

**MARRIAGE AND ELITE STRUCTURE IN RENAISSANCE FLORENCE, 1282-  
1500**

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## MARRIAGE AND ELITE STRUCTURE IN RENAISSANCE FLORENCE, 1282-1500

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This conference paper is an interim report from a large-scale project to trace transformations in Florentine elite network structures over two centuries. In this paper, I confine myself solely to a description of previously unknown trends in broad patterns of Florentine inter-marriage. Knowledgeable readers will immediately see that these trends have important implications for debates in Florentine historiography (which I will develop in the future). Ultimately, I am primarily interested in the political implications of the trends I herein describe. But for now I do not engage in interpretation, explanation, or argumentation. I intend simply to lay out some new facts. In particular, my lack of citation to relevant secondary literatures [a flaw to be corrected in future drafts] should not be taken as an indicator of my lack of knowledge of these excellent works.

#### Data and Sources

The data set, only a portion of which is used here, comprises probably the most extensive collection of historical network information ever assembled. The eventual book-length goal of this project is no less than an Annales-style "total history" of interlinked transformations in Florentine social, economic, and political structures over two centuries. Needless to say, this goal is even conceivable only because of the astonishing richness of the Florentine archives, and because of the impressive diligence of many Florentine historians besides myself. The data set itself can be described in five parts: marriage networks, economic networks, other social networks, attributional information, and political party/faction memberships.

About 10,500 dated marriages among Florentine surnamed families, over the period 1282-1500, have been collected and computerized from a variety of sources. Through travel to six rare-book collections in the United States, I coded and computerized 38 Renaissance Florentine family-trees from the excellent early-nineteenth century geneologies of celebrated Italian families, compiled by Pompeo Litta and Luigi Passerini. Through two separate month-long trips to the Archivio di Stato in Florence, I coded and later computerized the marriages of 298 families of somewhat lesser renown from

the 13-volume compilation of Pierantonio dell'Ancisa, who worked in the mid-1600's. These compilations were based in turn for the most part on series of notarized contracts (e.g., regarding dowries), the bulk of which are now lost. In addition, I coded and computerized 12 family-trees from a miscellany of histories available in the U.S. In all, I coded as many marriages as I could find in the sources for 335 family-clans. (Numbers do not add because of some multiple codings.) Since I coded all the marriages engaged in by these 335 target family-clans, the number of total families represented in the data set is far more than this. (I have attributional information on 960 families; thus 960 is the effective limit on sample size. In most analyses herein, the marriages of 500-600 family-clans are being analyzed at a time.)

Details of sampling, coding, and sources of error will be reported in future documents. Suffice it to say here that snowball sampling was employed, via multiple trips to the archives. Given the percent coverage that eventually was attained, the usual statistical criticisms of snowball sampling do not much pertain here. As is shown in figure 1, which links these marriages to various tax censuses of the entire Florentine population (about which more below), I estimate that my 10,000+ sample covers about 40% of all marriages ever made among families with last names. Due primarily to the sources and only secondarily to the sampling technique, percent coverage declines as social status declines. At the upper end of the scale, percent coverage for the richest 500 households in the city increases from 65% to 90% over time, as is also shown in figure 1.

Economic networks do not figure in this paper, but I will briefly note for the record two data sets that have been assembled to date. An advanced student colleague of mine, Paul McLean, has coded and computerized from the 1427 tax catasto (essentially, I.R.S.-type tax returns) about 14,000 indebtedness relations--that is, who owes money to whom, for what type of prior transaction. This massive cross-sectional coding was done in its first wave at the University of Chicago, using a microfilmed copy deposited here by the late David Herlihy, and in later waves by Paul at the Archivio di Stato, to fill in gaps in the microfilm.

