ISSN NO. 2320-5407

Journal homepage: http://www.journalijar.com
Journal DOI: 10.21474/IJAR01

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH

RESEARCH ARTICLE

The Physical Reality Of McConnachie compact groups of galaxies –II.

Sabry A. Mohamed[1,2].

1. National Research Institute of Astronomy and Geophysics, Helwan, Cairo, Egypt.
2. Physics Dept., College of Science and Humanities, Hawtat sudair, Majmaah University, Saudi Arabia.

Manuscript Info

Manuscript History:

Received: 15 May 2016
Final Accepted: 22 June 2016
Published Online: July 2016

Key words:
galaxies, catalog, groups, cluster, statistics.

Corresponding Author

Sabry A. Mohamed.

Abstract

The McConnachie compact groups of galaxies (McConnachie et al.2009) has been revised by using The tree clustering technique (The Astrophysical Euclidean Separation Coefficients). The first 92 groups containing five individuals have been adopted for the present investigation. Calculation have been performed to derive, for each group, the average astrophysical euclidean separation coefficients between each astrophysical parameter of the members.

The results show that , there are many galaxies should be rejected from its groups and some groups have sub- groups and paired. The tables of groups and their members are included.

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Introduction:-

Compact groups of galaxies (CGGs) are the system have three to ten galaxies within a small size (a few tens of kiloparsecs). The Stephan's Quintet are the first compact groups of galaxies observed (Stephan 1877) . after that , There are many numerous studies have identified the groups of galaxies differ from each other by different selection criteria of members in the groups (e.g., Shakhbazian 1957; de Vaucoulaurs 1975, Turner and Gott 1976a,b, Rose 1977, Karanchentsev et al.1979, Hickson 1982, Geller and Huchra 1983, Prandoni et. al.1994, Garcia 1995, Barton et al.1996, Allam and Tucker 2000, Focardi and Kelm 2002, Iovenio 2002, Iovenio et el. 2003, Lee et al. 2004, de Carvalho et al. 2005, Deng et al. 2007, Wang, Yu, et. al. 2008, McConnachie et al 2009, Diaz-Gimenez et al. 2012 , Sohn et al 2015).

Compact groups of galaxies (CGGs) have a small size comparable with the galaxy sizes in each groups, small velocity dispersion (~ 200 Km. S^{-1}) and short crossing time, So CGGs is the best laboratory to study the galaxy interactions (Rubin et. al 1991, Hickson et al 1992, Verdes-Montenegro et. al. 2001, Bitsakis et al 2010, 2011, 2014, Walker et al 2010, Sohn et al 2013, Alfaro et al 2015)

Most CGGs catalogs criteria depends on the photometric redshift observations which have many sources of the errors and uncertainties. so we can find many problems in these catalogs such as discordant members..

The paper is organized as follows: section 2 describes the philosophy of the method and data used while section 3 describes the results obtained and discussion.

Data and Method:-

2.1. The Data

McConnachie et al. (2009) introduced the largest catalogue of the compact groups of galaxies selected from the Sixth Data Release of the Sloan Digital Sky Survey (SDSS DR6). by using same criteria from Hickson (1982) .They identify 2297 CGGs down to a limiting magnitude of r =18 and 74791 CGGs down to a limiting magnitude of r=21.They follow Hickson (1982) criteria which states that:

$$n \geq 4 \quad \text{with} \quad m \geq m_B + 3$$
$$R_N \geq 3R_G$$
$$\mu_G \leq 26$$

where n is the number of members, m_B is the estimated magnitude of the brightest group member, R_G is the radius of the smallest circle containing the group members, R_N is the distance from the center of this circle to the nearest nonmember satisfying the same magnitude condition and μ_G is the mean surface brightness contained by the circle.

The Method:-

The Unweighted Pair Group Method using Arithmetic Average (UPGMA) (*Sokal and Michener 195*8 , *William and Edelsbrunner 1984, Herbert* 1984, *Murtagh 1984*, Romesburg 1984) is one of the cluster analysis technique used to measure the similarity and dissimilarity between any two members in group by calculating the astrophysical euclidean separation coefficients in attribute space..The technique depends on studying together some attributes of objects which seems to form a group or catalogued as group. If these attributes are similar or nearly equal, according to the philosophy of the technique then it may form a cluster. The main core of the method depends on a matrix in which columns stands for objects while its rows are concerned with the attributes of these objects

This matrix enables the determination of similarity or dissimilarity between individual galaxies that may form a group. If the attributes are close to each other, we may expect clustering. If the attributes are very close or nearly equal we can expect compact clustering in its real sense. The astrophysical euclidean coefficients is the best choice for the distance metric, because inter-point distances between the samples can be computed directly, it measures how big the similarity or dissimilarity between the attributes of objects regardless of the number.

$$e_{jk} = \sqrt{\sum_{i=1}^{3} (X_{ij} - X_{ik})^2} \qquad (1)$$

This means that to compute e_{jk} for two galaxies j and k Adding a third attribute, the euclidean distance coefficient is given by just adding a third term, i.e. A generalization of n attribute can take the form

$$e_{jk} = \sqrt{\sum_{i=1}^{n} (X_{ij} - X_{ik})^2} \qquad (2)$$

Equation (2) gives the square root of the sum of the squares of the differences of the values of the n attributes.
The average Euclidean distance coefficient e_{jk} is defined as the average of the squares of the differences, expressed as,

$$e_{jk} = \sqrt{\sum_{i=1}^{n} [\frac{(X_{ij} - X_{ik})^2}{n}]} \qquad (3)$$

In the First paper (Sabry 2016b), the UPGAMA method used in the first 100 CGGs from McConnachie et al. (2009) catalog by using same criteria in Sabry et al. (2009) and Sabry et al. (2012) to test the physical reality of each member in the groups and the astrophysical euclidean separation coefficients of each two members in the same group calculated by using the total magnitude of the group in the r band and the g-r color index.
The same method apply in the first 92 Groups (have 5 members only) from the same catalog.

Results:-

by Appling the UPGAMA method in the first 92 groups which have five members only from the catalog of McConnachie et al. (2009) and calculated the astrophysical euclidean separation coefficients of each two members in the same group using the total magnitude of the group in the r band and the g-r color index we get the results shows in table as follows:

Column (1) : the number of the group and the Euclidean coefficient, column (2): the total magnitude of the first object in the r band, column (3): the total magnitude of the second object in the r band, column (4) : the g-r color

index of the first object, column (5) : the g-r color index of the second object, column (6) : the calculated Astrophysical euclidean coefficient, column (7) is the average astrophysical euclidean coefficient, column (8): the standard deviation, column (9): the classification of every two galaxies regarding each other and column (10) is the comments.

SDSSCGA0115

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.19	17.1	1.00	1.38	0.986154	0.87078	0.47915	M	G_{23} and G_{34} make a twin. There are a Triplet Galaxy TR(2,3,4) . G_{24} make a pair. G_1 and G_5 may be attribute discordant
G_{13}	16.19	17.14	1.00	1.18	0.966902			M	
G_{14}	16.19	17.38	1.00	1.04	1.190672			M	
G_{15}	16.19	17.97	1.00	0.65	1.814084			AD	
G_{23}	17.1	17.14	1.38	1.18	0.203961			T	
G_{24}	17.1	17.38	1.38	1.04	0.440454			P	
G_{25}	17.1	17.97	1.38	0.65	1.135694			AD	
G_{34}	17.14	17.38	1.18	1.04	0.277849			T	
G_{35}	17.14	17.97	1.18	0.65	0.984784			AD	
G_{45}	17.38	17.97	1.04	0.65	0.707248			P	

SDSSCGA0129

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.27	15.84	0.74	0.74	0.57	1.159311	0.557673	T	G_{12} make a twin G_{34} make a twin G_5 may be attribute discordant G_{23} make a pair The Group have 2 subgroups
G_{13}	15.27	16.85	0.74	0.55	1.591383			M	
G_{14}	15.27	17.18	0.74	0.8	1.910942			AD	
G_{15}	15.27	17.37	0.74	1.06	2.124241			AD	
G_{23}	15.84	16.85	0.74	0.55	1.027716			P	
G_{24}	15.84	17.18	0.74	0.8	1.341343			M	
G_{25}	15.84	17.37	0.74	1.06	1.563106			AD	
G_{34}	16.85	17.18	0.55	0.8	0.414005			T	
G_{35}	16.85	17.37	0.55	1.06	0.728354			P	
G_{45}	17.18	17.37	0.8	1.06	0.322025			P	

SDSSCGA0135

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15	15.33	0.81	0.85	0.332415	1.5717	0.8124	T	G_{12} make a twin G_{13} make a pair G_{23} make a pair G_5 may be attribute discordant The Group may have 2 subgroups
G_{13}	15	16.3	0.81	0.87	1.301384			P	
G_{14}	15	17.7	0.81	0.76	2.700463			AD	
G_{15}	15	17.73	0.81	0.83	2.730073			AD	
G_{23}	15.33	16.3	0.85	0.87	0.970206			P	
G_{24}	15.33	17.7	0.85	0.76	2.371708			M	
G_{25}	15.33	17.73	0.85	0.83	2.400083			AD	
G_{34}	16.3	17.7	0.87	0.76	1.404315			P	
G_{35}	16.3	17.73	0.87	0.83	1.430559			P	
G_{45}	17.7	17.73	0.76	0.83	0.076158			P	

SDSSCGA0151

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.42	15.63	0.99	0.92	0.221359	1.137569	0.704238	T	G_{12} make a twin G_{34} make a twin G_{13} make a pair G_{24} make a pair G_{14} make a pair G_5 may be attribute discordant
G_{13}	15.42	16.23	0.99	1.06	0.813019			P	
G_{14}	15.42	16.44	0.99	0.74	1.05019			P	
G_{15}	15.42	17.79	0.99	0.86	2.373563			AD	
G_{23}	15.63	16.23	0.92	1.06	0.616117			P	
G_{24}	15.63	16.44	0.92	0.74	0.829759			P	
G_{25}	15.63	17.79	0.92	0.86	2.160833			AD	
G_{34}	16.23	16.44	1.06	0.74	0.382753			T	
G_{35}	16.23	17.79	1.06	0.86	1.572768			AD	
G_{45}	16.44	17.79	0.74	0.86	1.355323			AD	

SDSSCGA0155

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.01	15.61	0.96	0.93	0.60075	1.030261	0.674874	P	G_{23} make a twin
G_{13}	15.01	15.74	0.96	0.9	0.732462			P	G_{34} make a twin
G_{14}	15.01	16.07	0.96	0.98	1.060189			M	G_{12} make a pair
G_{15}	15.01	17.35	0.96	0.9	2.340769			AD	G_{13} make a pair
G_{23}	15.61	15.74	0.93	0.9	0.133417			T	G_{24} make a pair
G_{24}	15.61	16.07	0.93	0.98	0.462709			P	G_5 may be attribute discordant
G_{25}	15.61	17.35	0.93	0.9	1.740259			AD	
G_{34}	15.74	16.07	0.9	0.98	0.339559			T	
G_{35}	15.74	17.35	0.9	0.9	1.6100			AD	
G_{45}	16.07	17.35	0.98	0.9	1.282498			AD	

