.593323	3.199112	2.69	0.007	2.323179	14.86347
d214	4.512357	2.864328	1.58	0.115	-1.10162	10.12634
d215	10.06287	3.512437	2.86	0.004	3.178619	16.94712
d222	3.465771	2.897039	1.2	0.232	-2.21232	9.143864
d223	12.1354	3.286807	3.69	0	5.69338	18.57743
d224	5.38125	2.878885	1.87	0.062	-0.26126	11.02376
d225	5.527497	2.895627	1.91	0.056	-0.14783	11.20282
d231	3.632378	3.391387	1.07	0.284	-3.01462	10.27937
d232	6.245805	2.889733	2.16	0.031	0.582033	11.90958
d233	4.87267	2.872389	1.7	0.09	-0.75711	10.50245
d234	5.146739	2.86956	1.79	0.073	-0.4775	10.77097
d235	4.783574	2.871477	1.67	0.096	-0.84442	10.41156
t212	0.797173	0.954438	0.84	0.404	-1.07349	2.667836
t213	0.783776	0.955599	0.82	0.412	-1.08916	2.656715
t214	0.810881	0.953742	0.85	0.395	-1.05842	2.68018
t215	0.774828	0.957463	0.81	0.418	-1.10177	2.651421
t222	0.629482	0.953886	0.66	0.509	-1.2401	2.499064
t223	0.576057	0.954651	0.6	0.546	-1.29503	2.44714
t224	0.72249	0.953831	0.76	0.449	-1.14699	2.591964
t225	0.724289	0.953799	0.76	0.448	-1.14512	2.593701
t231	-0.43954	1.189874	-0.37	0.712	-2.77165	1.89257
t232	0.74131	0.953731	0.78	0.437	-1.12797	2.610588
t233	0.708418	0.953723	0.74	0.458	-1.16084	2.57768
t234	0.713307	0.953636	0.75	0.454	-1.15578	2.582398
t235	0.732869	0.953727	0.77	0.442	-1.1364	2.602138
Risk	0.027857	0.012704	2.19	0.028	0.002958	0.052755
_cons	-4.34676	2.900478	-1.5	0.134	-10.0316	1.338073

Marginal effects of risk

	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Risk	0.027857	0.0127	2.19	0.028	0.002958	0.052755

Incomplete information

Log likelihood = -564.68216

Choice	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Period	-0.03954	0.028585	-1.38	0.167	-0.09557	0.016485
d1	2.246575	1.169403	1.92	0.055	-0.04541	4.538561
degree2	9.844207	0.898926	10.95	0	8.082345	11.60607
degree3	13.70468	1.303205	10.52	0	11.15045	16.25892
d1_period	-0.0962	0.04866	-1.98	0.048	-0.19157	-0.00083
d1_degree2	-5.43655	1.117169	-4.87	0	-7.62616	-3.24694
d1_degree3	-4.86144	1.554457	-3.13	0.002	-7.90813	-1.81476
deg2_period	-0.07148	0.032004	-2.23	0.026	-0.13421	-0.00875
deg3_period	-0.05	0.043899	-1.14	0.255	-0.13604	0.036042
deg2_per_d1	0.224834	0.053274	4.22	0	0.120419	0.329249
deg3_per_d1	0.222774	0.06418	3.47	0.001	0.096984	0.348565
Risk	0.011876	0.012558	0.95	0.344	-0.01274	0.036489
_cons	-5.29965	1.047908	-5.06	0	-7.35351	-3.24579

Marginal effect of risk

Choice	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
risk_0_1	4.66E-05	5.96E-05	0.78	0.435	-7E-05	0.000164
risk_0_2	0.000597	0.000709	0.84	0.4	-0.00079	0.001986
risk_0_3	9.11E-06	1.29E-05	0.7	0.482	-1.6E-05	3.45E-05
risk_1_1	6.41E-05	0.000082	0.78	0.434	-9.7E-05	0.000225
risk_1_2	0.001013	0.00118	0.86	0.391	-0.0013	0.003326
risk_1_3	9.90E-06	0.000014	0.71	0.481	-1.8E-05	3.74E-05

Experiment 3

n2 = 1 if network=2, 0 otherwise
n3 = 1 if network=3, 0 otherwise
d2 = 1 if player's degree=2, 0 otherwise
d3 = 1 if player's degree=3, 0 otherwise
d4 = 1 if player's degree=4, 0 otherwise
d2n2: interaction between d2 and n2
d2n3: interaction between d2 and n3
d3n2: interaction between d3 and n2
d3n3: interaction between d3 and n3
d4n2: interaction between d4 and n2
d4n3: interaction between d4 and n3
n2p: interaction variable between n2 and period
n3p: interaction variable between n3 and period
d2p: interaction variable between d2 and period
d3p: interaction variable between d3 and period
d4p: interaction variable between d4 and period
d2n2p: interaction variable between d2, n2 and period
d2n3p: interaction variable between d2, n3 and period
d3n2p: interaction variable between d3, n2 and period
d3n3p: interaction variable between d3, n3 and period
d4n2p: interaction variable between d4, n2 and period
d4n3p: interaction variable between d4, n3 and period