Paul and I also have assembled data on economic partnerships across time. From guild records in the Archivio di Stato, I have assembled (but not yet computerized) an almost complete time-series of all partnerships and firms in one industry--banking--over the period 1340 to 1480. From the 1427 catasto, McLean has assembled and computerized essentially a census of all partnerships and firms in the city, across all industries. And for 1451, Anthony Molho has

published a similar almost-complete list of partnerships and firms, across all industries. We anticipate much valuable information on changing market, industrial, and firm structure from these data sources in future (joint and otherwise) publications.

Under the topic of "other social networks" are two items: (1) From a rich prosopographical secondary source, a book by Dale Kent entitled The Rise of the Medici, a previous coworker, Christopher Ansell, and I coded nine different types of social ties, along with political party memberships, for the period 1420-1434. Analyses of these data have already been reported in a 1993 article by us in the American Journal of Sociology. (2) For his dissertation, Paul McLean has collected, transcribed, and coded 869 fifteenth-century patronage letters, which request favors of various sorts. Paul himself will report on these texturally-rich qualitative documents in future publications.

In addition to these systematic social network data, over time, I have assembled and computerized a variety of attributional data on each of 960 family-clans whom I have detected in Florentine marriages sometime over the two-century period. (A number of these families, of course, flow into and out of history over time.) Often, but not always, I can disaggregate further to the household level of analysis. These attributional data can be summarized in three categories: social status, wealth, and residence.

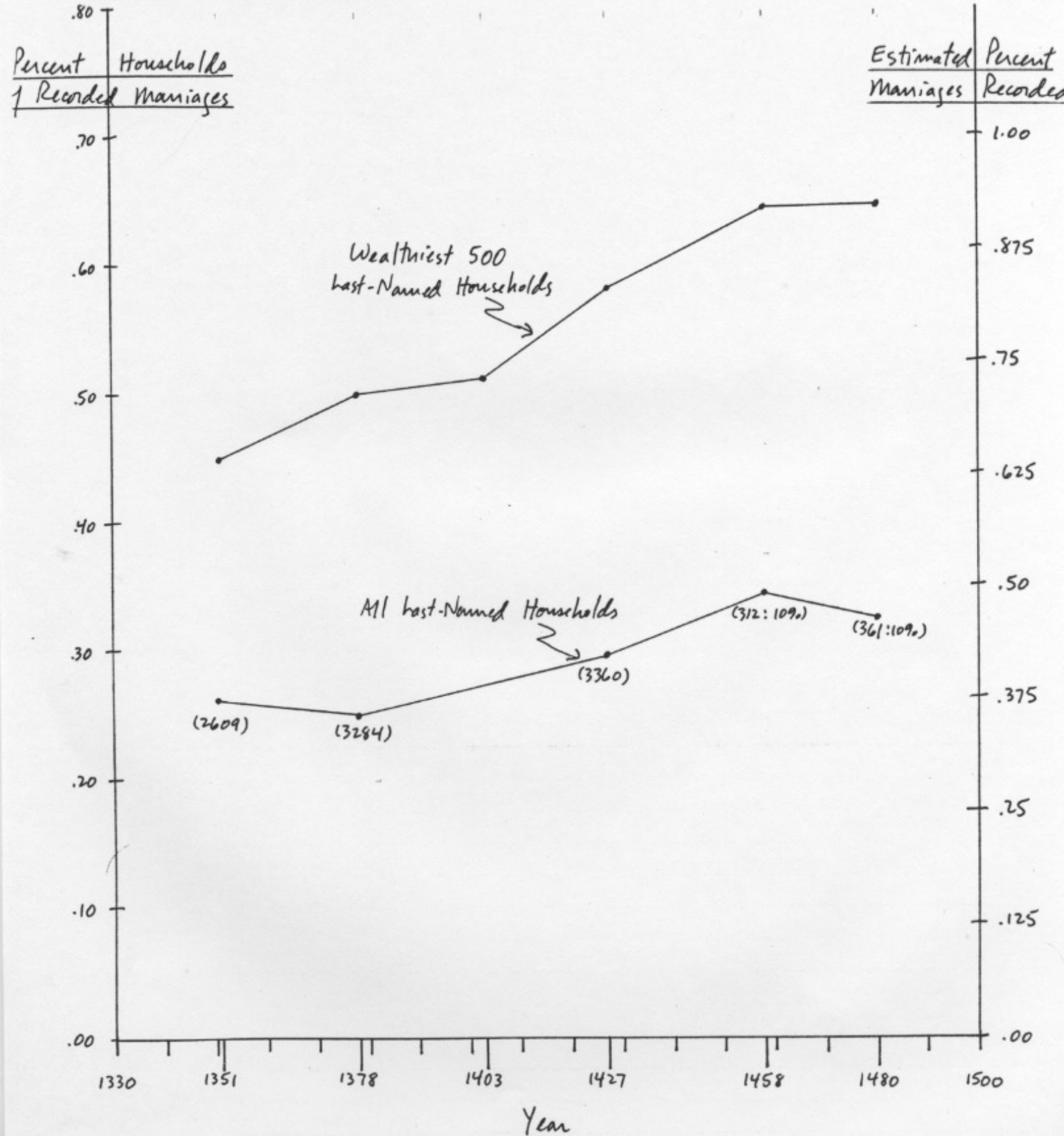
During this period of republicanism, Florentines judged a family's social status by how politically old it was--that is, by the date the first member of the family was admitted to the Priorate, the governing body of Florence. Najemy and Kent have published this information for many families. A more exhaustive listing is the eighteenth-century Mecatti volumes, located in the special collections of the Newberry Library in Chicago. This source not only contains many more families' first dates than Najemy and Kent, but also it contains the dates of every Prior every family ever had--in other words, it records the political histories of all families' participation in governance. For all 960 of my family-clans, this information has been coded and computerized.