SDSSCGA0161

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	14.77	15.8	0.97	0.94	1.030437	1.564453	0.6911207	P	G_{34} make a twin
G_{13}	14.77	16.89	0.97	0.32	2.217408			M	G_{12} make a pair
G_{14}	14.77	17.28	0.97	0.93	2.510319			AD	G_5 may be attribute discordant
G_{15}	14.77	17.66	0.97	1.21	2.899948			AD	The Group may have 2 subgroups
G_{23}	15.8	16.89	0.94	0.32	1.253994			P	
G_{24}	15.8	17.28	0.94	0.93	1.480034			P	
G_{25}	15.8	17.66	0.94	1.21	1.879495			AD	
G_{34}	16.89	17.28	0.32	0.93	0.724017			T	
G_{35}	16.89	17.66	0.32	1.21	1.17686			P	
G_{45}	17.28	17.66	0.93	1.21	0.472017			P	

SDSSCGA0164

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.69	16.31	0.9	0.98	0.62514	1.030328	0.5470101	P	G_{12} make a pair
G_{13}	15.69	17.22	0.9	0.87	1.530294			M	G_{34} make a twin
G_{14}	15.69	17.43	0.9	0.92	1.740115			AD	G_{13} make a pair
G_{15}	15.69	17.7	0.9	0.91	2.010025			AD	G_{35} make a pair
G_{23}	16.31	17.22	0.98	0.87	0.916624			P	G_{45} make a pair
G_{24}	16.31	17.43	0.98	0.92	1.121606			M	
G_{25}	16.31	17.7	0.98	0.91	1.391761			AD	
G_{34}	17.22	17.43	0.87	0.92	0.21587			T	
G_{35}	17.22	17.7	0.87	0.91	0.481664			P	
G_{45}	17.43	17.7	0.92	0.91	0.270185			P	

SDSSCGA0165

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.87	17.49	1.03	1	0.620725	0.372404	0.253144	M	G_{23} make a twin
G_{13}	16.87	17.53	1.03	0.97	0.662722			AD	G_{34} make a pair
G_{14}	16.87	17.54	1.03	0.74	0.730068			AD	G_{24} make a pair
G_{15}	16.87	17.58	1.03	0.84	0.734983			AD	G_{34} make a pair
G_{23}	17.49	17.53	1	0.97	0.0500			T	G_{35} make a pair
G_{24}	17.49	17.54	1	0.74	0.264764			P	G_{45} make a pair
G_{25}	17.49	17.58	1	0.84	0.183576			P	G_1 may be attribute discordant
G_{34}	17.53	17.54	0.97	0.74	0.230217			P	
G_{35}	17.53	17.58	0.97	0.84	0.139284			P	
G_{45}	17.54	17.58	0.74	0.84	0.107703			P	

SDSSCGA0169

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.58	16.75	1.03	1.06	1.170385	1.115432	0.541789	M	G_{12} make a pair
G_{13}	15.58	17.07	1.03	0.51	1.578132			M	G_{23} make a pair
G_{14}	15.58	17.48	1.03	1.02	1.900026			AD	G_{34} make a twin
G_{15}	15.58	17.77	1.03	0.67	2.219392			AD	G_{24} make a pair
G_{23}	16.75	17.07	1.06	0.51	0.636318			P	G_{25} make a pair
G_{24}	16.75	17.48	1.06	1.02	0.731095			P	G_{35} make a pair
G_{25}	16.75	17.77	1.06	0.67	1.092016			P	G_{45} make a pair
G_{34}	17.07	17.48	0.51	1.02	0.65437			P	G_1 may be attribute discordant
G_{35}	17.07	17.77	0.51	0.67	0.718053			P	
G_{45}	17.48	17.77	1.02	0.67	0.454533			P	

SDSSCGA0188

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.61	16.26	1.03	0.97	0.652763	1.087914	0.627931	P	G_{12} make a pair
G_{13}	15.61	16.28	1.03	0.94	0.676018			P	G_{23} make a twin
G_{14}	15.61	17.08	1.03	1.04	1.470034			M	G_{34} make a pair
G_{15}	15.61	17.91	1.03	0.96	2.301065			AD	G_{24} make a pair
G_{23}	16.26	16.28	0.97	0.94	0.036056			T	G_5 may be attribute discordant
G_{24}	16.26	17.08	0.97	1.04	0.822982			P	
G_{25}	16.26	17.91	0.97	0.96	1.65003			AD	
G_{34}	16.28	17.08	0.94	1.04	0.806226			P	
G_{35}	16.28	17.91	0.94	0.96	1.630123			AD	
G_{45}	17.08	17.91	1.04	0.96	0.833847			P	

SDSSCGA0194

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.73	16.96	1.07	0.5	0.614654	0.748819	0.317515	P	G_{34} make a twin
G_{13}	16.73	17.76	1.07	0.83	1.057592			M	G_{24} make a pair
G_{14}	16.73	17.82	1.07	0.62	1.179237			AD	G_{35} make a pair
G_{15}	16.73	17.86	1.07	0.48	1.274755			AD	G_{45} make a pair
G_{23}	16.96	17.76	0.5	0.83	0.86539			M	This Group have 2 subgroups
G_{24}	16.96	17.82	0.5	0.62	0.868332			M	
G_{25}	16.96	17.86	0.5	0.48	0.900222			AD	
G_{34}	17.76	17.82	0.83	0.62	0.218403			T	
G_{35}	17.76	17.86	0.83	0.48	0.364005			P	
G_{45}	17.82	17.86	0.62	0.48	0.145602			P	

SDSSCGA0195

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	14.71	15.41	0.82	1.18	0.787147	1.216316	0.542291	P	G_{12} make a pair
G_{13}	14.71	16.06	0.82	0.84	1.350148			M	G_{23} make a pair
G_{14}	14.71	16.85	0.82	0.85	2.14021			AD	G_{24} make a pair
G_{15}	14.71	16.92	0.82	1.09	2.226432			AD	G_{35} make a pair
G_{23}	15.41	16.06	1.18	0.84	0.733553			P	G_{45} make a pair
G_{24}	15.41	16.85	1.18	0.85	1.477329			M	
G_{25}	15.41	16.92	1.18	1.09	1.51268			AD	
G_{34}	16.06	16.85	0.84	0.85	0.790063			P	
G_{35}	16.06	16.92	0.84	1.09	0.8956			P	
G_{45}	16.85	16.92	0.85	1.09	0.25			P	

SDSSCGA0199

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		
G_{12}	16.5	16.51	0.8	0.93	0.130384	0.533151	0.206206	T	G_{12} make a Twin
G_{13}	16.5	16.71	0.8	0.47	0.391152			P	G_{23} make a pair
G_{14}	16.5	16.91	0.8	0.89	0.419762			P	G_{34} make a pair
G_{15}	16.5	17.24	0.8	1.22	0.850882			AD	G_{24} make a pair
G_{23}	16.51	16.71	0.93	0.47	0.501597			P	G_5 may be attribute discordant
G_{24}	16.51	16.91	0.93	0.89	0.401995			P	
G_{25}	16.51	17.24	0.93	1.22	0.785493			AD	
G_{34}	16.71	16.91	0.47	0.89	0.465188			P	
G_{35}	16.71	17.24	0.47	1.22	0.918368			AD	
G_{45}	16.91	17.24	0.89	1.22	0.46669			P	

SDSSCGA0202

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.19	15.57	0.43	0.79	0.52345	1.396642	0.685968	T	G_{12} make a Twin
G_{13}	15.19	16.81	0.43	0.79	1.659518			M	G_{23} make a pair
G_{14}	15.19	17.45	0.43	0.81	2.291724			AD	G_{34} make a twin
G_{15}	15.19	17.68	0.43	0.82	2.520357			AD	G_{35} make a pair
G_{23}	15.57	16.81	0.79	0.79	1.2400			P	G_{45} make a pair
G_{24}	15.57	17.45	0.79	0.81	1.880106			M	The group have 2 subgroups
G_{25}	15.57	17.68	0.79	0.82	2.110213			AD	
G_{34}	16.81	17.45	0.79	0.81	0.640312			T	
G_{35}	16.81	17.68	0.79	0.82	0.870517			P	
G_{45}	17.45	17.68	0.81	0.82	0.230217			P	

SDSSCGA0209

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.26	16.06	0.86	0.89	0.800562	1.087706	0.544498	P	G_{12} make a pair
G_{13}	15.26	16.36	0.86	0.43	1.181059			M	G_{23} make a pair
G_{14}	15.26	16.63	0.86	0.83	1.370328			M	G_{34} make a twin
G_{15}	15.26	17.54	0.86	0.84	2.280088			AD	G_{24} make a pair
G_{23}	16.06	16.36	0.89	0.43	0.549181			P	G_{25} make a pair
G_{24}	16.06	16.63	0.89	0.83	0.573149			P	G_5 may be attribute discordant
G_{25}	16.06	17.54	0.89	0.84	1.480844			AD	
G_{34}	16.36	16.63	0.43	0.83	0.482597			T	
G_{35}	16.36	17.54	0.43	0.84	1.2492			AD	
G_{45}	16.63	17.54	0.83	0.84	0.910055			P	

SDSSCGA0222

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.88	16.89	0.81	0.84	0.031623	0.578773	0.312959	T	G_{12} make a Twin
G_{13}	16.88	17.22	0.81	0.87	0.345254			P	G_{23} make a pair
G_{14}	16.88	17.5	0.81	0.97	0.640312			M	G_{34} make a twin
G_{15}	16.88	17.76	0.81	0.31	1.012126			AD	G_5 may be attribute discordant
G_{23}	16.89	17.22	0.84	0.87	0.331361			P	
G_{24}	16.89	17.5	0.84	0.97	0.623699			M	
G_{25}	16.89	17.76	0.84	0.31	1.018725			AD	
G_{34}	17.22	17.5	0.87	0.97	0.297321			P	
G_{35}	17.22	17.76	0.87	0.31	0.777946			AD	
G_{45}	17.5	17.76	0.97	0.31	0.709366			AD	

SDSSCGA0223

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.18	17.17	1.01	1.09	0.993227	0.764988	0.494998	M	G_{23} make a twin G_{34} make a twin G_{35} make a pair G_{45} make a pair G_1 may be attribute discordant
G_{13}	16.18	17.29	1.01	1.07	1.11162			M	
G_{14}	16.18	17.57	1.01	1.16	1.39807			AD	
G_{15}	16.18	17.85	1.01	1.3	1.694993			AD	
G_{23}	17.17	17.29	1.09	1.07	0.121655			T	
G_{24}	17.17	17.57	1.09	1.16	0.406079			P	
G_{25}	17.17	17.85	1.09	1.3	0.711688			P	
G_{34}	17.29	17.57	1.07	1.16	0.294109			P	
G_{35}	17.29	17.85	1.07	1.3	0.605392			P	
G_{45}	17.57	17.85	1.16	1.3	0.31305			P	

SDSSCGA0226

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.63	16.68	1.17	0.98	0.196469	0.729226	0.4038837	T	G_{12} make a Twin G_{23} make a pair G_{34} make a twin G_5 may be attribute discordant
G_{13}	16.63	17.43	1.17	0.69	0.932952			M	
G_{14}	16.63	17.51	1.17	0.62	1.037738			M	
G_{15}	16.63	17.75	1.17	0.41	1.353514			AD	
G_{23}	16.68	17.43	0.98	0.69	0.804114			M	
G_{24}	16.68	17.51	0.98	0.62	0.90471			M	
G_{25}	16.68	17.75	0.98	0.41	1.212353			AD	
G_{34}	17.43	17.51	0.69	0.62	0.106301			T	
G_{35}	17.43	17.75	0.69	0.41	0.425206			P	
G_{45}	17.51	17.75	0.62	0.41	0.318904			P	