Risk: investment into the risky option in the first decision of Part 2 of the experiment
risk_1_1: marginal effect of risk when network 1 and degree==1
risk_1_2: marginal effect of risk when network 1 and degree==2
risk_1_3: marginal effect of risk when network 1 and degree==3
risk_1_4: marginal effect of risk when network 1 and degree==4
risk_2_1: marginal effect of risk when network 2 and degree==1
risk_2_2: marginal effect of risk when network 2 and degree==2
risk_2_3: marginal effect of risk when network 2 and degree==3
risk_2_4: marginal effect of risk when network 2 and degree==4
risk_3_1: marginal effect of risk when network 3 and degree==1
risk_3_2: marginal effect of risk when network 3 and degree==2
risk_3_3: marginal effect of risk when network 3 and degree==3
risk_3_4: marginal effect of risk when network 3 and degree==4

Log likelihood = -1047.914						
choice	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
period	-0.05858	0.024295	-2.41	0.016	-0.10619	-0.01096
n2	1.332241	0.784154	1.7	0.089	-0.20467	2.869154
n3	0.423339	0.780118	0.54	0.587	-1.10566	1.952342
d2	4.759135	0.528128	9.01	0	3.724024	5.794246
d3	7.331392	0.573277	12.79	0	6.207789	8.454995
d4	10.60647	0.856568	12.38	0	8.927626	12.28531
d2n2	0.174066	0.832004	0.21	0.834	-1.45663	1.804763
d2n3	2.272886	0.879686	2.58	0.01	0.548733	3.997039
d3n2	21.21926	4313.574	0	0.996	-8433.23	8475.669
d3n3	2.881053	1.292484	2.23	0.026	0.347831	5.414274
d4n2	1.109566	2.070312	0.54	0.592	-2.94817	5.167304
d4n3	17.64513	4942.264	0	0.997	-9669.02	9704.305
n2p	-0.02345	0.038179	-0.61	0.539	-0.09828	0.051381
n3p	0.051894	0.031444	1.65	0.099	-0.00973	0.113522
d2p	-0.03878	0.026727	-1.45	0.147	-0.09117	0.013601
d3p	-0.03067	0.027	-1.14	0.256	-0.08359	0.022246
d4p	-0.09452	0.034091	-2.77	0.006	-0.16134	-0.02771
d2n2p	0.216455	0.044848	4.83	0	0.128555	0.304354
d2n3p	0.089878	0.039223	2.29	0.022	0.013002	0.166754
d3n2p	0.101249	194.1649	0	1	-380.455	380.6575
d3n3p	0.109483	0.068038	1.61	0.108	-0.02387	0.242834
d4n2p	0.277924	0.140703	1.98	0.048	0.002151	0.553697
d4n3p	0.099375	213.2344	0	1	-417.832	418.0312
Risk	0.014794	0.005353	2.76	0.006	0.004303	0.025285
_cons	-5.35813	0.596135	-8.99	0	-6.52653	-4.18973

Marginal effect of risk

choice	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
risk_1_1	4.47E-05	2.52E-05	1.77	0.076	-4.72E-06	9.42E-05
risk_1_2	0.001786	0.000759	2.35	0.019	0.000298	0.003274
risk_1_3	0.003011	0.001138	2.65	0.008	0.000781	0.00524
risk_1_4	0.000718	0.000351	2.04	0.041	2.97E-05	0.001406
risk_2_1	0.000163	0.000133	1.23	0.22	-9.7E-05	0.000423
risk_2_2	0.003687	0.001344	2.74	0.006	0.001052	0.006322
risk_2_3	8.74E-13	.	.	.	.	.
risk_2_4	5.34E-05	9.63E-05	0.55	0.58	-0.00014	0.000242
risk_3_1	7.17E-05	5.58E-05	1.29	0.199	-3.8E-05	0.000181
risk_3_2	0.002873	0.001327	2.17	0.03	0.000273	0.005473
risk_3_3	0.000179	0.000196	0.91	0.361	-0.00021	0.000563
risk_3_4	9.74E-12	.	.	.	.	.

Online Supplement C: Experimental instructions

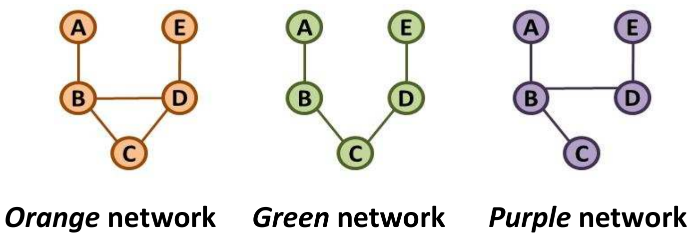
I) Complete Information - Substitutes (Experiment 1)

[Note: The corresponding instructions for Experiment 2 are analogous (it just changes the three networks)]

The aim of this experiment is to study how individuals make decisions in certain contexts. The instructions are simple. You first receive the instructions for Part 1 of the experiment, after which you will receive instructions for a second part that is independent of Part 1.If you follow the instructions carefully you will earn a non-negligible amount of money in cash (Euros) at the end of the experiment. During the experiment, your earnings will be accounted in ECU (Experimental Currency Units). Individual payments will remain private, as nobody will know the other participants' payments. Any communication among you is strictly forbidden and will result in an immediate exclusion from the experiment.

1.- The experiment consists of 40 periods. Please note that there will be 5 unpaid trial periods before the 40 periods start. In each period you will be randomly assigned to a group of 5 participants. This group is determined randomly at the beginning of the period. Therefore, the group you are assigned to changes at each period. In this room, there are 10 participants (including yourself) that are potential members of your group. That is, at every period your group of 5 participants is selected among these 10 participants, each of them being equally likely to be in your group. You will not know the identities of any of these participants.