As is well known among Florentine historians, magnates were an important special category of socially old and prestigious families who were legally barred from participation in offices. Lansing provides a tabulation of their identity.

Wealth data over time for so many households and clans is quite difficult to obtain, but with the aid of other Florentine historians numerous tax censuses have now been

8/20/94  
(after 1994 trip)

### % Marriage Coverage in Sample



computerized. The 1427 catasto was computerized and generously made available for public access by the late David Herlihy and Christiane Klapisch. They also computerized 10% samples of the 1458 and 1480 catasti. Samuel Cohn gave to me his microfilm copies of the 1351 estimo and the 1378 prestanze, the last-named families of which I have (with much effort) transcribed and computerized. Lauro Martines and Anthony Molho published, in appendices to their books, the wealthiest 500 households of the 1403 prestanze and of the 1458 and 1480 catasti, respectively. [Julius Kirshner and Anthony Molho have also computerized the entire 1480 catasto. Perhaps they may grant me access to it in the future.] The sum total of these documents gives me a wealth time-series for 1351 (complete), 1378 (complete), 1403 (partial), 1427 (complete), 1458 (partial), and 1480(partial).

The information assembled by me from these tax sources is as follows: either tax assessment or declared wealth (depending on the document) of head of household, residence of head of household (at the gonfalon or ward level), and for complete censuses, number of households per family-clan. Wealth and residence of course also can be aggregated to the total clan level. Dispersion of clan residence across gonfalon is a useful measure of clan "cohesiveness" or "solidarity" (at least as a first cut), which can be tracked across time. Pre-1351 residence information, for many families, is contained in the tables of Raveggi et al.

Finally, membership in political factions or parties has been coded, mostly from secondary sources. Raveggi et al. provide membership listings of Guelfs vs. Ghibellines (1260's) and of Blacks vs. Whites (1300's and 1310's). From the text of Brucker's book the composition of the Albizzi and Ricci factions (1340's and 1350's) has been identified. Najemy provides useful information on elite supporters and opponents of the Ciompi rebellion (1378). D. Kent gives a list of Medici supporters and opponents, on the eve of the Medici takeover (1434). Rubinstein provides information useful for identifying Medici supporters thereafter. Saponi has also published a list of 1449 Medici partisans. In the 1964 Bollettino Senese di Storia Patria, there is a reprinted list of signators useful for identifying anti-Mediceans in 1466. Only anti-Mediceans from later Pazzi (1470's) and Savonarola (1490's) revolt periods have not yet been identified and computerized.