SDSSCGA0228

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.89	16.07	0.77	0.48	0.341321	0.966413	0.4059379	T	G_{12} make a Twin G_{23} make a pair G_{34} make a pair G_{35} make a pair G_{45} make a pair
G_{13}	15.89	16.76	0.77	0.56	0.894986			P	
G_{14}	15.89	17.28	0.77	1.03	1.414107			AD	
G_{15}	15.89	17.48	0.77	0.52	1.609534			AD	
G_{23}	16.07	16.76	0.48	0.56	0.694622			P	
G_{24}	16.07	17.28	0.48	1.03	1.329135			M	
G_{25}	16.07	17.48	0.48	0.52	1.410567			AD	
G_{34}	16.76	17.28	0.56	1.03	0.700928			P	
G_{35}	16.76	17.48	0.56	0.52	0.72111			P	
G_{45}	17.28	17.48	1.03	0.52	0.547814			P	

SDSSCGA0243

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	17.46	17.47	1.17	1.17	0.01	0.313148	0.1861491	T	G_{12} make a Twin G_{23} make a pair G_{34} make a twin G_{35} make a pair G_{45} make a pair The group have 2 subgroups
G_{13}	17.46	17.89	1.17	1.02	0.455412			M	
G_{14}	17.46	17.92	1.17	1.05	0.475395			M	
G_{15}	17.46	17.95	1.17	1.16	0.490102			AD	
G_{23}	17.47	17.89	1.17	1.02	0.445982			M	
G_{24}	17.47	17.92	1.17	1.05	0.465725			M	
G_{25}	17.47	17.95	1.17	1.16	0.480104			AD	
G_{34}	17.89	17.92	1.02	1.05	0.042426			T	
G_{35}	17.89	17.95	1.02	1.16	0.152315			P	
G_{45}	17.92	17.95	1.05	1.16	0.114018			P	

SDSSCGA0245

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.41	16.46	0.84	0.83	0.05099	0.613799	0.466883	T	G_{12} make a Twin
G_{13}	16.41	16.53	0.84	0.87	0.123693			T	G_{13} make a Twin
G_{14}	16.41	16.85	0.84	0.9	0.444072			P	G_{23} make a twin
G_{15}	16.41	17.74	0.84	0.79	1.33094			AD	G_{34} make a twin
G_{23}	16.46	16.53	0.83	0.87	0.080623			T	G_5 may be attribute discordant
G_{24}	16.46	16.85	0.83	0.9	0.396232			P	
G_{25}	16.46	17.74	0.83	0.79	1.280625			AD	
G_{34}	16.53	16.85	0.87	0.9	0.321403			P	
G_{35}	16.53	17.74	0.87	0.79	1.212642			AD	
G_{45}	16.85	17.74	0.9	0.79	0.896772			AD	

SDSSCGA0271

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.33	16.81	0.97	0.97	0.48	0.758631	0.411621	P	G_{12} make a pair
G_{13}	16.33	17.18	0.97	1.28	0.904765			M	G_{23} make a pair
G_{14}	16.33	17.23	0.97	1.21	0.93145			M	G_{34} make a twin
G_{15}	16.33	17.91	0.97	0.94	1.580285			AD	G_{45} make a pair
G_{23}	16.81	17.18	0.97	1.28	0.482701			P	
G_{24}	16.81	17.23	0.97	1.21	0.483735			P	The group have 2 subgroups
G_{25}	16.81	17.91	0.97	0.94	1.100409			AD	
G_{34}	17.18	17.23	1.28	1.21	0.086023			T	
G_{35}	17.18	17.91	1.28	0.94	0.805295			AD	
G_{45}	17.23	17.91	1.21	0.94	0.731642			P	

SDSSCGA0274

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.12	16.66	0.53	1.1	0.785175	1.197565	0.3876707	T	G_{12} make a Twin
G_{13}	16.12	16.92	0.53	0.27	0.84119			P	G_{23} make a pair
G_{14}	16.12	17.87	0.53	0.24	1.773866			AD	G_{34} make a twin
G_{15}	16.12	17.92	0.53	1.08	1.882153			AD	G_{35} make a pair
G_{23}	16.66	16.92	1.1	0.27	0.86977			P	G_{45} make a pair
G_{24}	16.66	17.87	1.1	0.24	1.484486			M	
G_{25}	16.66	17.92	1.1	1.08	1.260159			AD	The group have 2 subgroups
G_{34}	16.92	17.87	0.27	0.24	0.950474			P	
G_{35}	16.92	17.92	0.27	1.08	1.286895			AD	
G_{45}	17.87	17.92	0.24	1.08	0.841487			P	

SDSSCGA0296

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.88	16.07	0.99	0.96	0.192354	1.154677	0.6712	T	G_{12} make a Twin
G_{13}	15.88	17.5	0.99	0.96	1.620278			M	G_{34} make a twin
G_{14}	15.88	17.73	0.99	1.05	1.850973			AD	G_{35} make a pair
G_{15}	15.88	17.92	0.99	0.92	2.041201			AD	G_{45} make a pair
G_{23}	16.07	17.5	0.96	0.96	1.43			M	
G_{24}	16.07	17.73	0.96	1.05	1.662438			M	The group have 2 subgroups
G_{25}	16.07	17.92	0.96	0.92	1.850432			AD	
G_{34}	17.5	17.73	0.96	1.05	0.246982			T	
G_{35}	17.5	17.92	0.96	0.92	0.4219			P	
G_{45}	17.73	17.92	1.05	0.92	0.230217			P	

SDSSCGA0300

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.44	16.94	0.95	0.72	0.550364	0.444656	0.20458	M	G_{23} make a twin
G_{13}	16.44	17.1	0.95	0.56	0.766616			AD	G_{34} make a twin
G_{14}	16.44	17.14	0.95	0.93	0.700286			AD	G_{35} make a pair
G_{15}	16.44	17.21	0.95	0.91	0.771038			AD	G_{45} make a pair
G_{23}	16.94	17.1	0.72	0.56	0.226274			T	G_1 may be attribute discordant
G_{24}	16.94	17.14	0.72	0.93	0.2900			P	
G_{25}	16.94	17.21	0.72	0.91	0.330151			P	
G_{34}	17.1	17.14	0.56	0.93	0.372156			P	
G_{35}	17.1	17.21	0.56	0.91	0.366879			P	
G_{45}	17.14	17.21	0.93	0.91	0.072801			P	

SDSSCGA0301

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.13	16.86	0.92	0.81	0.738241	0.936742	0.44900	P	G_{23} make a twin
G_{13}	16.13	17.13	0.92	0.85	1.002447			M	G_{34} make a twin
G_{14}	16.13	17.85	0.92	0.76	1.727426			AD	G_{35} make a pair
G_{15}	16.13	17.86	0.92	1.11	1.740402			AD	G_{45} make a pair
G_{23}	16.86	17.13	0.81	0.85	0.272947			T	
G_{24}	16.86	17.85	0.81	0.76	0.991262			M	
G_{25}	16.86	17.86	0.81	1.11	1.044031			AD	
G_{34}	17.13	17.85	0.85	0.76	0.725603			P	
G_{35}	17.13	17.86	0.85	1.11	0.774919			P	
G_{45}	17.85	17.86	0.76	1.11	0.350143			P	

SDSSCGA0319

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.6	16.68	0.5	0.92	0.427551	0.634773	0.26640	P	G_{13} make a twin
G_{13}	16.6	16.7	0.5	0.68	0.205913			T	G_{23} make a twin
G_{14}	16.6	17.41	0.5	0.69	0.831986			M	G_{35} make a pair
G_{15}	16.6	17.42	0.5	1.16	1.052616			AD	G_5 may be attribute discordant
G_{23}	16.68	16.7	0.92	0.68	0.240832			T	
G_{24}	16.68	17.41	0.92	0.69	0.765376			M	
G_{25}	16.68	17.42	0.92	1.16	0.777946			AD	
G_{34}	16.7	17.41	0.68	0.69	0.71007			M	
G_{35}	16.7	17.42	0.68	1.16	0.865332			AD	
G_{45}	17.41	17.42	0.69	1.16	0.470106			P	

SDSSCGA0328

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.41	17.32	0.65	0.93	0.952103	0.664215	0.421038	M	G_{23} make a pair
G_{13}	16.41	17.53	0.65	0.67	1.120179			AD	G_{34} make a twin
G_{14}	16.41	17.72	0.65	0.81	1.319735			AD	G_{35} make a pair
G_{15}	16.41	17.78	0.65	0.7	1.370912			AD	G_{45} make a pair
G_{23}	17.32	17.53	0.93	0.67	0.334215			P	G_1 may be attribute discordant
G_{24}	17.32	17.72	0.93	0.81	0.417612			P	
G_{25}	17.32	17.78	0.93	0.7	0.514296			P	
G_{34}	17.53	17.72	0.67	0.81	0.236008			T	
G_{35}	17.53	17.78	0.67	0.7	0.251794			P	
G_{45}	17.72	17.78	0.81	0.7	0.1253			P	

SDSSCGA0330

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	14.87	15.94	0.84	0.81	1.07042	1.061209	0.64432	M	G_{34} make a twin
G_{13}	14.87	16.68	0.84	0.75	1.812236			AD	G_{35} make a pair
G_{14}	14.87	16.78	0.84	0.77	1.911282			AD	G_{45} make a pair
G_{15}	14.87	17.1	0.84	0.76	2.231435			AD	G_1 may be attribute discordant
G_{23}	15.94	16.68	0.81	0.75	0.742428			P	
G_{24}	15.94	16.78	0.81	0.77	0.840952			P	
G_{25}	15.94	17.1	0.81	0.76	1.161077			AD	
G_{34}	16.68	16.78	0.75	0.77	0.10198			T	
G_{35}	16.68	17.1	0.75	0.76	0.420119			P	
G_{45}	16.78	17.1	0.77	0.76	0.320156			P	

SDSSCGA340

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.84	16.14	1.05	0.86	0.355106	0.83214	0.424890	T	G_{12} make a Twin
G_{13}	15.84	16.93	1.05	0.78	1.122943			M	G_{34} make a twin
G_{14}	15.84	17.15	1.05	0.87	1.322309			AD	G_{35} make a pair
G_{15}	15.84	17.38	1.05	0.85	1.552933			AD	G_{45} make a pair
G_{23}	16.14	16.93	0.86	0.78	0.79404			P	
G_{24}	16.14	17.15	0.86	0.87	1.01005			M	
G_{25}	16.14	17.38	0.86	0.85	1.24004			AD	
G_{34}	16.93	17.15	0.78	0.87	0.237697			T	
G_{35}	16.93	17.38	0.78	0.85	0.455412			P	
G_{45}	17.15	17.38	0.87	0.85	0.230868			P	

