Why Mei Wending so Successful?
- A SNA Study on the Chouren in Early Qing

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Abstract

Qing Dynasty, during which the astronomical observation, calendar making and mathematics had made remarkable achievements, can be divided into three periods according to the attitude the scholars hold at that time. These periods are: the early Qing(1644-1735), the middle Qing(1735-1840) and the late Qing(1840-1911). We usually call those people "Chouren" who make research in the astronomical observation, calendar making and mathematics.

The most representative Chouren in early Qing is Mei Wending, who was once called "The most famous master in the area of calendar making and mathematics". The previous study about him focused on his achievements, influence and his thoughts. Here, I try to put him into the network made of all Chouren in the early Qing, and hope to find out why he became so famous though the social network analysis method (SNA).

This paper try to make the achievements below:

First, I tried to solve an archaeological problem though a sociological way. The Chouren and the relationship between then can be seen as some kind of network, and the relational data is obtained. In this way, both archaeological and sociological method and means and be used.

Second, software was used when the data collected. It is still a literature method, but much faster and more convenient. Then the relational data would be input into an SNA software (UCINET was used here) and computed. After that, the quantitative analysis could be made and we might get a quantitative result instead of the qualitative one.

Last, all kinds of relationships would be divided into three senior ones such as the relationship of masters & disciples, friends & exchanges and guide & support. We can

find out the exact structure of Chouren network, the feature and position of any actor in the network, and how the information and resources communicated and flowed in the network. And at last, we can find out why Mei Wending be the "most famous one" after we compared the quantitative results with the others.

Interdisciplinary means involving the traditional method of archaeology and new achievements of other courses, provides us a brand-new view of solving problems and we can get some significant results. And that is the original intention of this paper. The Qing Dynasty is a very important period of time to the development of astronomical observation, calendar making and mathematics, which was influenced by the Western neoteric astronomy and mathematics. Meanwhile the local scholars tried to uncover the traditional mathematics and revive it. Considering the influence of the western scholarship and the goals the local scholars wanted to obtain, we divide this period into three parts: the early Qing(1644-1735), when the western knowledge continuingly entering China; the middle Qing(1735-1840), during which the connection with western missionaries wan cut off, and the local scholars turn to the idea: "western knowledge but China origin", they praised highly the traditional mathematics, tried to combine the west and the tradition; and the late Qing(1840-1911), when the western knowledge entered China again, and the traditional astronomical observation, calendar making and mathematics started to modernize themselves, and finally made some progression by the end of the Qing Dynasty.

Because of removing the ban of not allowing people to teach and learn the astronomical observation and the calendar making, there have been more scholars and achievements than any other dynasty. Famous scholars had sprung up all three periods, but Mei Wending was the most famous one which was called "the most famous specialist on calendar making and mathematics". The earlier studies on Mei Wending merely focused on his achievements, his thought and his influence. Here, the author try to explain how Mei Wending become into the most famous one, by analyzing the social network in the early Qing, using the Social Network Analysis (SNA) method.

1.   The social network of the chouren in the early Qing

1.1 Chouren and "the biographies of chouren"

First, we must make a clear definition of "chouren". "chou" means "kind", and "chouren" means the people have the same knowledge. Some knowledge in ancient China such as astronomical observation, calendar making and mathematics, was so deep to understand. And the knowledge usually passed down from father to son, and go on. So people usually called them "chouren". "the biographies of chouren" compiled by Ruan Yuan during the Qian Long period, is the most early book of biographies of chouren. This book and its three sequels contained almost all the famous chouren from the myth age to the late Qing. And it is a very important material of studying the development of mathematics and astronomical observation, as well as the transform of calendar making. So the name list recorded in this book is an ideal ensemble.

## 1.2 Social network and Social network analysis method

In the sociology category, social is consisted by the social actors and the links between them. If we consider every social actor as a point, and the link an edge, then the social network is a set consisted by the points and the edges. Now, there already is one set of method and view of solving the problems in this kind.

Recently, studies in sociological category start a great-leap-forward development by using the quantitative analysis rather than the qualitative description. We made a study upon the attributes of themselves, but now we use the relational data by means of the SNA method.