2.- At each period, the computer selects randomly a **network for your group**: the ***Orange* network**, the ***Green* network** or the ***Purple* network**:



Once a network is selected, you (and the other members of your group) are randomly assigned to a **position**: **A**, **B**, **C**, **D** or **E**, all of them being equally likely. The assignment process is random: In each period, you are equally likely to be located in each of the 5 positions. At each period, you will be informed of the selected network (color) and of your position (letter).

In a network, a <u>link</u> is represented by a line (connection) between two positions. For example, in the **orange network**, **position B** has <u>three links</u>: it is linked to **positions A**, **C** and **D** (but it is not linked to **position E**). Summarizing:

- In the ***Orange* network** there are two positions with <u>1 link</u> (**positions A** and **E**), one position with <u>2 links</u> (**position C**), and two positions with <u>3 links</u> (**positions B** and **D**).
- In the ***Green* network** there are two positions with <u>1 link</u> (**positions A** and **E**), three positions with <u>2 links</u> (**positions B**, **C** and **D**), and no position with <u>3 links</u>.

- In the ***Purple*** **network** there are three positions with 1 link (**positions A**, **C** and **E**), one position with 2 links (**position D**), and one position with 3 links (**position B**).

You can notice that both the ***Green*** and the ***Purple*** network have one link less that the ***Orange*** one: In the ***Green*** **network positions B** and **D** are not linked, and in the ***Purple*** **network positions C** and **D** are not linked.

Your earnings of the period can only be affected by your decisions and the decisions of those participants located in positions that are linked to yours, as specified below.

3.- In each period, knowing the selected network and your position, you will be asked to make a choice: to be **ACTIVE** or **INACTIVE** (the other participants are asked to make the same choice). Your payoff of the period will depend on your choice and on the choices of those participants of your group located in positions linked to yours: You earn 100 ECU if either you or at least one of the participants located in positions linked to yours choose to be ACTIVE. Being active has a cost of 50 ECU. Hence,

- If you choose to be **ACTIVE** your period payoff is **50 ECU** for sure [100 – 50]
- If you choose to be **INACTIVE** your period payoff can be:
  - **100 ECU** if at least one participant linked to you chooses to be ACTIVE, or
  - **0 ECU** if no participant linked to you chooses to be ACTIVE.

4.- At the end of every period, you will get information about current and past periods. The information consists of:

- The selected network.
- Your position in the network.
- Your choice (ACTIVE or INACTIVE).
- The number of participants linked to you that chose to be ACTIVE.
- Your (period) payoff.

5.- Payoffs. At the end of the experiment, you will be paid the earnings that you achieved in 4 periods, that will be randomly selected across the 40 periods of play (all periods selected will have the same probability). These earnings are transformed to cash at the exchange rate of **20 ECU = 1 €**. In addition, just by showing up, you will also be paid a fee of **5 €**.

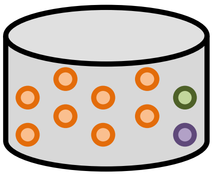
II) Incomplete Information – Complements – p=0.8 (Experiment 1)

[*Note: The case p=0.2 is analogous (it just changes the virtual urn composition). The corresponding instructions for Experiment 2 are also analogous (it just changes the three networks)*]

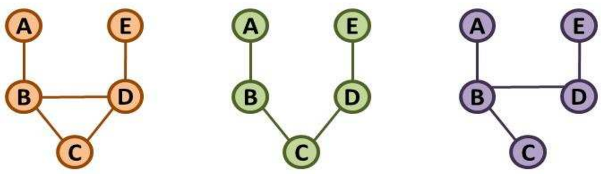
The aim of this experiment is to study how individuals make decisions in certain contexts. The instructions are simple. You first receive the instructions for Part 1 of the experiment, after which there you will receive instructions for a second part that is independent of Part 1. If you follow the instructions carefully you will earn a non-negligible amount of money in cash (Euros) at the end of the experiment. During the experiment, your earnings will be accounted in ECU (Experimental Currency Units). Individual payments will remain private, as nobody will know the other participants' payments. Any communication among you is strictly forbidden and will result in an immediate exclusion from the experiment.

1.- The experiment consists of 40 periods. Please note that there will be 5 unpaid trial periods before the 40 periods start. In each period you will be randomly assigned to a group of 5 participants. This group is determined randomly at the beginning of the period. Therefore, the group you are assigned to changes at each period. In this room, there are 10 participants (including yourself) that are potential members of your group. That is, at every period your group of 5 participants is selected among these 10 participants, each of them being equally likely to be in your group. You will not know the identities of any of these participants.

2.- At each period, the computer selects one color from a virtual urn. The virtual urn contains 10 balls: **8 orange balls**, **1 green ball** and **1 purple ball**.



All the 10 balls of the virtual urn are equally likely to be selected by the computer. The **color** of the selected ball determines a **network for your group**: the ***Orange* network**, the ***Green* network** or the ***Purple* network**. Once the network has been selected, the ball is returned to the virtual urn. Thus, in each period the color selection process is identical (there are always 8 orange balls, 1 green ball and 1 purple ball, and one of them is randomly picked by the computer). The three possible networks are:



***Orange* network** ***Green* network** ***Purple* network**

Once a network is selected, you (and the other members of your group) are randomly assigned to a **position**: **A**, **B**, **C**, **D** or **E**, all of them being equally likely. The assignment process is random:

At each period, you are equally likely to be located in each of the 5 positions. At each period, you will neither be informed of the selected network (color) nor of your position (letter).
In a network, a link is represented by a line (connection) between two positions. For example, in the ***Orange*** **network**, **position B** has three links: it is linked to **positions A**, **C** and **D** (but it is not linked to **position E**). Summarizing:

- In the ***Orange*** **network** there are two positions with 1 link (**positions A** and **E**), one position with 2 links (**position C**), and two positions with 3 links (**positions B** and **D**).
- In the ***Green*** **network** there are two positions with 1 link (**positions A** and **E**), three position with 2 links (**positions B**, **C** and **D**), and no position with 3 links.
- In the ***Purple*** **network** there are three positions with 1 link (**positions A**, **C** and **E**), one position with 2 links (**position D**), and one position with 3 links (**position B**).