### Elite Concentration

A convenient starting-point for tracking broad trends in Florentine inter-marriage is to focus on the degree to which the Florentine elite as a whole was centralized or concentrated--that is, the degree to which there were sharp inequalities across various families' individual network

centralities in marriage. The more sharp the inequalities across families, the more concentrated the core within the elite.

Two standard measures of relative centrality in networks are: (a) degree--that is, the relative number of ties/marriages a family engaged in, each time period, and (b) betweenness--that is, the relative number of (shortest) connected "paths" between all other pairs of families in the network that a focal family is situated on. "Degree" measures, essentially, the demography of the situation. Barring wide disparities in marriage rates, it is a proxy for clan size--the number of eligible sons and daughters the clan had. Betweenness is a more structural concept. If resources or communication flow through a network, then "betweenness" measures the percent of flows between everyone else in the system that a focal family could intercept (or block). For this reason, it is often interpreted as a measure of positional "power".

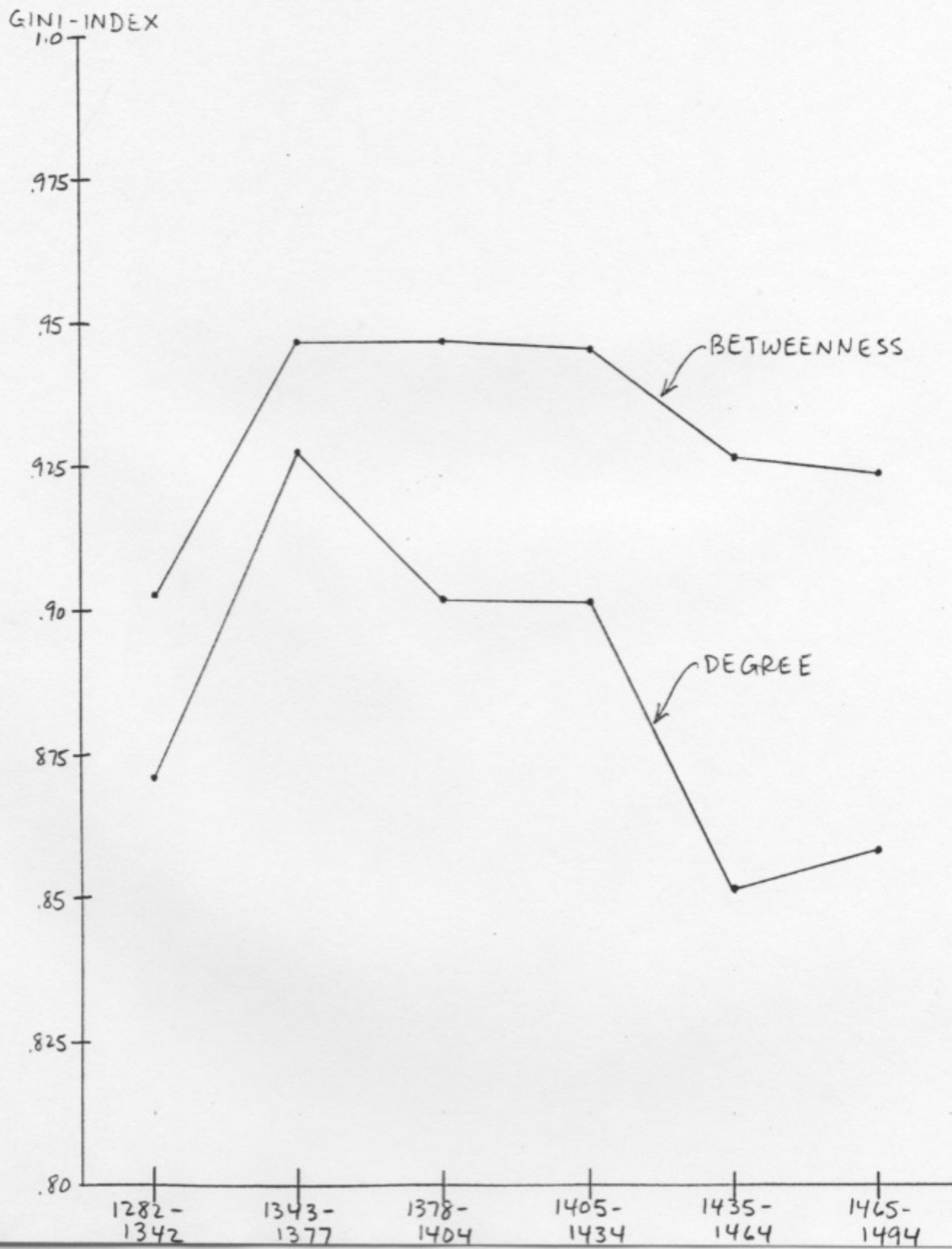
For various time periods, such measures were calculated for all (reachable) families in my data set [typically, 500 to 600 families per time period]. These family centrality scores were arrayed in normalized cumulative-distribution-function or "Lorenz curve" fashion (not presented here), and an overall Gini-index calculated. The Gini-index is a standard measure of inequality. (Literally, it is the percent of the area above a 45-degree line that the empirical Lorenz-curve "bows" above [or below, depending on orientation].)