1.3   The social network of the chouren in the early Qing

One chouren can not be isolated if he wants to teach or to learn, or spread his achievements. It is almost impossible for him to obtain any achievement and it would probably fall into oblivion if he doesn't communicate with other chouren. Chouren live in the social groups, influenced by each other, learned from each other, and they make achievements only through this way. So we say that the sum of chouren forms a social network.

I searched all information hidden in the ancient codes and records according to the name list. Thanks to the database software, I did this work much faster than ever. And I used the SNA software to compute(UCINET version 6.232) and formed an remarkable social network of chouren in Qing Dynasty. See graph 1.
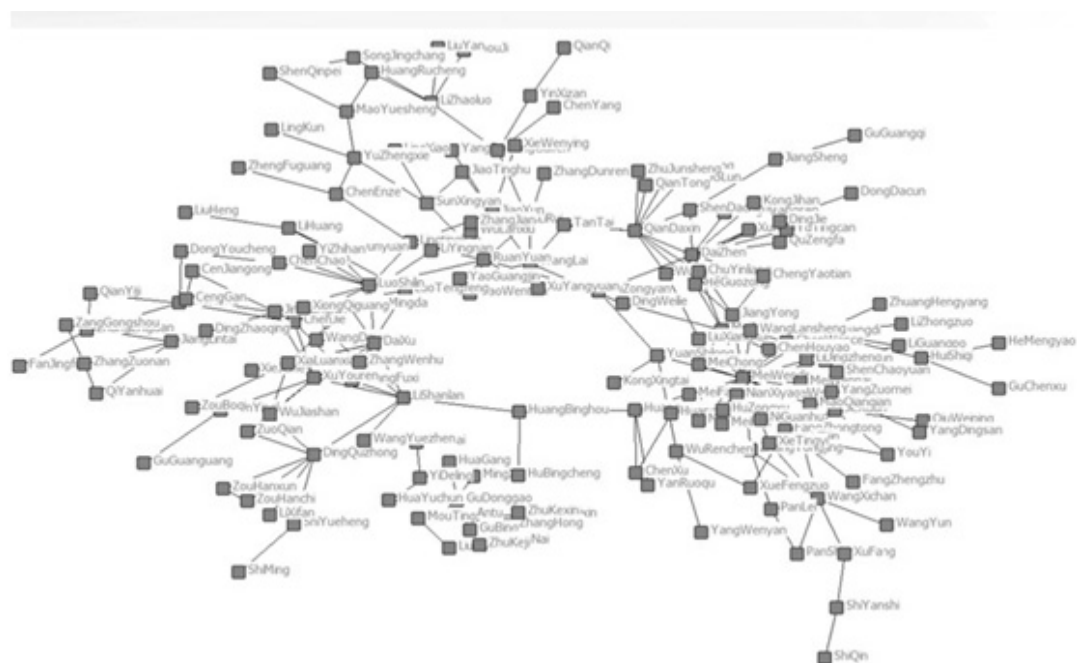
Graph 1. The social network of chouren in Qing Dynasty.

2. An SNA on social network of the chouren in early Qing

2.1 The classification of chouren's relations

There are 93 names recorded in the "the biographies of chouren" in early Qing, from 1644 to 1735, the names as follows:

王錫闡，潘聖樟，潘耒，薛鳳祚，楊光先，胡亶，遊藝，揭暄，方中通，
杜知耕，李子金，李長茂，徐發，黃宗羲，黃百家，梅文鼎，梅以燕，
梅瑴成，梅鈖，梅鈁，梅文霖，梅文鼏，李光地，李鐘倫，李鼎徵，李光坡，
閻若璩，秦文淵，張雍敬，孔興泰，袁世龍，毛乾乾，謝廷逸，沈超遠，
年希堯，劉湘煃，陳萬策，楊作枚，陳厚耀，惠士奇，陳訏，陳世仁，
莊亨陽，顧長發，屠文漪，邵昂霄，許伯政，余熙，顧琮，何國宗，丁維烈，
張永祚，王元啟，明安圖，明新，陳際新，張肱，吳任臣，龔士燕，楊文言，
馬負圖，方正珠，胡宗緒，王蘭生，顧棟高，顧炳，吳鼐，華玉淳，華綱，
胡天遊，嚴遂，何夢瑤，邱維屏，吳守一，何文麃，孫蘭，謝文英，戴梓，
王德昌，孔貞瑄，顏光敏，柴紹炳，劉獻廷，倪觀湖，楊定三，鮑祖述，
王雲，顧陳垿，段巘生，董以甯，王芝蘭，葉左寬，李鐘佐