You can notice that both the ***Green*** and the ***Purple*** network have one link less that the ***Orange*** one: In the ***Green*** **network positions B** and **D** are not linked, and in the ***Purple*** **network positions C** and **D** are not linked.

Your earnings of the period can only be affected by your decisions and the decisions of those participants located in positions that are linked to yours, as specified below.

3.- In each period, you will only be informed about how many links your assigned position has (1 link, 2 links or 3 links) in the selected network, but you will neither know with certainty which is the selected network nor your exact position.
For example, if at a particular period you are informed that your position has 3 links, there are different paths that could lead to this outcome: It may be the case that the selected network is the ***Orange*** **network** and you have been assigned to **position B** or **D**, or it may be the case that the selected network is the ***Purple*** **network** and you have been assigned to **position B**.

4.- In each period, you will be asked to make a choice: to be **ACTIVE** or **INACTIVE** (the other participants are asked to make the same choice). Your payoff of the period will depend on your choice and on the choices of those participants of your group located in positions linked to yours. If you choose to be INACTIVE, your period payoff is 50 ECU. If you choose to be ACTIVE, your period payoff is calculated as follows: First, add 100 ECU per participant linked to you that also chooses to be ACTIVE; then, divide the result by 3. Hence,

- If you choose to be **ACTIVE** your period payoff can be:
  - $\mathbf{100.00}$ **ECU** if 3 participants linked to you choose to be ACTIVE $\left[\frac{100+100+100}{3}\right]$, or
  - $\mathbf{66.66}$ **ECU** if 2 participants linked to you choose to be ACTIVE $\left[\frac{100+100}{3}\right]$, or
  - $\mathbf{33.33}$ **ECU** if 1 participants linked to you chooses to be ACTIVE $\left[\frac{100}{3}\right]$, or
  - $\mathbf{0.00}$ **ECU** if no participant linked to you chooses to be ACTIVE.
- If you choose to be **INACTIVE** your period payoff is $\mathbf{50.00}$ **ECU** for sure.

5.- At the end of every period, you will get information about current and past periods. The information consists of:

- The selected network.
- Your position in the network.
- Your choice (ACTIVE or INACTIVE).
- The number of participants linked to you that chose to be ACTIVE.
- Your (period) payoff.

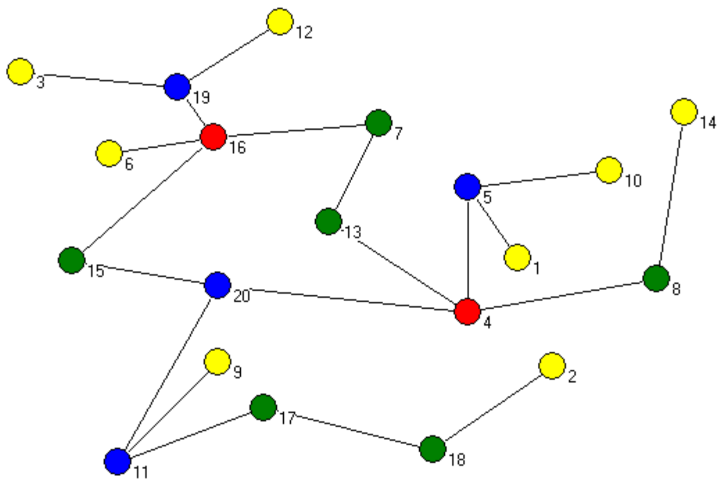
6.- Payoffs. At the end of the experiment, you will be paid the earnings that you achieved in 4 periods, that will be randomly selected across the 40 periods of play (all periods will be selected with the same probability). These earnings are transformed to cash at the exchange rate of **20 ECU = 1 €**. In addition, just by showing up, you will also be paid a fee of **5 €**.

III) Network 1 (Experiment 3)

[*Note: The corresponding instructions for Network 2 and Network 3 are analogous (they just have a different depiction of the network)*]

The aim of this experiment is to study how individuals make decisions in certain contexts. The instructions are simple. First you get the instructions for Part 1 of the experiment, after which there will be a second part that is independent of Part 1. If you follow the instructions carefully you will earn a non-negligible amount of money in cash (Euros) at the end of the experiment. During the experiment, your earnings will be accounted in ECU (Experimental Currency Units). Individual payments will remain private, as nobody will know the other participants' payments. Any communication among you is strictly forbidden and will result in an immediate exclusion from the experiment.

1.- The experiment consists of **40 periods**, and there are **20 participants**, including yourself. The participants will remain the same throughout the experiment. Please note that there will be 5 unpaid trial periods before the 40 periods start. At each period, you and each of the remaining nineteen participants will be assigned one position of the following **NETWORK**. The **positions in the network** are numbered from 1 to 20.



2.- In the network, a link is represented by a line (connection) between two positions. For example, **position 16** has four links: it is linked to **positions 6**, **7, 15** and **19** (but it is not linked to the remaining positions).

Note that there are **four classes of positions** in the network, identified by **different colors**.