SDSSCGA0352

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.28	16.34	0.99	0.52	0.473814	0.525628	0.2110581	P	G_{13} make a Twin
G_{13}	16.28	16.35	0.99	0.9	0.114018			T	G_{23} make a pair
G_{14}	16.28	16.92	0.99	1.08	0.646297			M	G_5 may be attribute discordant
G_{15}	16.28	16.98	0.99	1.01	0.700286			AD	
G_{23}	16.34	16.35	0.52	0.9	0.380132			P	
G_{24}	16.34	16.92	0.52	1.08	0.806226			AD	
G_{25}	16.34	16.98	0.52	1.01	0.80604			AD	
G_{34}	16.35	16.92	0.9	1.08	0.597746			M	
G_{35}	16.35	16.98	0.9	1.01	0.639531			AD	
G_{45}	16.92	16.98	1.08	1.01	0.092195			P	

SDSSCGA0353

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.65	16.51	0.91	0.96	0.861452	0.878899	0.522439	P	G_{23} make a twin
G_{13}	15.65	16.74	0.91	0.92	1.090046			M	G_{34} make a twin
G_{14}	15.65	16.98	0.91	0.95	1.330601			M	G_{35} make a pair
G_{15}	15.65	17.61	0.91	0.92	1.960026			AD	G_{45} make a pair
G_{23}	16.51	16.74	0.96	0.92	0.233452			T	G_5 may be attribute discordant
G_{24}	16.51	16.98	0.96	0.95	0.470106			P	
G_{25}	16.51	17.61	0.96	0.92	1.100727			AD	
G_{34}	16.74	16.98	0.92	0.95	0.241868			T	
G_{35}	16.74	17.61	0.92	0.92	0.8700			P	
G_{45}	16.98	17.61	0.95	0.92	0.630714			P	

SDSSCGA0360

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.15	16.8	0.57	0.51	0.652763	0.83342	0.439567	P	G_{12} make a pair
G_{13}	16.15	17.22	0.57	0.89	1.116826			M	G_{34} make a twin
G_{14}	16.15	17.22	0.57	0.99	1.149478			M	G_{35} make a pair
G_{15}	16.15	17.85	0.57	0.88	1.728034			AD	G_{45} make a pair
G_{23}	16.8	17.22	0.51	0.89	0.566392			P	
G_{24}	16.8	17.22	0.51	0.99	0.637809			P	
G_{25}	16.8	17.85	0.51	0.88	1.113283			AD	
G_{34}	17.22	17.22	0.89	0.99	0.1			T	
G_{35}	17.22	17.85	0.89	0.88	0.630079			P	
G_{45}	17.22	17.85	0.99	0.88	0.639531			P	

SDSSCGA0365

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.48	16.01	0.82	0.91	0.537587	1.064282	0.793720	P	G_{23} make a twin
G_{13}	15.48	16.21	0.82	0.87	0.73171			P	G_{24} make a twin
G_{14}	15.48	16.23	0.82	0.79	0.7506			P	G_{34} make a twin
G_{15}	15.48	17.76	0.82	1.8	2.481693			AD	G_{35} make a pair
G_{23}	16.01	16.21	0.91	0.87	0.203961			T	G_5 may be attribute discordant
G_{24}	16.01	16.23	0.91	0.79	0.250599			T	
G_{25}	16.01	17.76	0.91	1.8	1.963314			AD	
G_{34}	16.21	16.23	0.87	0.79	0.082462			T	
G_{35}	16.21	17.76	0.87	1.8	1.807595			AD	
G_{45}	16.23	17.76	0.79	1.8	1.833303			AD	

SDSSCGA0367

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.97	16.59	0.93	0.91	0.620322	0.970256	0.45731	P	G_{12} make a pair
G_{13}	15.97	17.25	0.93	0.94	1.280039			M	G_{24} make a pair
G_{14}	15.97	17.7	0.93	0.76	1.738333			AD	G_{34} make a twin
G_{15}	15.97	17.72	0.93	0.55	1.790782			AD	G_{45} make a pair
G_{23}	16.59	17.25	0.91	0.94	0.660681			P	
G_{24}	16.59	17.7	0.91	0.76	1.120089			M	
G_{25}	16.59	17.72	0.91	0.55	1.18596			AD	
G_{34}	17.25	17.7	0.94	0.76	0.484665			T	
G_{35}	17.25	17.72	0.94	0.55	0.610737			P	
G_{45}	17.7	17.72	0.76	0.55	0.21095			P	

SDSSCGA0383

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		
G_{12}	16.29	16.51	0.46	0.99	0.573847	0.841177	0.318218	P	G_{23} make a pair
G_{13}	16.29	17.16	0.46	0.9	0.974936			M	G_{34} make a twin
G_{14}	16.29	17.45	0.46	0.56	1.164302			AD	G_{35} make a pair
G_{15}	16.29	17.68	0.46	0.9	1.457978			AD	G_{45} make a pair
G_{23}	16.51	17.16	0.99	0.9	0.656201			P	
G_{24}	16.51	17.45	0.99	0.56	1.033683			M	
G_{25}	16.51	17.68	0.99	0.9	1.173456			AD	
G_{34}	17.16	17.45	0.9	0.56	0.446878			T	
G_{35}	17.16	17.68	0.9	0.9	0.52			P	
G_{45}	17.45	17.68	0.56	0.9	0.410488			P	

SDSSCGA0401

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.7	16.94	1.12	1.08	1.240645	1.043268	0.625681	M	G_{23} make a twin
G_{13}	15.7	17.03	1.12	1.09	1.330338			M	G_{24} make a pair
G_{14}	15.7	17.82	1.12	1.05	2.121155			AD	G_{25} make a pair
G_{15}	15.7	17.85	1.12	1.14	2.150093			AD	G_{35} make a pair
G_{23}	16.94	17.03	1.08	1.09	0.090554			T	G_{45} make a pair
G_{24}	16.94	17.82	1.08	1.05	0.880511			P	G_1 may be attribute discordant
G_{25}	16.94	17.85	1.08	1.14	0.911976			P	
G_{34}	17.03	17.82	1.09	1.05	0.791012			P	
G_{35}	17.03	17.85	1.09	1.14	0.821523			P	
G_{45}	17.82	17.85	1.05	1.14	0.094868			P	

SDSSCGA0420

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Cooments
G_{12}	16.05	16.93	0.93	0.89	0.880909	0.910976	0.512350	P	G_{34} make a twin
G_{13}	16.05	17.51	0.93	0.86	1.461677			AD	G_{24} make a pair
G_{14}	16.05	17.74	0.93	0.95	1.690118			AD	G_{25} make a pair
G_{15}	16.05	17.9	0.93	1.03	1.852701			AD	G_{35} make a pair
G_{23}	16.93	17.51	0.89	0.86	0.580775			P	G_{45} make a pair
G_{24}	16.93	17.74	0.89	0.95	0.812219			P	
G_{25}	16.93	17.9	0.89	1.03	0.980051			AD	
G_{34}	17.51	17.74	0.86	0.95	0.246982			T	
G_{35}	17.51	17.9	0.86	1.03	0.425441			P	
G_{45}	17.74	17.9	0.95	1.03	0.178885			P	

SDSSCGA0422

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	14.92	15.86	0.69	0.67	0.940213	1.416206	0.762390	P	G_{34} make a Twin
G_{13}	14.92	17.33	0.69	0.35	2.433865			AD	G_{35} make a pair
G_{14}	14.92	17.45	0.69	0.68	2.53002			AD	G_{45} make a pair
G_{15}	14.92	17.54	0.69	0.44	2.6319			AD	G_1 and G_2 may be attribute discordant
G_{23}	15.86	17.33	0.67	0.35	1.504427			M	
G_{24}	15.86	17.45	0.67	0.68	1.590031			M	
G_{25}	15.86	17.54	0.67	0.44	1.695671			AD	
G_{34}	17.33	17.45	0.35	0.68	0.351141			T	
G_{35}	17.33	17.54	0.35	0.44	0.228473			P	
G_{45}	17.45	17.54	0.68	0.44	0.25632			P	

SDSSCGA0430

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.2	16.96	0.67	1.03	0.840952	0.857726	0.448795	P	G_{34} make a twin
G_{13}	16.2	17.51	0.67	1.04	1.361249			AD	G_{24} make a pair
G_{14}	16.2	17.58	0.67	0.79	1.385208			AD	G_{35} make a pair
G_{15}	16.2	17.88	0.67	1.14	1.744506			AD	G_{45} make a pair
G_{23}	16.96	17.51	1.03	1.04	0.550091			P	G_1 may be attribute discordant
G_{24}	16.96	17.58	1.03	0.79	0.664831			P	
G_{25}	16.96	17.88	1.03	1.14	0.926553			AD	
G_{34}	17.51	17.58	1.04	0.79	0.259615			T	
G_{35}	17.51	17.88	1.04	1.14	0.383275			P	
G_{45}	17.58	17.88	0.79	1.14	0.460977			P	

SDSSCGA0434

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.22	16.49	0.84	0.68	1.280039	0.839575	0.528909	M	G_{34} make a twin
G_{13}	15.22	16.62	0.84	1.21	1.448068			AD	G_{24} make a pair
G_{14}	15.22	16.77	0.84	0.95	1.553898			AD	G_{25} make a pair
G_{15}	15.22	16.94	0.84	1.06	1.734013			AD	G_{35} make a pair
G_{23}	16.49	16.62	0.68	1.21	0.545711			P	G_{45} make a pair
G_{24}	16.49	16.77	0.68	0.95	0.388973			P	G_1 may be attribute discordant
G_{25}	16.49	16.94	0.68	1.06	0.588982			P	
G_{34}	16.62	16.77	1.21	0.95	0.300167			T	
G_{35}	16.62	16.94	1.21	1.06	0.353412			P	
G_{45}	16.77	16.94	0.95	1.06	0.202485			P	

SDSSCGA0435

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	14.6	15.27	0.81	0.82	0.670075	1.616319	0.91910	T	G_{12}make a twin
G_{13}	14.6	17.26	0.81	0.84	2.660169			AD	G_{34} make a twin
G_{14}	14.6	17.42	0.81	0.59	2.828569			AD	G_{35} make a pair
G_{15}	14.6	17.47	0.81	0.53	2.883626			AD	G_{45} make a pair
G_{23}	15.27	17.26	0.82	0.84	1.9901			M	The group have 2 subgroups
G_{24}	15.27	17.42	0.82	0.59	2.162267			M	
G_{25}	15.27	17.47	0.82	0.53	2.219031			AD	
G_{34}	17.26	17.42	0.84	0.59	0.296816			T	
G_{35}	17.26	17.47	0.84	0.53	0.374433			P	
G_{45}	17.42	17.47	0.59	0.53	0.078102			P	

SDSSCGA0438

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.53	16.05	0.92	0.66	0.581378	1.28489	0.7121652	P	G_{12}make a pair
G_{13}	15.53	16.12	0.92	0.77	0.608769			P	G_{23} make a twin
G_{14}	15.53	17.44	0.92	0.74	1.918463			M	G_5 may be attribute discordant
G_{15}	15.53	18	0.92	0.89	2.470182			AD	
G_{23}	16.05	16.12	0.66	0.77	0.130384			T	
G_{24}	16.05	17.44	0.66	0.74	1.3923			M	
G_{25}	16.05	18	0.66	0.89	1.963517			AD	
G_{34}	16.12	17.44	0.77	0.74	1.320341			M	
G_{35}	16.12	18	0.77	0.89	1.883826			AD	
G_{45}	17.44	18	0.74	0.89	0.579741			P	