Three kinds of relations was concluded after compare and analysis: masters & disciples, friends & exchanges, guide & support. Masters & disciples shows the vertically flow of information between the chouren, friends & exchanges shows the horizontal flow while guide & support shows the non-scholarship influence such as official position.

After splitting all relations into three parts, the complicated network became easily to understand. See graph 2 and 4.

P.S. all directions and weights were ignored here. All relations here were directionless and non-weighed, and the graph were directionless and dichotomic.
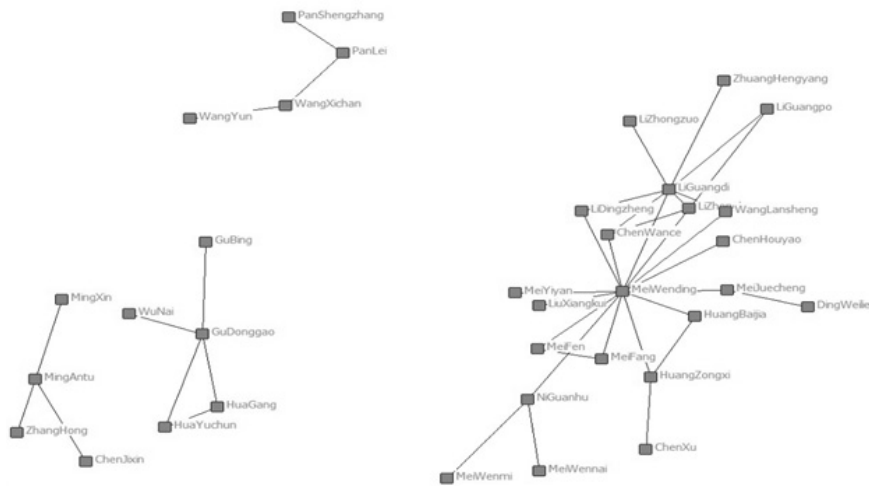
Graph 2. The masters & disciples in early Qing.
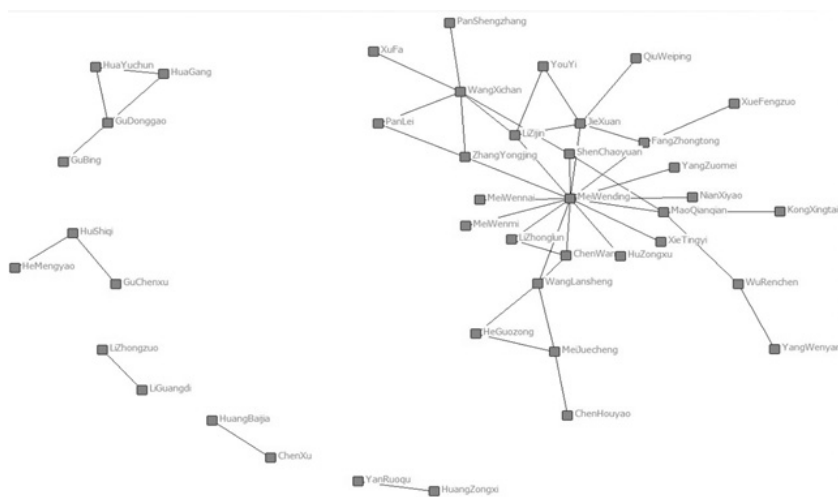
Graph 3. The friends & exchanges in early Qing.

Graph 4. The guide & support in early Qing.