- There are eight **yellow positions**: Those positions **with one link** (1, 2, 3, 6, 9, 10, 12 and 14).
- There are six **green positions**: Those positions **with two links** (7, 8, 13, 15, 17 and 18).
- There are four **blue positions**: Those positions **with three links** (5, 11, 19 and 20).
- There are two **red positions**: Those positions **with four links** (4 and 16).

3.- In each period, you (and the other participants) are randomly assigned by the computer to a **position from 1 to 20 in the network**, all of them being equally likely. The assignment process is random: At each period, you are equally likely to be located in each of the 20 positions of the network.

4.- In each period, **you will only be informed of the color of your position**, that is, you will know how many links your assigned position has: **1 link (yellow)**, **2 links (green)**, **3 links (blue)** or **4 links (red)**. However, **you will not be informed of which is your exact position**.

For example, if in a particular period you are informed that your position has 3 links (blue), then you know that you can be in position 5, 11, 19 or 20, and that you can be in any of them with the same probability. Note that, in such a case, you also know that you cannot be in a yellow, green or red position.

Your earnings of the period can only be affected by your decisions and the decisions of those participants located in positions that are linked to yours, as specified below.

5.- In each period, knowing the selected network and your position, you will be asked to make a choice: to be **ACTIVE** or **INACTIVE** (the other participants are asked to make the same choice). Your payoff of the period will depend on your choice and on the choices of those participants located in positions linked to yours. If you choose to be INACTIVE, your period payoff is 50 ECU. If you choose to be ACTIVE, your period payoff is calculated as follows: First, add 100 ECU per participant linked to you that also chooses to be ACTIVE; then, divide the result by 3. Hence,

- If you choose to be **ACTIVE** your period payoff can be:
  - $\mathbf{133.33}$ **ECU** if 4 participants linked to you choose to be ACTIVE $\left[\frac{100+100+100+100}{3}\right]$, or
  - $\mathbf{100.00}$ **ECU** if 3 participants linked to you choose to be ACTIVE $\left[\frac{100+100+100}{3}\right]$, or
  - $\mathbf{66.66}$ **ECU** if 2 participants linked to you choose to be ACTIVE $\left[\frac{100+100}{3}\right]$, or
  - $\mathbf{33.33}$ **ECU** if 1 participants linked to you chooses to be ACTIVE $\left[\frac{100}{3}\right]$, or
  - $\mathbf{0.00}$ **ECU** if no participant linked to you chooses to be ACTIVE.
- If you choose to be **INACTIVE** your period payoff is $\mathbf{50.00}$ **ECU** for sure.

6.- At the end of every period, you will get information about current and past periods. The information consists of:
- Your position in the network.
- Your choice (ACTIVE or INACTIVE).
- The number of participants linked to you that chose to be ACTIVE.
- Your (period) payoff.

7.- Payoffs. At the end of the experiment, you will be paid the earnings that you achieved in 4 periods, that will be randomly selected across the 40 periods of play (all periods will be selected with the same probability). These earnings are transformed to cash at the exchange rate of 20 ECU = 1 €. In addition, just by showing up, you will also be paid a fee of 5 €.

Part 2 of the experiment
[*Note: These are the instructions for the elicitation of risk attitudes. They were used at the end of all experimental sessions*]
In part 2 you need to make 12 decisions. In each decision, your choice can only have monetary consequences for you, but not for any other participant.

1) The first decision is as follows:
You have 100 ECU, of which you can invest as many as you like into a risky option. Your investment will be successful with 50% chance. If successful, you get 2.5 times the invested amount back. If not successful, you lose your invested amount of ECU. All ECU that you do not invest are for you to keep.
How many ECU would you like to invest into the risky option?

2) The other 11 decisions are fairly similar.
In each decision you can choose between an option LEFT and an option RIGHT. Your payoff from choosing option LEFT depends on in each of the 11 decisions on chance. Choosing option RIGHT, however, implies a safe payoff. For instance, you could be asked whether you prefer an option LEFT with a 50% chance of getting 100 ECU and a 50% chance of getting 0 ECU or an option RIGHT in which you get *c* ECU for sure. The value *c* can take on different, positive values that you will see on the experimental screen once this part starts. In each of the 11 decisions you will then need to choose one of the two options. The decision problem will be presented on the screen as follows:

LEFT	**RIGHT**	Your choice
with 50% chance **100 ECU** and with 50% chance **0 ECU**	***c* ECU** for sure	LEFT ◯ ◯ RIGHT

3) Payoff from this part: At the end of the experiment one of your 12 decisions will be randomly selected for payment.

If, for instance, your first decision is selected, then you get with 50% chance 2.5 times the invested amount, in addition to the amount of ECU that you kept.
If any of the other 11 decisions is selected, is the option that you chose payoff-relevant. If you have chosen the risky option, then you get with 50% chance 100 ECU and with 50% chance 0 ECU. If you have chosen the safe amount, then you get the amount that was stated in that decision.

As in Part 1 the exchange rate is: 20 ECU = 1 Euro.
After this part, the experiment ends.

Online Supplement D: Generalized Risk-Dominance

To study (ordinal) Generalized Risk-dominance, we use the concepts (and notation) introduced by Peski (2010). We focus on the scenarios with *multiplicity of equilibria*. Let N be the set of players and let $a = (a_1, \dots, a_n)$ be an action (strategy) profile.

Definition 1. Given an action profile a, two action profiles, η and $\bar{\eta}$, are *a-associated* if, for each $i \in N$, either $\eta_i = a_i$ or $\bar{\eta}_i = a_i$

Definition 2. An action profile a is *ordinal GR-dominant* if, for each player i, and for each pair of a-associated action profiles, η and $\bar{\eta}$, a_i is a best response of player i to either η or $\bar{\eta}$.