SDSSCGA0445

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.28	17.15	0.88	1.01	0.879659	0.621831	0.42635	M	G_{34} make a twin
G_{13}	16.28	17.37	0.88	1	1.096586			AD	G_{35} make a pair
G_{14}	16.28	17.54	0.88	0.91	1.260357			AD	G_{45} make a pair
G_{15}	16.28	17.62	0.88	0.97	1.343019			AD	G_1 may be attribute discordant
G_{23}	17.15	17.37	1.01	1	0.220227			P	
G_{24}	17.15	17.54	1.01	0.91	0.402616			P	
G_{25}	17.15	17.62	1.01	0.97	0.471699			P	
G_{34}	17.37	17.54	1	0.91	0.192354			T	
G_{35}	17.37	17.62	1	0.97	0.251794			P	
G_{45}	17.54	17.62	0.91	0.97	0.1			P	

SDSSCGA0446

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.03	16.03	1.06	0.72	0.34	1.02308	0.487468	T	G_{12}make a twin
G_{13}	16.03	17.11	1.06	1.03	1.080417			M	G_{34} make a twin
G_{14}	16.03	17.47	1.06	0.78	1.46697			M	G_{35} make a pair
G_{15}	16.03	17.73	1.06	0.81	1.718284			AD	G_{45} make a pair
G_{23}	16.03	17.11	0.72	1.03	1.12361			M	G_5 may be attribute discordant
G_{24}	16.03	17.47	0.72	0.78	1.441249			M	
G_{25}	16.03	17.73	0.72	0.81	1.702381			AD	
G_{34}	17.11	17.47	1.03	0.78	0.438292			T	
G_{35}	17.11	17.73	1.03	0.81	0.657875			P	
G_{45}	17.47	17.73	0.78	0.81	0.261725			P	

SDSSCGA0453

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.96	17.28	1.06	1.02	0.32249	0.592069	0.195650	T	G_{12}make a twin
G_{13}	16.96	17.63	1.06	0.48	0.886172			AD	G_{34} make a pair
G_{14}	16.96	17.84	1.06	1.00	0.882043			AD	G_{35} make a pair
G_{15}	16.96	17.86	1.06	0.99	0.902718			AD	G_{45} make a pair
G_{23}	17.28	17.63	1.02	0.48	0.643506			M	
G_{24}	17.28	17.84	1.02	1.00	0.560357			P	
G_{25}	17.28	17.86	1.02	0.99	0.580775			P	
G_{34}	17.63	17.84	0.48	1.00	0.560803			P	
G_{35}	17.63	17.86	0.48	0.99	0.559464			P	
G_{45}	17.84	17.86	1.00	0.99	0.022361			P	

SDSSCGA0457

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.75	16.4	0.82	0.34	0.808022	0.871688	0.37459	P	G_{12} make a pair
G_{13}	15.75	16.94	0.82	0.99	1.202082			M	G_{34} make a twin
G_{14}	15.75	17	0.82	0.71	1.254831			AD	G_{35} make a pair
G_{15}	15.75	17.39	0.82	0.74	1.64195			AD	G_{45} make a pair
G_{23}	16.4	16.94	0.34	0.99	0.845044			P	G_2 may be attribute discordant
G_{24}	16.4	17	0.34	0.71	0.704911			P	
G_{25}	16.4	17.39	0.34	0.74	1.067755			AD	
G_{34}	16.94	17	0.99	0.71	0.286356			T	
G_{35}	16.94	17.39	0.99	0.74	0.514782			P	
G_{45}	17	17.39	0.71	0.74	0.391152			P	

SDSSCGA0481

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.95	16.27	0.94	0.83	0.338378	0.952329	0.558895	T	G_{12} make a twinr
G_{13}	15.95	16.66	0.94	0.72	0.743303			P	G_{34} make a twin
G_{14}	15.95	16.94	0.94	0.93	0.990051			M	G_{23} make a pair
G_{15}	15.95	17.93	0.94	0.58	2.012461			AD	G_{24} make a pair
G_{23}	16.27	16.66	0.83	0.72	0.405216			P	G_5 may be attribute discordant
G_{24}	16.27	16.94	0.83	0.93	0.677422			P	
G_{25}	16.27	17.93	0.83	0.58	1.67872			AD	
G_{34}	16.66	16.94	0.72	0.93	0.3500			T	
G_{35}	16.66	17.93	0.72	0.58	1.277693			AD	
G_{45}	16.94	17.93	0.93	0.58	1.050048			AD	

SDSSCGA0488

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	14.52	16.12	0.87	0.57	1.627882	1.427509	0.807256	M	G_{24} make a pair
G_{13}	14.52	16.49	0.87	0.79	1.971624			M	G_{23} make a twin
G_{14}	14.52	17.23	0.87	0.89	2.710074			AD	G_{35} make a pair
G_{15}	14.52	17.48	0.87	0.95	2.961081			AD	G_{45} make a pair
G_{23}	16.12	16.49	0.57	0.79	0.430465			T	G_1may be attribute discordant
G_{24}	16.12	17.23	0.57	0.89	1.155206			P	
G_{25}	16.12	17.48	0.57	0.95	1.412091			P	
G_{34}	16.49	17.23	0.79	0.89	0.746726			P	
G_{35}	16.49	17.48	0.79	0.95	1.002846			P	
G_{45}	17.23	17.48	0.89	0.95	0.257099			P	

SDSSCGA0491

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.4	16.95	0.83	0.96	0.565155	0.743855	0.349309	P	G_{24} make a pair
G_{13}	16.4	17.22	0.83	0.74	0.824924			M	G_{23} make a twin
G_{14}	16.4	17.59	0.83	0.95	1.196035			AD	G_{35} make a pair
G_{15}	16.4	17.87	0.83	1.06	1.487884			AD	G_{45} make a pair
G_{23}	16.95	17.22	0.96	0.74	0.348281			T	G_1 may be attribute discordant
G_{24}	16.95	17.59	0.96	0.95	0.640078			P	
G_{25}	16.95	17.87	0.96	1.06	0.925419			AD	
G_{34}	17.22	17.59	0.74	0.95	0.425441			P	
G_{35}	17.22	17.87	0.74	1.06	0.7245			P	
G_{45}	17.59	17.87	0.95	1.06	0.300832			P	

SDSSCGA0494

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.24	16.84	0.6	0.88	0.662118	0.839043	0.332368	P	G_{12} make a pair
G_{13}	16.24	17.11	0.6	0.45	0.882836			M	G_{24} make a twin
G_{14}	16.24	17.18	0.6	1.14	1.084066			M	G_{35} make a pair
G_{15}	16.24	17.83	0.6	0.76	1.59803			AD	G_{45} make a pair
G_{23}	16.84	17.11	0.88	0.45	0.50774			P	
G_{24}	16.84	17.18	0.88	1.14	0.428019			T	
G_{25}	16.84	17.83	0.88	0.76	0.997246			AD	
G_{34}	17.11	17.18	0.45	1.14	0.693542			P	
G_{35}	17.11	17.83	0.45	0.76	0.783901			P	
G_{45}	17.18	17.83	1.14	0.76	0.752928			P	

SDSSCGA0497

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.44	17	0.89	0.9	1.560032	1.174718	0.762709	M	G_{24} make a pair
G_{13}	15.44	17.16	0.89	0.9	1.720029			M	G_{25} make a pair
G_{14}	15.44	17.75	0.89	0.93	2.310346			AD	G_{23} make a twin
G_{15}	15.44	18	0.89	0.88	2.56002			AD	G_{35} make a pair
G_{23}	17	17.16	0.9	0.9	0.1600			T	G_{45} make a pair
G_{24}	17	17.75	0.9	0.93	0.7506			P	G_1 may be attribute discordant
G_{25}	17	18	0.9	0.88	1.0002			P	
G_{34}	17.16	17.75	0.9	0.93	0.590762			P	
G_{35}	17.16	18	0.9	0.88	0.840238			P	
G_{45}	17.75	18	0.93	0.88	0.254951			P	

SDSSCGA0996

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.56	16.69	0.93	0.93	0.13	0.774333	0.441028	T	G_{12} make a twin
G_{13}	16.56	16.82	0.93	0.7	0.347131			P	G_{24} make a pair
G_{14}	16.56	17.37	0.93	0.91	0.810247			M	G_{23} make a twin
G_{15}	16.56	17.99	0.93	1.33	1.484891			AD	G_5 may be attribute discordant
G_{23}	16.69	16.82	0.93	0.7	0.264197			T	
G_{24}	16.69	17.37	0.93	0.91	0.680294			P	
G_{25}	16.69	17.99	0.93	1.33	1.360147			AD	
G_{34}	16.82	17.37	0.7	0.91	0.588727			P	
G_{35}	16.82	17.99	0.7	1.33	1.328834			AD	
G_{45}	17.37	17.99	0.91	1.33	0.748866			P	

SDSSCGA1006

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.15	16.56	0.83	0.76	0.415933	1.087472	0.47106	T	G_{12} make a twin
G_{13}	16.15	17.11	0.83	1.11	1.000			P	G_{23} make a pair
G_{14}	16.15	17.96	0.83	0.64	1.819945			AD	G_{35} make a pair
G_{15}	16.15	17.97	0.83	1.1	1.839918			AD	G_{45} make a pair
G_{23}	16.56	17.11	0.76	1.11	0.65192			P	
G_{24}	16.56	17.96	0.76	0.64	1.405133			M	
G_{25}	16.56	17.97	0.76	1.1	1.450414			AD	
G_{34}	17.11	17.96	1.11	0.64	0.971288			P	
G_{35}	17.11	17.97	1.11	1.1	0.860058			P	
G_{45}	17.96	17.97	0.64	1.1	0.460109			P	

SDSSCGA1016

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.39	16.4	0.81	0.8	0.014142	0.816122	0.51061	T	G_{12} make a twin
G_{13}	16.39	16.62	0.81	0.89	0.243516			T	G_{13} make a twin
G_{14}	16.39	17.42	0.81	0.77	1.030776			M	G_{23} make a twin
G_{15}	16.39	17.89	0.81	0.99	1.510761			AD	G_5 may be attribute discordant
G_{23}	16.4	16.62	0.8	0.89	0.237697			T	
G_{24}	16.4	17.42	0.8	0.77	1.020441			M	
G_{25}	16.4	17.89	0.8	0.99	1.502065			AD	
G_{34}	16.62	17.42	0.89	0.77	0.80895			P	
G_{35}	16.62	17.89	0.89	0.99	1.273931			AD	
G_{45}	17.42	17.89	0.77	0.99	0.518941			P	

SDSSCGA1025

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.76	16.52	0.87	0.94	0.763217	0.916893	0.50566	P	G_{24} make a pair
G_{13}	15.76	17.26	0.87	0.78	1.502698			AD	G_{34}make a twin
G_{14}	15.76	17.36	0.87	0.92	1.600781			AD	G_{35} make a pair
G_{15}	15.76	17.6	0.87	0.93	1.840978			AD	G_{45} make a pair
G_{23}	16.52	17.26	0.94	0.78	0.7571			P	G_1 may be attribute discordant
G_{24}	16.52	17.36	0.94	0.92	0.840238			P	
G_{25}	16.52	17.6	0.94	0.93	1.080046			AD	
G_{34}	17.26	17.36	0.78	0.92	0.172047			T	
G_{35}	17.26	17.6	0.78	0.93	0.371618			P	
G_{45}	17.36	17.6	0.92	0.93	0.240208			P	