2.2 An SNA on masters & disciples in early Qing

2.2.1 Some Concepts

The SNA has three levels: the ego-network, the partial network and the whole network. Ego-network focuses on the individuality and the other individualities connected to him, and the relations between them. Whole network focuses on the clear-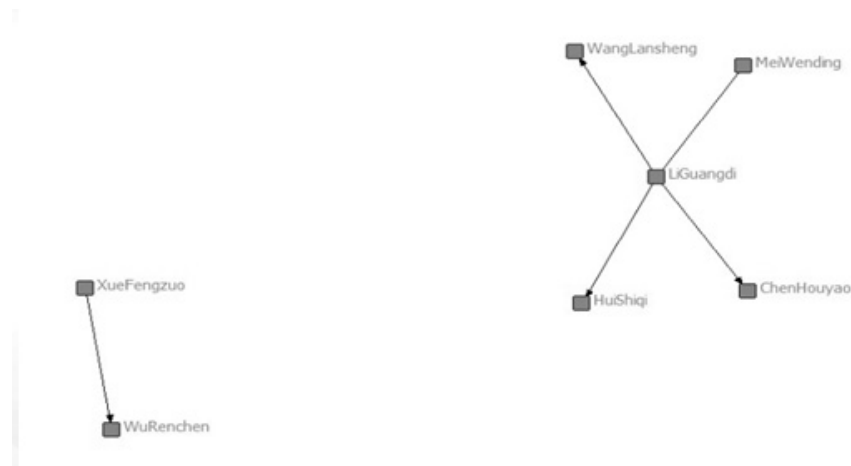edged groups, the members inside and the relations between them. The size of the partial network is intermediate, formed by the members of ego-network and the actors connected to them, as well as the relations.

Here are some measures we shall use: degree, density, centrality, centralization and structural hole.

Degree is the total number of the points connected to some point. It is one measure of the neighbourhood of a point. Here it means the number one person connected to.
Density is used to describe the extent of closeness between all points, and shows the level of cohesion. A network with a larger density will influence the people inside harder.

Centrality and centralization often confuse people. There are three centralities here: point centrality, betweenness centrality and closeness centrality.

Point centrality is simple, which equals the number of points connected to one point. The larger the number is, the closer the distance is between this point and the "centre" of the network.

Betweenness centrality describes the "betweenness" between one point and the others.

The point with a larger betweenness centrality will act like a "bridge", and it is very important to the connection of a network. Here it shows the ability of one actor to control over the resource flow.

Closeness centrality shows the "closeness" between one point to the others. The larger the value is, the far away one point is from the core of a network, and obviously it is not easy to obtain the resources, power and influence.

Centralization is used to describe the cohesion of a graph.

The structural hole is an necessary actor connected to the other two. It guarantees the connection (reachability) of a graph. The actor in the role of a structural hole is very useful to the flow of information and resources. And he will also get himself a lot of benefit.

2.2.2 An SNA study on the masters & disciples

The common method of computing relational data is as follows: form an adjective matrix throughout the relational data, then import the matrix into the computer in the form the SNA software can identify.

Here are some basic measures on the masters & disciples. See graph 5.

		Density	No. of Ties
shichengguanxi-Sym		0.0103	88.0000

Average distance (among reachable pairs)   = 2.267

		1 Degree	2 NrmDegree	3 Share
16	MeiWending	15.000	16.304	0.160
1	WangXichan	6.000	6.522	0.064
8	JieXuan	5.000	5.435	0.053
64	WangLansheng	4.000	4.348	0.043
32	MaoQianqian	4.000	4.348	0.043
11	LiZijin	4.000	4.348	0.043
34	ShenChaoyuan	3.000	3.261	0.032
37	ChenWance	3.000	3.261	0.032
65	GuDonggao	3.000	3.261	0.032
9	FangZhongtong	3.000	3.261	0.032
29	ZhangYongjing	3.000	3.261	0.032
18	MeiJuecheng	3.000	3.261	0.032

Graph 5. Basic measures on masters & disciples.

There are 93 members in the network, but only 88 relations, and the density value is only 0.0103, which means this network is very few and scattered. Members seldom connect, and the cohesion level is low. It is pretty difficult for a member to connect or influence the others. The masters & disciples relational level is low, which means quite a lot of chouren were not to devote themselves into the astronomical observation, calendar making

and mathematics at the very beginning. They involved just because they love it. And the number of aristocratic chouren families was very few which accord with the history.