I) Complete information scenario

We denote by N_i the set of player that have a link to player i and $n_i = |N_i|$. For each $i \in N$, $a_i \in \{0,1\}$, where 0 means inactive and 1 means active.

I.i) Strategic substitutes

Lemma 1. *Consider the game of strategic substitutes defined in Section 3 under the complete information scenario. If an action profile a is such that there exists* $i \in N$ *such that* (i) $n_i > 1$, and (ii) $a_i = 1$, *then a is not ordinal GR-dominant.*

Proof: Let $j, j' \in N_i$. There exist two a-associated action profiles, η and $\bar{\eta}$, such that $\eta_j = 1$, $\eta_{j'} = 0, \bar{\eta}_j = 0$, $\bar{\eta}_{j'} = 1$. It clearly follows that $a_i = 1$ is neither a best response of player i to η nor a best response to $\bar{\eta}$. QED

Lemma 2. *Consider the game of strategic substitutes defined in Section 3 under the complete information scenario. If each player with degree higher than* 1 *is linked to at least one player with degree* 1 *and each player with degree* 1 *is linked to one player with degree higher than* 1, *then an action profile a such that, for each* $i \in N$, $a_i = 1$ *if and only if* $n_i = 1$ *is ordinal GR-dominant.*

Proof: Consider action profile a, and $i \in N$ such that $n_i = 1$, and let $j \in N_i$. Then $a_i = 1$ and $a_j = 0$. Thus, for each pair of a-associated action profiles, η and $\bar{\eta}$, it cannot be the case that $\eta_j = \bar{\eta}_j = 1$. It follows that $a_i = 1$ is a best response of player i to at least one of the two profiles $(\eta, \bar{\eta})$. Now consider $j \in N$ such that $n_j > 1$ and let $i \in N_j$ such that $n_i = 1$. Then $a_j = 0$ and $a_i = 1$. Thus, for each pair of a-associated action profiles, η and $\bar{\eta}$, it cannot be the case that $\eta_i = \bar{\eta}_i = 0$. It follows that $a_j = 0$ is a best response of player *i* to at least one of the two profiles $(\eta, \bar{\eta})$. QED

Proposition 7. *Consider the game of strategic substitutes defined in Section* 3 *with complete information, and consider any of the three networks of Experiment* 1. *In the Purple network there only exists an ordinal GR-dominant equilibrium, and it is the most secure equilibrium ACE/BD. In the other two networks (Orange and Green) no equilibrium is ordinal GR-dominant.*

Proof: First consider the *Orange* network. In the equilibria ACE/BD, BE/ACD and AD/BCE, respectively, the player in position C, B and D satisfies the conditions (i)-(ii) of Lemma 1. Hence, none of the equilibria is ordinal GR-dominant. Now consider the *Green* network. In the equilibria ACE/BD, BD/ACE, BE/ACD and AD/BCE, respectively, the player in position C, B, B and D satisfies the conditions (i)-(ii) of Lemma 1. Hence, none of the equilibria is ordinal GR-dominant. Finally, consider the *Purple* network. In the equilibria ACD/BE and BE/ACD, respectively, the player in position D and B satisfies the conditions (i)-(ii) of Lemma 1. Therefore, none of them is ordinal GR-dominant. In contrast, the equilibrium ACE/BD is ordinal GR-dominant, since it satisfies the conditions of Lemma 2. QED

<u>I.ii) Strategic Complements</u>

Lemma 3. *Consider the game of strategic complements defined in Section* 3 *under the complete information scenario. If an action profile a is such that there exists* $i \in N$ *such that* (i) $n_i > 1$, (ii) $a_i = 1$ *and* (iii) $\left|\{j \in N_i : a_j = 1\}\right| < 3$, *then a is not ordinal GR-dominant.*

Proof. Consider action profile a. First, let $i \in N$ be such that $\left|\{j \in N_i : a_j = 1\}\right| < 2$. Then $a_i = 1$ provides a payoff of at most 100/3 < 50. Thus, it is not a best response to any action profile. Now, consider the case $\left|\{j \in N_i : a_j = 1\}\right| = 2$, and let $j, j' \in N_i$ be such that $a_j = a_{j'} = 1$. There exist two a-associated action profiles, η and $\bar{\eta}$, such that $\eta_j = 1$, $\eta_{j'} = 0, \bar{\eta}_j = 0$, $\bar{\eta}_{j'} = 1$ and that, for any $j'' \in N_i \backslash \{j, j'\}$, $\eta_{j''} = \bar{\eta}_{j''} = 0$. It clearly follows that $a_i = 1$ is neither a best response of player *i* to η nor a best response to $\bar{\eta}$, since in both cases it provides a payoff of 100/3 < 50. QED

Lemma 4. *Consider the game of strategic complements defined in Section* 3 *under the complete information scenario. If the network is such that, for each* $i \in N$, $n_i < 4$, *then the action profile a with* $a_i = 0$ *for all* $i \in N$ *is ordinal GR-dominant.*

Proof. Consider, for the sake of contradiction, that given two a-associated action profiles, η and $\bar{\eta}$, $a_i = 0$ is not a best response to any of them. The fact that $a_i = 0$ is not a best response to η implies that $n_i \geq 2$ and $\left|\{j \in N_i : \eta_j = 1\}\right| \geq 2$. But, since η and $\bar{\eta}$ are a-associated and $n_i < 4$, it follows that $|\{j \in N_i : \bar{\eta}_j = 1\}| \leq 1$, a contradiction with the fact that $a_i = 0$ is not a best response to $\bar{\eta}$. QED