SDSSCGA1027

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.47	17.24	0.97	0.93	1.770452	1.085081	0.868496	M	G_{24} make a pair
G_{13}	15.47	17.65	0.97	0.86	2.182773			AD	G_{25} make a pair
G_{14}	15.47	17.78	0.97	0.93	2.310346			AD	G_{34} make a twin
G_{15}	15.47	17.9	0.97	0.96	2.430021			AD	G_{35} make a pair
G_{23}	17.24	17.65	0.93	0.86	0.415933			P	G_{45} make a pair
G_{24}	17.24	17.78	0.93	0.93	0.54			P	G_1 may be attribute discordant
G_{25}	17.24	17.9	0.93	0.96	0.660681			P	
G_{34}	17.65	17.78	0.86	0.93	0.147648			T	
G_{35}	17.65	17.9	0.86	0.96	0.269258			P	
G_{45}	17.78	17.9	0.93	0.96	0.123693			P	

SDSSCGA1031

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.18	17.07	0.88	0.85	0.890505	0.867658	0.471810	M	G_{24} make a pair
G_{13}	16.18	17.19	0.88	0.78	1.014938			M	G_{23} make a twin
G_{14}	16.18	17.8	0.88	1.00	1.624438			AD	G_{35} make a pair
G_{15}	16.18	17.95	0.88	0.87	1.770028			AD	G_{45} make a pair
G_{23}	17.07	17.19	0.85	0.78	0.138924			T	
G_{24}	17.07	17.8	0.85	1.00	0.745252			P	
G_{25}	17.07	17.95	0.85	0.87	0.880227			AD	
G_{34}	17.19	17.8	0.78	1.00	0.64846			P	
G_{35}	17.19	17.95	0.78	0.87	0.76531			P	
G_{45}	17.8	17.95	1.00	0.87	0.198494			P	

SDSSCGA1048

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.46	17.34	0.64	1.12	1.002397	0.610541	0.482940	M	G_{24} make a pair
G_{13}	16.46	17.64	0.64	1.05	1.2492			AD	G_{25} make a pair
G_{14}	16.46	17.67	0.64	1.07	1.284134			AD	G_{34} make a twin
G_{15}	16.46	17.73	0.64	1.08	1.344061			AD	G_{35} make a pair
G_{23}	17.34	17.64	1.12	1.05	0.308058			P	G_{45} make a pair
G_{24}	17.34	17.67	1.12	1.07	0.333766			P	G_1 may be attribute discordant
G_{25}	17.34	17.73	1.12	1.08	0.392046			P	
G_{34}	17.64	17.67	1.05	1.07	0.036056			T	
G_{35}	17.64	17.73	1.05	1.08	0.094868			P	
G_{45}	17.67	17.73	1.07	1.08	0.060828			P	

SDSSCGA1066

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.68	16.78	0.82	0.88	0.116619	0.397845	0.261536	T	G_{12} make a twin
G_{13}	16.68	16.92	0.82	0.83	0.240208			P	G_{24} make a pair
G_{14}	16.68	17.01	0.82	0.76	0.33541			P	G_{25} make a pair
G_{15}	16.68	17.53	0.82	0.72	0.855862			AD	G_{34} make a twin
G_{23}	16.78	16.92	0.88	0.83	0.148661			P	G_5 may be attribute discordant
G_{24}	16.78	17.01	0.88	0.76	0.259422			P	
G_{25}	16.78	17.53	0.88	0.72	0.766877			AD	
G_{34}	16.92	17.01	0.83	0.76	0.114018			T	
G_{35}	16.92	17.53	0.83	0.72	0.619839			AD	
G_{45}	17.01	17.53	0.76	0.72	0.521536			AD	

SDSSCG1073

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.94	16.46	0.85	0.5	0.626817	1.008962	0.51662	P	G_{12} make a pair
G_{13}	15.94	17.36	0.85	0.8	1.42088			M	G_{34} make a twin
G_{14}	15.94	17.52	0.85	0.84	1.580032			AD	G_{35} make a pair
G_{15}	15.94	17.87	0.85	0.77	1.931657			AD	G_{45} make a pair
G_{23}	16.46	17.36	0.5	0.8	0.948683			P	
G_{24}	16.46	17.52	0.5	0.84	1.113194			M	
G_{25}	16.46	17.87	0.5	0.77	1.435618			AD	
G_{34}	17.36	17.52	0.8	0.84	0.164924			T	
G_{35}	17.36	17.87	0.8	0.77	0.510882			P	
G_{45}	17.52	17.87	0.84	0.77	0.356931			P	

SDSSCGA1075

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.96	16.91	0.96	0.5	1.055509	0.804306	0.43848	M	G_{24} make a pair
G_{13}	15.96	17.03	0.96	0.85	1.075639			M	G_{25} make a pair
G_{14}	15.96	17.25	0.96	0.85	1.294681			AD	G_{34} make a twin
G_{15}	15.96	17.61	0.96	1.03	1.651484			AD	G_{35} make a pair
G_{23}	16.91	17.03	0.5	0.85	0.3700			P	G_{45} make a pair
G_{24}	16.91	17.25	0.5	0.85	0.487955			P	G_1 may be attribute discordant
G_{25}	16.91	17.61	0.5	1.03	0.878009			AD	
G_{34}	17.03	17.25	0.85	0.85	0.2200			T	
G_{35}	17.03	17.61	0.85	1.03	0.607289			P	
G_{45}	17.25	17.61	0.85	1.03	0.402492			P	

SDSSCGA1080

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.52	15.57	0.6	0.92	0.323883	1.483007	0.759340	T	G_{12} make a twin
G_{13}	15.52	16.31	0.6	0.83	0.8228			P	G_{25} make a pair
G_{14}	15.52	17.72	0.6	0.97	2.230897			M	G_{23} make a twin
G_{15}	15.52	17.97	0.6	0.48	2.452937			AD	G_5 may be attribute discordant
G_{23}	15.57	16.31	0.92	0.83	0.745453			P	
G_{24}	15.57	17.72	0.92	0.97	2.150581			M	
G_{25}	15.57	17.97	0.92	0.48	2.440			AD	
G_{34}	16.31	17.72	0.83	0.97	1.416933			P	
G_{35}	16.31	17.97	0.83	0.48	1.696496			AD	
G_{45}	17.72	17.97	0.97	0.48	0.550091			P	

SDSSCGA1088

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.62	16.2	0.7	0.38	0.66242	0.933853	0.435661	P	G_{12} make a pair
G_{13}	15.62	16.85	0.7	0.48	1.24952			M	G_{34} make a twin
G_{14}	15.62	17.1	0.7	0.7	1.4800			AD	G_{35} make a pair
G_{15}	15.62	17.37	0.7	0.3	1.795132			AD	G_{45} make a pair
G_{23}	16.2	16.85	0.38	0.48	0.657647			P	The group may have 2 subgroups
G_{24}	16.2	17.1	0.38	0.7	0.955196			M	
G_{25}	16.2	17.37	0.38	0.3	1.172732			AD	
G_{34}	16.85	17.1	0.48	0.7	0.333017			T	
G_{35}	16.85	17.37	0.48	0.3	0.550273			P	
G_{45}	17.1	17.37	0.7	0.3	0.482597			P	

SDSSCGA1095

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.4	17.02	0.79	1.11	0.697711	0.644959	0.374447	M	G_{24} make a pair
G_{13}	16.4	17.43	0.79	0.94	1.040865			AD	G_{25} make a pair
G_{14}	16.4	17.49	0.79	0.96	1.103177			AD	G_{34} make a twin
G_{15}	16.4	17.71	0.79	1.09	1.343912			AD	G_{35} make a pair
G_{23}	17.02	17.43	1.11	0.94	0.443847			P	G_{45} make a pair
G_{24}	17.02	17.49	1.11	0.96	0.493356			P	G_1 may be attribute discordant
G_{25}	17.02	17.71	1.11	1.09	0.69029			AD	
G_{34}	17.43	17.49	0.94	0.96	0.063246			T	
G_{35}	17.43	17.71	0.94	1.09	0.317648			P	
G_{45}	17.49	17.71	0.96	1.09	0.255539			P	

SDSSCGA1106

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.29	17.4	0.97	0.34	2.202045	1.293658	0.844258	AD	G_{24} make a pair
G_{13}	15.29	17.5	0.97	0.96	2.210023			AD	G_{25} make a pair
G_{14}	15.29	17.72	0.97	1.24	2.444954			AD	G_{34}make a twin
G_{15}	15.29	17.9	0.97	0.95	2.610077			AD	G_{35} make a pair
G_{23}	17.4	17.5	0.34	0.96	0.628013			P	G_{45} make a pair
G_{24}	17.4	17.72	0.34	1.24	0.955196			P	G_1 may be attribute discordant
G_{25}	17.4	17.9	0.34	0.95	0.788733			P	
G_{34}	17.5	17.72	0.96	1.24	0.35609			T	
G_{35}	17.5	17.9	0.96	0.95	0.400125			P	
G_{45}	17.72	17.9	1.24	0.95	0.341321			P	

SDSSCGA1115

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.59	17.17	1.09	0.97	0.592284	0.67895	0.330413	P	G_{12} make a pair
G_{13}	16.59	17.41	1.09	1.04	0.821523			M	G_{24} make a pair
G_{14}	16.59	17.77	1.09	0.77	1.22262			AD	G_{23} make a twin
G_{15}	16.59	17.91	1.09	0.98	1.324575			AD	G_{35} make a pair
G_{23}	17.17	17.41	0.97	1.04	0.2500			T	G_{45} make a pair
G_{24}	17.17	17.77	0.97	0.77	0.632456			P	
G_{25}	17.17	17.91	0.97	0.98	0.740068			AD	
G_{34}	17.41	17.77	1.04	0.77	0.4500			P	
G_{35}	17.41	17.91	1.04	0.98	0.503587			P	
G_{45}	17.77	17.91	0.77	0.98	0.252389			P	

SDSSCGA1121

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.05	16.88	0.96	1.04	0.833847	0.758998	0.460905	M	G_{24} make a pair
G_{13}	16.05	16.94	0.96	0.92	0.890898			M	G_{34} make a twin
G_{14}	16.05	17.2	0.96	0.92	1.150695			M	G_{23} make a twin
G_{15}	16.05	17.76	0.96	0.92	1.710468			AD	G_{45} make a pair
G_{23}	16.88	16.94	1.04	0.92	0.134164			T	G_1 may be attribute discordant
G_{24}	16.88	17.2	1.04	0.92	0.34176			P	
G_{25}	16.88	17.76	1.04	0.92	0.888144			AD	
G_{34}	16.94	17.2	0.92	0.92	0.2600			T	
G_{35}	16.94	17.76	0.92	0.92	0.8200			AD	
G_{45}	17.2	17.76	0.92	0.92	0.5600			P	

SDSSCGA1122

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.16	16.2	0.87	0.15	0.72111	1.001365	0.39857	P	G_{13} make a twin G_{24} make a pair G_{23} make a pair G_5 may be attribute discordant
G_{13}	16.16	16.6	0.87	0.64	0.496488			T	
G_{14}	16.16	17.36	0.87	0.77	1.204159			M	
G_{15}	16.16	17.76	0.87	0.53	1.635726			AD	
G_{23}	16.2	16.6	0.15	0.64	0.632535			P	
G_{24}	16.2	17.36	0.15	0.77	1.315295			M	
G_{25}	16.2	17.76	0.15	0.53	1.605615			AD	
G_{34}	16.6	17.36	0.64	0.77	0.771038			P	
G_{35}	16.6	17.76	0.64	0.53	1.165204			AD	
G_{45}	17.36	17.76	0.77	0.53	0.466476			P	