Graph 5 also lists the first 10 chouren with a larger point degree, and Mei Wending gets a degree high up to 15, with a proportion of 16% to the whole degrees. The second one Wang Xichan gets only 6, and most people of the first 10 list get a degree of only 3 or 4. According to this graph, Mei Wending is very active in apprentices.

Then we will analyze the three centralities. See graph 6.

	Degree	BonPwr	2Step	ARD	Eigenve	Between
WangXichan	0.022	0.080	0.033	0.027	0.000	0.000
PanShengzhang	0.011	0.044	0.022	0.020	0.000	0.000
PanLei	0.022	0.080	0.033	0.027	0.000	0.000
XueFengzuo	0.000	0.000	0.000	0.000	0.000	0.000
...	...	...	...	...	...	...
HuangZongxi	0.033	15.529	0.163	0.120	−0.236	0.005
HuangBaijia	0.022	14.919	0.163	0.114	−0.227	0.000
MeiWending	0.152	54.132	0.228	0.190	−0.822	0.042
MeiYiyan	0.011	11.579	0.152	0.107	−0.176	0.000
MeiJuecheng	0.022	12.165	0.163	0.114	−0.185	0.005
...	...	...	...	...	...	...
LiGuangdi	0.087	38.359	0.185	0.150	−0.584	0.012
LiZhonglun	0.043	28.421	0.185	0.129	−0.433	0.002
LiDingzheng	0.022	19.791	0.185	0.118	−0.301	0.000
LiGuangpo	0.022	14.304	0.087	0.098	−0.218	0.000

Closeness Centrality Measures

		1 Farness	2 nCloseness
16	MeiWending	6631.000	1.387
23	LiGuangdi	6641.000	1.385
24	LiZhonglun	6645.000	1.384
37	ChenWance	6646.000	1.384
84	NiGuanhu	6647.000	1.384
64	WangLansheng	6647.000	1.384
25	LiDingzheng	6647.000	1.384
14	HuangZongxi	6648.000	1.384
15	HuangBaijia	6649.000	1.384
18	MeiJuecheng	6649.000	1.384

Graph 6. The measures of three centralities.

The relative point centrality of Mei Wending is 0.152, much higher than the second one: Li Guangdi, which means the one most close to the power centre is Mei Wending. And he has a much higher influence upon the others.

The relative betweenness centrality of Mei Wending is 0.042, still much higher than

Li Guangdi, which means the position Mei Wending holds is convenient for the control over the communications between the others.

The relative closeness centrality of Mei Wending is minimum, which means he is most close to the core of the network.

Mei Wending hold the most important position in the masters & disciples relations, and he had the most convenient way to communicate, or control over the communications, or spread the information in the network.

The next is the betweenness centralization of the graph. See graph 7.

		1 Betweenness	2 nBetweenness
16	MeiWending	176.500	4.216
23	LiGuangdi	51.000	1.218
84	NiGuanhu	39.000	0.932
18	MeiJuecheng	20.000	0.478
14	HuangZongxi	20.000	0.478
24	LiZhonglun	7.500	0.179
65	GuDonggao	5.000	0.119
54	MingAntu	3.000	0.072
1	WangXichan	2.000	0.048
3	PanLei	2.000	0.048

Network Centralization Index = 4.18%

Graph 7. The measure of the betweenness centralization.

The region of the value of the betweenness centralization is between 0~100%. The graph would be very centralized if the value is close to 1. Here, this value was only 4.18%, and the whole network is quite uncentralized.

The results of structural hole index comes at last. See graph 8.