Proposition 8. *Consider the game of strategic complements defined in Section* 3 *with complete information. In any of the networks of Experiments 1 and 2 with multiple equilibria, the secure equilibrium is GR-dominant and the efficient equilibrium is not.*

Proof: We first note that, in all the scenarios, the secure equilibrium (all players inactive) satisfies the conditions of Lemma 4 and, therefore, it is ordinal GR-dominant. We now prove that the efficient equilibrium of each scenario is not ordinal GR-dominant by identifying a player position that satisfies the conditions of Lemma 3. In the BCD/AE equilibrium of the *Orange* network such a player position is B. In the BCDE/A equilibrium of the *Blue* network such a player position is B. In the CDE/AB equilibrium of the *Red* network such a player position is C. In the BCDE/A equilibrium of the *Brown* network such a player position is B. QED

II) Incomplete information scenario

II.i) Strategic complements – 5 player networks

Since in our set of 5-player networks, the maximum degree is 3, for each player $i \in N$, $a_i = (a_{i,1}, a_{i,2}, a_{i,3}) \in \{0,1\}^3$. For each $k \in \{1,2,3\}$, $a_{i,k} = 0$ ($a_{i,k} = 1$) represents the choice of inactive (active) in the event in which player *i* has degree *k*.

Proposition 9. *Consider the game of strategic complements defined in Section* 3 *under any of the network generating processes of either Experiment* 1 *or Experiment* 2 *with incomplete information. The secure equilibrium is ordinal GR-dominant and the efficient equilibrium is not.*

Proof. Part 1. We first show that the action profile *a* such that for each $i \in N$, $a_i = (0,1,1)$ (i.e., the efficient equilibrium) is not ordinal GR-dominant. Consider, without loss of generality, player 1. There exist two *a*-associated action profiles η and $\bar{\eta}$ such that $\eta_2 = \eta_3 = (0,1,1)$ and $\eta_4 = \eta_5 = (0,0,0)$, and $\bar{\eta}_2 = \bar{\eta}_3 = (0,0,0)$ and $\bar{\eta}_4 = \bar{\eta}_5 = (0,1,1)$. Since players are randomly allocated in the (selected) network with uniform probability, a_1 is a best response to η if and only if it is a best reponse to $\bar{\eta}$. Consider the choice of player 1 in the event in which $n_1 = 2$, $a_{1,2} = 1$. Let a profile η' be such that $\eta'_2 = \eta'_3 = (1,1,1)$ and $\eta'_4 = \eta'_5 = (0,0,0)$, i.e., players 2 and 3 (4 and 5) are always active (inactive) regardless of their degree. Since the incentives to be active are (weakly) increasing in the activity levels of other players, in order to show that $a_{1,2} = 1$ is not a best response to η, it suffices to show that $a_{1,2} = 1$ is not a best response to η'. Thus, under profile η', the probability that player 1 has $k \in \{0,1,2\}$ active neighbors is $p_k = \frac{\binom{2}{k} \cdot \binom{2}{2-k}}{\binom{4}{2}}$. Thus, in such a case, the expected payoff to player 1 is $\sum_{k=0}^{k=2} p_k \cdot k \cdot \frac{100}{3} = \frac{100}{3} < 50$. It follows that $a_{1,2} = 1$ is not a best response to η'. Thus it is neither a best response to η nor to $\bar{\eta}$ and, it follows that *a* is not ordinal GR-dominant.

Part 2. We now show that the action profile *a* such that for each $i \in N$, $a_i = (0,0,0)$ (i.e., the secure equilibrium) is ordinal GR-dominant. Consider, without loss of generality, player 1. There exist two a-associated action profiles η and $\bar{\eta}$ such that $\eta_2 = \eta_3 = (0,0,0)$ and $\eta_4 = \eta_5 = (1,1,1)$, and $\bar{\eta}_2 = \bar{\eta}_3 = (1,1,1)$ and $\bar{\eta}_4 = \bar{\eta}_5 = (0,0,0)$. In each profile there are two players in $N\backslash\{1\}$ that are always active (regardless of their degree), and two players in $N\backslash\{1\}$ that are always inactive. Since players are randomly allocated in the selected network with uniform probability, a_1 is a best response to $\bar{\eta}$ if and only if it is a best response to η.

We now prove that $a_1 = (0,0,0)$ is a best response to η. We check it entry by entry. First, consider the event in which $n_1 = 1$. Clearly, $a_{1,1} = 0$ is a best response. Second, consider the event in which $n_1 = 2$. Under profile η, the probability that player 1 has $k \in \{0,1,2\}$ active neighbors is $p_k = \frac{\binom{2}{k}\cdot\binom{2}{2-k}}{\binom{4}{2}}$. Thus, in such a case, the payoff to player 1 by choosing $a_{1,2} = 0$ (i.e., 50) exceeds $\sum_{k=0}^{k=2} p_k \cdot k \cdot \frac{100}{3} = \frac{100}{3}$, which is the expected payoff he would get by choosing action 1. Finally, consider the event in which $n_1 = 3$. Under profile η, with probability 1/2 player 1 has two active neighbors and one inactive neighbor, and with probability 1/2 player 1 has one active neighbor and two inactive neighbors. Thus, in such a case, the payoff to player 1 by choosing $a_{1,2} = 0$ (i.e., 50) equals the expected payoff he would get by choosing action 1 $\left(\frac{1}{2}\cdot\frac{100}{3} + \frac{1}{2}\cdot\frac{200}{3}\right)$ and, therefore, it is also a best response.