SDSSCGA1125

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.55	16.93	0.86	1.05	0.424853	0.72608	0.364321	P	G_{12} make a pair G_{13} make a pair G_{23} make a twin G_5 may be attribute discordant
G_{13}	16.55	17.08	0.86	1	0.548179			P	
G_{14}	16.55	17.78	0.86	0.98	1.23584			AD	
G_{15}	16.55	17.91	0.86	0.9	1.360588			AD	
G_{23}	16.93	17.08	1.05	1.00	0.158114			T	
G_{24}	16.93	17.78	1.05	0.98	0.852877			M	
G_{25}	16.93	17.91	1.05	0.90	0.991413			AD	
G_{34}	17.08	17.78	1.00	0.98	0.700286			P	
G_{35}	17.08	17.91	1.00	0.9	0.836002			AD	
G_{45}	17.78	17.91	0.98	0.9	0.152643			P	

SDSSCGA1130

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.76	16.92	1.1	1.09	0.160312	0.611807	0.346226	T	G_{12} make a twin G_{34} make a twin G_{35} make a pair G_{45} make a pair The groups have 2 subgroups
G_{13}	16.76	17.62	1.1	1.06	0.86093			M	
G_{14}	16.76	17.7	1.1	1.01	0.944299			M	
G_{15}	16.76	17.89	1.1	1.08	1.130177			AD	
G_{23}	16.92	17.62	1.09	1.06	0.700643			M	
G_{24}	16.92	17.7	1.09	1.01	0.784092			M	
G_{25}	16.92	17.89	1.09	1.08	0.970052			AD	
G_{34}	17.62	17.7	1.06	1.01	0.09434			T	
G_{35}	17.62	17.89	1.06	1.08	0.27074			P	
G_{45}	17.7	17.89	1.01	1.08	0.202485			P	

SDSSCGA1131

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.46	16.96	0.78	0.93	1.507481	0.995897	0.762600	M	G_{24} make a twin G_{25} make a pair G_{23} make a twin G_{34} make a twin G_{45} make a pair G_1 may be attribute discordant The group have Triplet system TR(2,3,4)
G_{13}	15.46	17.02	0.78	1.02	1.578354			M	
G_{14}	15.46	17.1	0.78	1.07	1.665443			M	
G_{15}	15.46	17.83	0.78	1.06	2.386483			AD	
G_{23}	16.96	17.02	0.93	1.02	0.108167			T	
G_{24}	16.96	17.1	0.93	1.07	0.19799			T	
G_{25}	16.96	17.83	0.93	1.06	0.879659			P	
G_{34}	17.02	17.1	1.02	1.07	0.09434			T	
G_{35}	17.02	17.83	1.02	1.06	0.810987			P	
G_{45}	17.1	17.83	1.07	1.06	0.730068			P	

SDSSCGA1132

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.54	17.12	0.85	0.59	0.63561	0.708908	0.356842	P	G_{24} make a pair
G_{13}	16.54	17.61	0.85	0.48	1.132166			AD	G_{34} make a twin
G_{14}	16.54	17.75	0.85	0.69	1.220533			AD	G_{35} make a pair
G_{15}	16.54	17.82	0.85	0.35	1.374191			AD	G_{45} make a pair
G_{23}	17.12	17.61	0.59	0.48	0.502195			P	G_1 may be attribute discordant
G_{24}	17.12	17.75	0.59	0.69	0.637887			P	
G_{25}	17.12	17.82	0.59	0.35	0.7400			AD	
G_{34}	17.61	17.75	0.48	0.69	0.252389			T	
G_{35}	17.61	17.82	0.48	0.35	0.246982			P	
G_{45}	17.75	17.82	0.69	0.35	0.347131			P	

SDSSCGA1137

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.48	17.5	0.8	0.71	1.023963	0.672793	0.471674	M	G_{24} make a pair
G_{13}	16.48	17.59	0.8	0.62	1.1245			M	G_{25} make a pair
G_{14}	16.48	17.85	0.8	0.69	1.374409			AD	G_{23} make a twin
G_{15}	16.48	17.9	0.8	0.88	1.422252			AD	G_{35} make a pair
G_{23}	17.5	17.59	0.71	0.62	0.127279			T	G_{45} make a pair
G_{24}	17.5	17.85	0.71	0.69	0.350571			P	G_1 may be attribute discordant
G_{25}	17.5	17.9	0.71	0.88	0.434626			P	
G_{34}	17.59	17.85	0.62	0.69	0.269258			P	
G_{35}	17.59	17.9	0.62	0.88	0.404599			P	
G_{45}	17.85	17.9	0.69	0.88	0.196469			P	

SDSSCGA1142

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.58	17.04	0.85	0.8	1.460856	1.039142	0.72958	M	G_{34} make a twin
G_{13}	15.58	17.25	0.85	0.72	1.675052			M	G_{24} make a pair
G_{14}	15.58	17.45	0.85	0.64	1.881755			AD	G_{25} make a pair
G_{15}	15.58	17.95	0.85	0.71	2.374131			AD	G_{23} make a twin
G_{23}	17.04	17.25	0.8	0.72	0.224722			T	G_{35} make a pair
G_{24}	17.04	17.45	0.8	0.64	0.440114			P	G_{45} make a pair
G_{25}	17.04	17.95	0.8	0.71	0.91444			P	
G_{34}	17.25	17.45	0.72	0.64	0.215407			T	
G_{35}	17.25	17.95	0.72	0.71	0.700071			P	
G_{45}	17.45	17.95	0.64	0.71	0.504876			P	

SDSSCGA1148

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.27	16.66	0.21	1.09	0.962549	0.984106	0.401133	P	G_{23} make a pair
G_{13}	16.27	17.26	0.21	1.16	1.372079			M	G_{23} make a pair
G_{14}	16.27	17.79	0.21	0.87	1.657106			AD	G_{35} make a pair
G_{15}	16.27	17.8	0.21	0.93	1.690946			AD	G_{45} make a pair
G_{23}	16.66	17.26	1.09	1.16	0.60407			P	
G_{24}	16.66	17.79	1.09	0.87	1.151217			M	
G_{25}	16.66	17.8	1.09	0.93	1.151173			AD	
G_{34}	17.26	17.79	1.16	0.87	0.604152			P	
G_{35}	17.26	17.8	1.16	0.93	0.586941			P	
G_{45}	17.79	17.8	0.87	0.93	0.060828			P	

SDSSCGA1158

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	14.53	15.65	0.86	0.97	1.125389	1.383039	0.774895	P	G_{12} make a pair
G_{13}	14.53	16.46	0.86	0.95	1.932097			M	G_{24} make a pair
G_{14}	14.53	16.61	0.86	1.05	2.08866			M	G_{34} make a twin
G_{15}	14.53	17.45	0.86	0.64	2.928276			AD	G_{35} make a pair
G_{23}	15.65	16.46	0.97	0.95	0.810247			P	G_{45} make a pair
G_{24}	15.65	16.61	0.97	1.05	0.963328			P	
G_{25}	15.65	17.45	0.97	0.64	1.8300			AD	
G_{34}	16.46	16.61	0.95	1.05	0.180278			T	
G_{35}	16.46	17.45	0.95	0.64	1.037401			P	
G_{45}	16.61	17.45	1.05	0.64	0.934719			P	

SDSSCGA1166

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.34	16.24	0.84	0.79	0.901388	1.398413	0.649118	P	G_{23} make a pair
G_{13}	15.34	17.47	0.84	0.79	2.130587			AD	G_{24} make a pair
G_{14}	15.34	17.49	0.84	1.38	2.216777			AD	G_{34} make a twin
G_{15}	15.34	17.97	0.84	1.04	2.637594			AD	G_{35} make a pair
G_{23}	16.24	17.47	0.79	0.79	1.2300			P	G_{45} make a pair
G_{24}	16.24	17.49	0.79	1.38	1.382245			P	G_1 may be attribute discordant
G_{25}	16.24	17.97	0.79	1.04	1.74797			AD	
G_{34}	17.47	17.49	0.79	1.38	0.590339			T	
G_{35}	17.47	17.97	0.79	1.04	0.559017			P	
G_{45}	17.49	17.97	1.38	1.04	0.588218			P	

SDSSCGA1172

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	14.98	17.18	0.37	0.55	2.207351	1.350728	1.008324	M	G_{24} make a pair
G_{13}	14.98	17.31	0.37	0.78	2.365798			AD	G_{25} make a pair
G_{14}	14.98	17.73	0.37	0.83	2.788207			AD	G_{23} make a twin
G_{15}	14.98	17.86	0.37	0.32	2.880434			AD	G_{35} make a pair
G_{23}	17.18	17.31	0.55	0.78	0.264197			T	G_{45} make a pair
G_{24}	17.18	17.73	0.55	0.83	0.617171			P	G_1 may be attribute discordant
G_{25}	17.18	17.86	0.55	0.32	0.717844			P	
G_{34}	17.31	17.73	0.78	0.83	0.422966			P	
G_{35}	17.31	17.86	0.78	0.32	0.717008			P	
G_{45}	17.73	17.86	0.83	0.32	0.526308			P	

SDSSCGA1183

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.07	16.34	0.86	0.89	1.270354	1.088453	0.657123	M	G_{23} make a pair
G_{13}	15.07	16.76	0.86	0.77	1.692395			M	G_{24} make a pair
G_{14}	15.07	17.05	0.86	0.63	1.993314			AD	G_{255} make a pair
G_{15}	15.07	17.4	0.86	0.76	2.332145			AD	G_{35} make a pair
G_{23}	16.34	16.76	0.89	0.77	0.436807			P	G_{45} make a pair
G_{24}	16.34	17.05	0.89	0.63	0.756108			P	
G_{25}	16.34	17.4	0.89	0.76	1.067942			P	
G_{34}	16.76	17.05	0.77	0.63	0.322025			T	
G_{35}	16.76	17.4	0.77	0.76	0.640078			P	
G_{45}	17.05	17.4	0.63	0.76	0.373363			P	

SDSSCGA1184

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.29	15.8	0.83	0.83	0.51	1.007865	0.492250	T	G_{12} make a twin
G_{13}	15.29	16.16	0.83	0.53	0.920272			P	G_{24} make a pair
G_{14}	15.29	16.68	0.83	0.53	1.422006			M	G_{13} make a pair
G_{15}	15.29	17.29	0.83	0.78	2.000625			AD	G_{23} make a twin
G_{23}	15.8	16.16	0.83	0.53	0.468615			T	G_{35} make a pair
G_{24}	15.8	16.68	0.83	0.53	0.929731			P	The group have TR(1,2,3)
G_{25}	15.8	17.29	0.83	0.78	1.490839			AD	G_5 may be attribute discordant
G_{34}	16.16	16.68	0.53	0.53	0.5200			P	
G_{35}	16.16	17.29	0.53	0.78	1.157325			AD	
G_{45}	16.68	17.29	0.53	0.78	0.659242			P	