	EffSize	Efficie	Constra	Hierarc	Indirec
WangXichan	2.000	1.000	0.500	0.000	0.000
PanShengzhang	1.000	1.000	1.000	1.000	0.000
PanLei	2.000	1.000	0.500	0.000	0.000
XueFengzuo	0.000	0.000	0.000		0.000
...	...	...	...	...	...
HuangZongxi	2.333	0.778	0.489	0.062	0.190
HuangBaijia	1.000	0.500	0.731	0.034	0.202
MeiWending	13.000	0.929	0.136	0.074	0.321
MeiYiyan	1.000	1.000	1.000	1.000	0.000
MeiJuecheng	2.000	1.000	0.500	0.000	0.000
...	...	...	...	...	...
LiGuangdi	6.500	0.813	0.280	0.132	0.400
LiZhonglun	2.000	0.500	0.528	0.066	0.421
LiDingzheng	1.000	0.500	0.603	0.002	0.098
LiGuangpo	1.000	0.500	0.707	0.008	0.188

Graph 8. The measures of personal structural hole index.

According to this graph, Mei Wending play the roles of structural hole in 13 relations, twice as the second one: Li Guangdi, which means Mei Wending could control the communications in the network. Lots of communications would be unfunctional without Mei Wending. While play the roles of structural hole, Mei Wending can easily get the resources and fume.

2.3 An SNA study on the friends & exchanges

The social network shows the friendship and exchange about scholarship, and the analysis is similar to the measures on masters & disciples.

Here are the results of some basic measures. See graph 9.

```
                    Density    No. of Ties
                 -------------  --------------
jiaoyouguanxi-Sym    0.0110       94.0000
```

Average distance (among reachable pairs)   = 2.751

		1 Degree	2 NrmDegree	3 Share
16	MeiWending	15.000	16.304	0.160
1	WangXichan	6.000	6.522	0.064
8	JieXuan	5.000	5.435	0.053
64	WangLansheng	4.000	4.348	0.043
32	MaoQianqian	4.000	4.348	0.043
11	LiZijin	4.000	4.348	0.043
34	ShenChaoyuan	3.000	3.261	0.032
37	ChenWance	3.000	3.261	0.032
65	GuDonggao	3.000	3.261	0.032
9	FangZhongtong	3.000	3.261	0.032

Graph 9. Some basic measures.

The network of friends & exchanges is still very sparse. The density is only 0.0110, and the number of ties is 94. The degree of Mei Wending is 15, much higher than the second: Wang Xichan, to say about the others. So we can say that Mei Wending is zealous in the communication of scholarship.

Next is the results of three kinds of centrality. See graph 10.

	Degree	BonPwr	2Step	ARD	Eigenve	Between
WangXichan	0.065	17.250	0.109	0.147	-0.261	0.015
'anShengzhang	0.011	3.799	0.065	0.098	-0.057	0.000
PanLei	0.022	7.762	0.076	0.117	-0.118	0.000
XueFengzuo	0.011	4.199	0.033	0.101	-0.064	0.000
...	...	...	...	...	...	...
HuangZongxi	0.011	0.031	0.011	0.011	0.000	0.000
HuangBaijia	0.011	0.031	0.011	0.011	0.000	0.000
MeiWending	0.163	56.923	0.261	0.226	-0.865	0.070
MeiYiyan	0.000	0.000	0.000	0.000	0.000	0.000
MeiJuecheng	0.033	5.866	0.054	0.116	-0.088	0.006
...	...	...	...	...	...	...
LiGuangdi	0.011	0.031	0.011	0.011	0.000	0.000
LiZhonglun	0.022	16.996	0.163	0.136	-0.259	0.000
LiDingzheng	0.000	0.000	0.000	0.000	0.000	0.000
LiGuangpo	0.000	0.000	0.000	0.000	0.000	0.000

Closeness Centrality Measures

		1 Farness	2 nCloseness
16	MeiWending	5997.000	1.534
11	LiZijin	6013.000	1.530
34	ShenChaoyuan	6013.000	1.530
32	MaoQianqian	6014.000	1.530
8	JieXuan	6014.000	1.530
29	ZhangYongjing	6016.000	1.529
64	WangLansheng	6017.000	1.529
37	ChenWance	6019.000	1.528
9	FangZhongtong	6019.000	1.528
24	LiZhonglun	6023.000	1.527

Graph 10. The measures of three centralities.