We now claim that, for any possible pair $(\eta', \bar{\eta}')$ of a-associated action profiles, $a_1 = (0,0,0)$ is a best response to at least one of the action profiles η' and $\bar{\eta}'$. To see this, note that by the definition of *a*-associated action profiles, at least one of the profiles η' and $\bar{\eta}'$ must have two or more players choosing (0,0,0). In such a profile, say η', the activity level in any action chosen by each of the remaining players -those not choosing (0,0,0)- is necessarily (weakly) lower than that of the full activity action $(1,1,1)$. Since in profile η exactly two players choose action $(0,0,0)$ and the remaining players choose $(1,1,1)$, and the incentives to play (0,0,0) are (weakly) decreasing in the activity levels of the other players, the claim follows. This completes the proof. QED

II.ii) Strategic complements – 20-player networks

Since in our set of 20-player networks, the maximum degree is 4, for each player $i \in N$, $a_i = (a_{i,1}, a_{i,2}, a_{i,3}, a_{i,4}) \in \{0,1\}^4$. For each $k \in \{1,2,3,4\}$, $a_{i,k} = 0$ ($a_{i,k} = 1$) represents the choice of inactive (active) in the event in which player *i* has degree *k*.

Proposition 10. *Consider the game of strategic complements defined in Section* 3 *under any of the network generating processes of Experiment 3. None of the equilibrium profiles is ordinal GR-dominant.*

Proof. Part 1. We first show that the action profile a such that for each $i \in N$, $a_i = (0,1,1,1)$ is not ordinal GR-dominant. Consider, without loss of generality, player 1. There exist two a-associated profiles, η and $\bar{\eta}$, such that, for each $i \in \{2, \dots, 10\}$, $\eta_i = (0,0,0,0)$ and $\bar{\eta}_i = (0,1,1,1)$ and, for each $j \in \{11, \dots, 20\}$, $\eta_j = (0,1,1,1)$ and $\bar{\eta}_j = (0,0,0,0)$. Consider the event in which $n_1 = 2$. Clearly, if $a_{1,2} = 1$ is not a best response to profile η, it will neither be to profile $\bar{\eta}$, since the latter one has one more player choosing the full-inactivity strategy (10 vs. 9 players) and all the remaining players choosing the same strategy (0,1,1,1) (recall that all players are randomly allocated in the network with uniform probability). Thus, to prove the result it suffices to show that $a_{1,2} = 1$ is not a best response to profile η.

To this aim, consider a profile η' such that, for each $i \in \{2, \dots, 10\}$, $\eta'_i = (0,0,0,0)$ and, for each $j \in \{11, \dots, 20\}$, $\eta'_i = (1,1,1,1)$. In profile η' there are ten players in $N\backslash\{1\}$ that are always active (regardless of their degree), and nine players in $N\backslash\{1\}$ that are always inactive. It is straightforward to see that if $a_{1,2} = 1$ is not a best response to profile η', it cannot be a best response to profile η. Hence, it suffices to prove that $a_{1,2} = 1$ is not a best response to profile η'. Under profile η', when $n_1 = 2$, the probability that player 1 has $k \in \{0,1,2\}$ active neighbors is $p'_k = \frac{\binom{10}{k} \cdot \binom{9}{2-k}}{\binom{19}{2}}$. Thus, in such a case, the expected payoff to player 1 by choosing $a_{1,2} = 1$ is $\sum_{k=0}^{k=2} p'_k \cdot k \cdot \frac{100}{3} = 35.1 < 50$. Thus $a_{1,2} = 1$ is not a best response to profile η'. It follows that $a_{1,2}$ (and, therefore, a_1) is neither a best response to η nor to $\bar{\eta}$ and, thus, a is not ordinal GR-dominant.

Part 2. We now show that the action profile a such that for each $i \in N$, $a_i = (0,0,0,0)$ is not ordinal GR-dominant. Consider, without loss of generality, player 1. There exist two a-associated profiles, η and $\bar{\eta}$, such that, for each $i \in \{2, \dots, 10\}$, $\eta_i = (1,1,1,1)$ and $\bar{\eta}_i = (0,0,0,0)$ and, for each $j \in \{11, \dots, 20\}$, $\eta_j = (0,0,0,0)$ and $\bar{\eta}_j = (1,1,1,1)$. In profile η (profile $\bar{\eta}$) there are nine (ten) players in $N\backslash\{1\}$ that are always active (regardless of their degree), and ten (nine) players in $N\backslash\{1\}$ that are always inactive. Consider the event in which $n_1 = 4$. Clearly, if $a_{1,4} = 0$ is not a best response to profile η, it will neither be to profile $\bar{\eta}$ (recall that all players are randomly allocated in the network with uniform probability). Thus, to prove the result it suffices to show that $a_{1,4} = 0$ is not a best response to profile η.

Under profile η, when $n_1 = 4$, the probability that player 1 has $k \in \{0,1,2,3,4\}$ active neighbors is $q_k = \frac{\binom{9}{k} \cdot \binom{10}{4-k}}{\binom{19}{4}}$. Thus, in such a case, the payoff to player 1 by choosing $a_{1,4} = 0$ (i.e., 50) is lower than the expected payoff he would get by choosing action 1, i.e., $\sum_{k=0}^{k=4} q_k \cdot k \cdot \frac{100}{3} = 63.2$. It follows that $a_{1,4}$ (and, therefore, a_1) is neither a best response to η nor to $\bar{\eta}$ and, thus, a is not ordinal GR-dominant. QED