SDSSCGA1189

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.44	15.98	0.64	0.8	0.563205	0.521762	0.232689	M	G_{34} make a twin
G_{13}	15.44	16.02	0.64	0.54	0.588558			M	G_{24} make a pair
G_{14}	15.44	16.29	0.64	0.5	0.861452			AD	G_{25} make a pair
G_{15}	15.44	16.42	0.64	0.8	0.992975			AD	G_{23} make a twin
G_{23}	15.98	16.02	0.8	0.54	0.263059			T	G_{35} make a pair
G_{24}	15.98	16.29	0.8	0.5	0.431393			P	G_{45} make a pair
G_{25}	15.98	16.42	0.8	0.8	0.44			P	
G_{34}	16.02	16.29	0.54	0.5	0.272947			T	
G_{35}	16.02	16.42	0.54	0.8	0.477074			P	
G_{45}	16.29	16.42	0.5	0.8	0.326956			P	

SDSSCGA1199

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.77	17.24	1.06	1.05	0.470106	0.724259	0.284098	P	G_{12} make a pair
G_{13}	16.77	17.66	1.06	0.6	1.001848			M	G_{34} make a twin
G_{14}	16.77	17.9	1.06	0.87	1.145862			AD	G_{24} make a pair
G_{15}	16.77	18	1.06	1.16	1.234058			AD	G_{23} make a pair
G_{23}	17.24	17.66	1.05	0.6	0.615549			P	G_{35} make a pair
G_{24}	17.24	17.9	1.05	0.87	0.684105			P	G_{45} make a pair
G_{25}	17.24	18	1.05	1.16	0.767919			AD	G_5 may be attribute discordant
G_{34}	17.66	17.9	0.6	0.87	0.361248			T	
G_{35}	17.66	18	0.6	1.16	0.655134			P	
G_{45}	17.9	18	0.87	1.16	0.306757			P	

SDSSCGA1200

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.58	17.01	0.47	1.14	1.579177	1.383049	0.689241	M	G_{34} make a pair
G_{13}	15.58	17.53	0.47	1.07	2.040221			M	G_{24} make a pair
G_{14}	15.58	17.83	0.47	1.94	2.687638			AD	G_{23} make a twin
G_{15}	15.58	17.9	0.47	0.78	2.34062			AD	G_{35} make a pair
G_{23}	17.01	17.53	1.14	1.07	0.52469			T	G_{45} make a pair
G_{24}	17.01	17.83	1.14	1.94	1.1456			P	
G_{25}	17.01	17.9	1.14	0.78	0.960052			P	
G_{34}	17.53	17.83	1.07	1.94	0.920272			P	
G_{35}	17.53	17.9	1.07	0.78	0.470106			P	
G_{45}	17.83	17.9	1.94	0.78	1.16211			P	

SDSSCGA1211

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.18	17.34	0.69	0.61	2.161481	1.324745	0.951271	M	G_{24} make a twin
G_{13}	15.18	17.5	0.69	0.48	2.329485			AD	G_{34} make a twin
G_{14}	15.18	17.58	0.69	0.83	2.40408			AD	G_{24} make a pair
G_{15}	15.18	17.79	0.69	1.49	2.729853			AD	G_{23} make a twin
G_{23}	17.34	17.5	0.61	0.48	0.206155			T	G_{35} make a pair
G_{24}	17.34	17.58	0.61	0.83	0.325576			T	G_{45} make a pair
G_{25}	17.34	17.79	0.61	1.49	0.988383			P	G_1may be attribute discordant
G_{34}	17.5	17.58	0.48	0.83	0.359026			T	The groups have TR(2,3,4)
G_{35}	17.5	17.79	0.48	1.49	1.050809			P	
G_{45}	17.58	17.79	0.83	1.49	0.692604			P	

SDSSCGA1212

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.18	16.16	0.87	0.93	0.981835	1.299619	0.701936	P	G_{12} make a pair
G_{13}	15.18	16.73	0.87	0.86	1.550032			M	G_{34} make a twin
G_{14}	15.18	17.1	0.87	0.89	1.920104			M	G_{24} make a pair
G_{15}	15.18	17.92	0.87	0.57	2.756374			AD	G_{23} make a twin
G_{23}	16.16	16.73	0.93	0.86	0.574282			T	G_{35} make a pair
G_{24}	16.16	17.1	0.93	0.89	0.940851			P	G_{45} make a pair
G_{25}	16.16	17.92	0.93	0.57	1.796441			AD	
G_{34}	16.73	17.1	0.86	0.89	0.371214			T	
G_{35}	16.73	17.92	0.86	0.57	1.224827			P	
G_{45}	17.1	17.92	0.89	0.57	0.880227			P	

SDSSCGA1213

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.65	16.15	0.86	0.81	0.502494	1.058362	0.586368	P	G_{12} make a pair
G_{13}	15.65	16.25	0.86	0.84	0.600333			P	G_{23} make a twin
G_{14}	15.65	17.44	0.86	0.91	1.790698			AD	G_{45} make a pair
G_{15}	15.65	17.64	0.86	0.8	1.990904			AD	G_4 may be attribute discordant
G_{23}	16.15	16.25	0.81	0.84	0.104403			T	The group have 2 subgroups
G_{24}	16.15	17.44	0.81	0.91	1.29387			M	
G_{25}	16.15	17.64	0.81	0.8	1.490034			AD	
G_{34}	16.25	17.44	0.84	0.91	1.192057			M	
G_{35}	16.25	17.64	0.84	0.8	1.390575			AD	
G_{45}	17.44	17.64	0.91	0.8	0.228254			P	

SDSSCGA1216

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.55	17.55	1	1.12	1.007174	0.635491	0.479158	M	G_{34} make a pair
G_{13}	16.55	17.71	1	1.14	1.168418			AD	G_{24} make a pair
G_{14}	16.55	17.88	1	1.08	1.332404			AD	G_{23} make a pair
G_{15}	16.55	17.95	1	1.02	1.400143			AD	G_{35} make a pair
G_{23}	17.55	17.71	1.12	1.14	0.161245			P	G_{45} make a pair
G_{24}	17.55	17.88	1.12	1.08	0.332415			P	G_1 may be attribute discordant
G_{25}	17.55	17.95	1.12	1.02	0.412311			P	
G_{34}	17.71	17.88	1.14	1.08	0.180278			P	
G_{35}	17.71	17.95	1.14	1.02	0.268328			P	
G_{45}	17.88	17.95	1.08	1.02	0.092195			P	

SDSSCGA1220

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.1	16.44	0.92	0.4	1.437359	1.370994	0.765876	M	G_{34} make a twin
G_{13}	15.1	17.32	0.92	0.76	2.225758			AD	G_{24} make a pair
G_{14}	15.1	17.32	0.92	0.96	2.22036			AD	G_{23} make a pair
G_{15}	15.1	17.93	0.92	0.88	2.830283			AD	G_{35} make a pair
G_{23}	16.44	17.32	0.4	0.76	0.950789			P	G_{45} make a pair
G_{24}	16.44	17.32	0.4	0.96	1.043072			P	G_1 may be attribute discordant
G_{25}	16.44	17.93	0.4	0.88	1.565407			AD	
G_{34}	17.32	17.32	0.76	0.96	0.20			T	
G_{35}	17.32	17.93	0.76	0.88	0.621691			P	
G_{45}	17.32	17.93	0.96	0.88	0.615224			P	

SDSSCGA1221

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	15.39	16.02	0.82	0.88	0.632851	1.231805	0.589761	T	G_{12} make a twin
G_{13}	15.39	16.65	0.82	0.99	1.271417			M	G_{23} make a twin
G_{14}	15.39	17.61	0.82	0.85	2.220203			AD	G_{35} make a pair
G_{15}	15.39	17.66	0.82	0.82	2.27			AD	G_{45} make a pair
G_{23}	16.02	16.65	0.88	0.99	0.639531			T	
G_{24}	16.02	17.61	0.88	0.85	1.590283			M	
G_{25}	16.02	17.66	0.88	0.82	1.641097			AD	
G_{34}	16.65	17.61	0.99	0.85	0.970155			P	
G_{35}	16.65	17.66	0.99	0.82	1.024207			P	
G_{45}	17.61	17.66	0.85	0.82	0.05831			P	

SDSSCGA1224

Galaxies	(r mag)i	(r mag)j	(g-r mag)i	(g-r mag)j	e_{ij}	e_{av}	σ		Comments
G_{12}	16.87	16.92	1.1	1.02	0.09434	0.630148	0.2864847	T	G_{12} make a twin
G_{13}	16.87	17.16	1.1	0.72	0.478017			P	G_{23} make a pair
G_{14}	16.87	17.68	1.1	0.9	0.834326			M	G_5 may be attribute discordant
G_{15}	16.87	17.91	1.1	1.11	1.040048			AD	
G_{23}	16.92	17.16	1.02	0.72	0.384187			P	
G_{24}	16.92	17.68	1.02	0.9	0.769415			M	
G_{25}	16.92	17.91	1.02	1.11	0.994082			AD	
G_{34}	17.16	17.68	0.72	0.9	0.550273			P	
G_{35}	17.16	17.91	0.72	1.11	0.84534			AD	
G_{45}	17.68	17.91	0.9	1.11	0.311448			P	

in the results show above, there are Some groups have a discordant attribute members , some groups have triplet system and some have sub groups.

The combined UPGAMA coefficient used to be sure and retest the reality of the results

$$e_{m(jk)} = \frac{1}{2}\left(e_{mj} + e_{mk}\right) \qquad (4)$$

Where m, j and k are galaxy members of the same group

Applying the UPGMA method on the 5 member groups showed that most of the galaxies are real members while 57 groups have a discordant attribute and should be discarded from their groups.

Group ID	Galaxy number
SDSSCGA0115	1
SDSSCGA0115	5
SDSSCGA0151	5
SDSSCGA0155	5
SDSSCGA0165	1
SDSSCGA0169	1
SDSSCGA0188	5
SDSSCGA0199	5
SDSSCGA0209	5
SDSSCGA0222	5
SDSSCGA0223	1
SDSSCGA0226	5
SDSSCGA0245	5
SDSSCGA0300	1
SDSSCGA0319	5
SDSSCGA0328	1
SDSSCGA0330	1
SDSSCGA0352	5
SDSSCGA0353	5
SDSSCGA0365	5
SDSSCGA0401	1
SDSSCGA0422	1
SDSSCGA0422	2
SDSSCGA0430	1
SDSSCGA0434	1
SDSSCGA0438	5
SDSSCGA0445	1
SDSSCGA0446	1
SDSSCGA0457	2

Group ID	Galaxy number
SDSSCGA0481	5
SDSSCGA0488	1
SDSSCGA0491	1
SDSSCGA0497	1
SDSSCGA0996	5
SDSSCGA1016	5
SDSSCGA1025	1
SDSSCGA1027	1
SDSSCGA1048	1
SDSSCGA1066	5
SDSSCGA1075	1
SDSSCGA1080	5
SDSSCGA1095	1
SDSSCGA1106	1
SDSSCGA1121	1
SDSSCGA1122	5
SDSSCGA1125	5
SDSSCGA1131	1
SDSSCGA1132	1
SDSSCGA1137	1
SDSSCGA1166	1
SDSSCGA1172	1
SDSSCGA1184	5
SDSSCGA1199	5
SDSSCGA1211	1
SDSSCGA1216	1
SDSSCGA1220	1
SDSSCGA1224	5

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