Mei Wending still get 3 No. 1 in these measures. According to these measures, Mei Wending hold the absolute advantage in communications, the control over communications and the flow of information and resourses.

Next is the centralization of the graph and the personal structural hole index. See graph 11.

		1 Betweenness	2 nBetweenness
16	MeiWending	294.333	7.031
32	MaoQianqian	77.000	1.839
64	WangLansheng	75.000	1.792
1	WangXichan	61.167	1.461
8	JieXuan	40.667	0.971
11	LiZijin	36.833	0.880
29	ZhangYongjing	32.500	0.776
34	ShenChaoyuan	28.500	0.681
58	WuRenchen	27.000	0.645
9	FangZhongtong	27.000	0.645

	EffSize	Efficie	Constra	Hierarc	Indirec
WangXichan	5.667	0.944	0.223	0.035	0.139
PanShengzhang	1.000	1.000	1.000	1.000	0.000
PanLei	1.000	0.500	0.785	0.013	0.250
XueFengzuo	1.000	1.000	1.000	1.000	0.000
...	...	...	...	...	...
HuangZongxi	1.000	1.000	1.000	1.000	0.000
HuangBaijia	1.000	1.000	1.000	1.000	0.000
MeiWending	14.333	0.956	0.099	0.027	0.199
MeiYiyan	0.000	0.000	0.000		0.000
MeiJuecheng	2.333	0.778	0.535	0.047	0.250
...	...	...	...	...	...
LiGuangdi	1.000	1.000	1.000	1.000	0.000
LiZhonglun	1.000	0.500	0.729	0.035	0.200
LiDingzheng	0.000	0.000	0.000		0.000
LiGuangpo	0.000	0.000	0.000		0.000

Graph 11.   Centralization of the graph and personal structural hole index.

The centralization of network of friends & exchanges is still very low, and Mei Wending get a very high advantage in the personal structural hole index.

2.4   An SNA study on the guide & support

The relational data of guide & support is very few. We can't proceed with the computation because of too much isolated points.

3. Cohesive subgroups analysis

3.1   Some concepts

The Cohesive subgroups in the social network are also some kind of social structure. In the field of sociology, cohesive subgroup doesn't have a clearly identification, but

only a general thought: one cohesive subgroup is a subset of actors in the social network, in which the actors have a much closer ties and more often communications, comparing the ones outside the subset.

According to the need of research, people identified some cohesive subgroups with different forms. Such as clique, n-clique, n-clan, k-plex, k-core, component, block, LS set, Lambda set and so on.

The general proceeding of the cohesive subgroup analysis is as follows: first, do the dichotomic transform, analyze the components. If we haven't get the expectant results, symmetrize the matrix, analyze the clique. After that, we can analyze the laxity cohesive subgroups and the group co-members.

The purpose of analyzing cohesive subgroups is to show the inner structure of a network. The explanation after analysis must be based on the attributive characters of the cohesion subgroup.

3.2 Cohesion subgroups analysis on masters & disciples of Chouren in early Qing

First, we dichotomize the relational data. Then we do the component analysis. See graph 12. If a graph can be divided into several parts, and the ties can only be found inner the part, and no ties to the ones outside the part, we can call this part a component.

```
       Components with 3 or more members:

1:  WangXichan PanShengzhang PanLei WangYun
2:  JieXuan FangZhongtong FangZhengzhu
3:  HuangZongxi HuangBaijia MeiWending MeiYiyan
    MeiJuecheng MeiFen MeiFang MeiWennai MeiWenmi
    LiGuangdi LiZhonglun LiDingzheng LiGuangpo
    LiuXiangkui ChenWance ChenHouyao ChenXu ZhuangHengyang
    DingWeilie WangLansheng NiGuanhu LiZhongzuo
4:  MingAntu MingXin ChenJixin ZhangHong
5:  GuDonggao GuBing WuNai HuaYuchun HuaGang
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Graph 12. Components analysis.

Here we only take care about the unidirectional networks, and we shall set the type of the component "weak" and the number of members of component should be set to 3 or more. Through graph 12, we can find that the component contains Mei Wending is

the largest one. But, we know nothing about the details of the structures of the network. We need a further analysis.

After symmetrizing the matrix, we can go on with clique analysis. In graph theory, a clique is a complete sub-graph. See graph 13.

```
7 cliques found.

1:  MeiWending LiGuangdi LiZhonglun ChenWance
2:  MeiWending LiGuangdi LiDingzheng
3:  MeiWending LiGuangdi WangLansheng
4:  HuangZongxi HuangBaijia MeiWending
5:  MeiWending MeiFen MeiFang
6:  LiGuangdi LiZhonglun LiGuangpo
7:  GuDonggao HuaYuchun HuaGang


        HIERARCHICAL CLUSTERING
         OF OVERLAP MATRIX

Level    4 5 3 1 2 6 7
─────    ─ ─ ─ ─ ─ ─ ─
2.000    . . XXXXX . .
1.333    . . XXXXXXX .
1.000    XXX XXXXXXX .
0.750    XXXXXXXXXXX .
0.000    XXXXXXXXXXXXX
```

Graph 13. Cliques analysis.

There are 7 cliques in the network of chouren in the early Qing. We can find Mei Wending in 4 cliques, 3 of which in the hierarchical clustering level 2.

Usually, the cliques contained in the social network would overlap upon each other. The level of overlapping is also a measure of the distances between cliques. We can combine several cliques according to the level of overlapping, and we call the new subgroup a "social circle".

Here, we can see that cliques 1, 2, 3, 6 overlapped and form a new social circle on the hierarchical clustering level 1.000. this new social circle forms a bigger social circle with cliques 4 and 5 on the hierarchical clustering level 0.750. whatever the social circle is, Mei Wending always stay in the core.

Till now, the inner structure of the network is shown clearly.

3.3 Cohesion subgroups analysis on friends & exchanges of Chouren in early Qing

We do the component analysis first, and then do the clique analysis. See graph 14 and 15.

```
Components with 3 or more members:
1:  WangXichan PanShengzhang PanLei XueFengzuo YouYi
    JieXuan FangZhongtong LiZijin XuFa MeiWending
    MeiJuecheng MeiWennai MeiWenmi LiZhonglun
    ZhangYongjing KongXingtai MaoQianqian XieTingyi
    ShenChaoyuan NianXiyao ChenWance YangZuomei
    ChenHouyao HeGuozong WuRenchen YangWenyan HuZongxu
    WangLansheng QiuWeiping
2:  HuiShiqi HeMengyao GuChenxu
3:  GuDonggao GuBing HuaYuchun HuaGang
```

Graph 14.　Components analysis.

```
9 cliques found.

1:  JieXuan FangZhongtong MeiWending
2:  JieXuan LiZijin MeiWending
3:  MeiWending LiZhonglun ChenWance
4:  MeiWending MaoQianqian ShenChaoyuan
5:  MeiWending ChenWance WangLansheng
6:  WangXichan PanLei ZhangYongjing
7:  YouYi JieXuan LiZijin
8:  MeiJuecheng HeGuozong WangLansheng
9:  GuDonggao HuaYuchun HuaGang

            HIERARCHICAL CLUSTERING
             OF OVERLAP MATRIX

      Level  6 4 5 3 1 2 7 8 9
      -----  - - - - - - - - -
      2.000  . . XXX XXX . . .
      1.500  . . XXX XXXXX . .
      1.000  . XXXXX XXXXX . .
      0.667  . XXXXXXXXXX . .
      0.167  . XXXXXXXXXXXXX .
      0.000  XXXXXXXXXXXXXXXXX
```

Graph 15. Cliques analysis.

Through the components and cliques analysis, it is clear that the number of actors Mei Wending didn't communicate with is minimum. And he hold the core position in the social circle.

4. Results

In this paper, I tried to study upon Mei Wending through one brand-new view. Using the social network analysis method, we can do some quantitative analysis on the social network of chouren in the early Qing. After all the analysis, we can scan the famous scholar in a different way.

We find that Mei Wending was zealous in communication and spreading knowledge. He shows great passion both in teaching and communication comparing with the other specialist in the same time. I think that is the ultimate reason why he was called "the most famous specialist".

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