The results are presented in figure 2. Clear differences both over time and across measures are observed. The first point to note is that absolute numbers are very high, indicating that the Florentine elite was very concentrated/centralized--a fact that we more or less already know. Of course some of this concentration was due solely to skewed family sizes. In Florence, this was not primarily a matter of random variation in birth rates. For a clan to have a last name at all was itself an assertion of status--it indicated a concern with patrilineage, family history, and honor. About 2/3 of the people in the society had names like "Peter, son of Paul." Thus, variation in family size is not here a random variable to be controlled away; concentration of households into patrilineages is itself one important mechanism for the concentration of elites as a whole.

The Gini-index of "degree" measures how family size concentration changes over time. Note the huge increase in elite concentration from 1282-1342 to 1343-1377. The Black Death of 1348 (and of 1360) represents an obvious candidate for explanation, although the precise link between plague and family-size concentration is not yet obvious to me. But also,

ELITE CONCENTRATION/CENTRALIZATION:

GINI MEASURES OF INEQUALITY IN DEGREE & BETWEENNESS CENTRALITY





the political turmoil of 1343 is a candidate explanation. Whatever the reason, it is clear that "betweenness" concentration exactly tracks that of degree. In other other words, there was a dramatic increase in the structural concentration of the elite around 1343 or 1348, due to underlying patrilineage dynamics.

From 1343 or 1348 onwards, there was a decline in family-size concentration. This was due both to the decline of really huge magnate clans, like the Bardi and the Buondelmonti, and to the rising numbers of middle-class households who assumed last names. (The percent of the population with surnames increased from about 1/4 to about 1/2 over this longue duree.) Except for a modest drop from the republican (1343-1434) to the Medicean (1435-1494) periods, however, this decline in family-size/degree concentration was not matched by a parallel decline in "structural"/betweenness concentration. In other words, once set into place by the events of 1343 or 1348, elite network concentration maintained itself in spite of strong demographic pressures to the contrary.

The gap between the degree and the betweenness curves, indeed, can be taken as a measure of the network/intermarriage pressures toward elite concentration, net of family-size patrilineage dynamics. This centralizing network pressure increased over time, with notable step-function shifts immediately after the Ciompi rebellion (1378) and after the onset of the Medici regime (1434). Despite increased Medicean pressure toward elite concentration, however, demographic forces were not entirely offset.

### Dyads and Triads

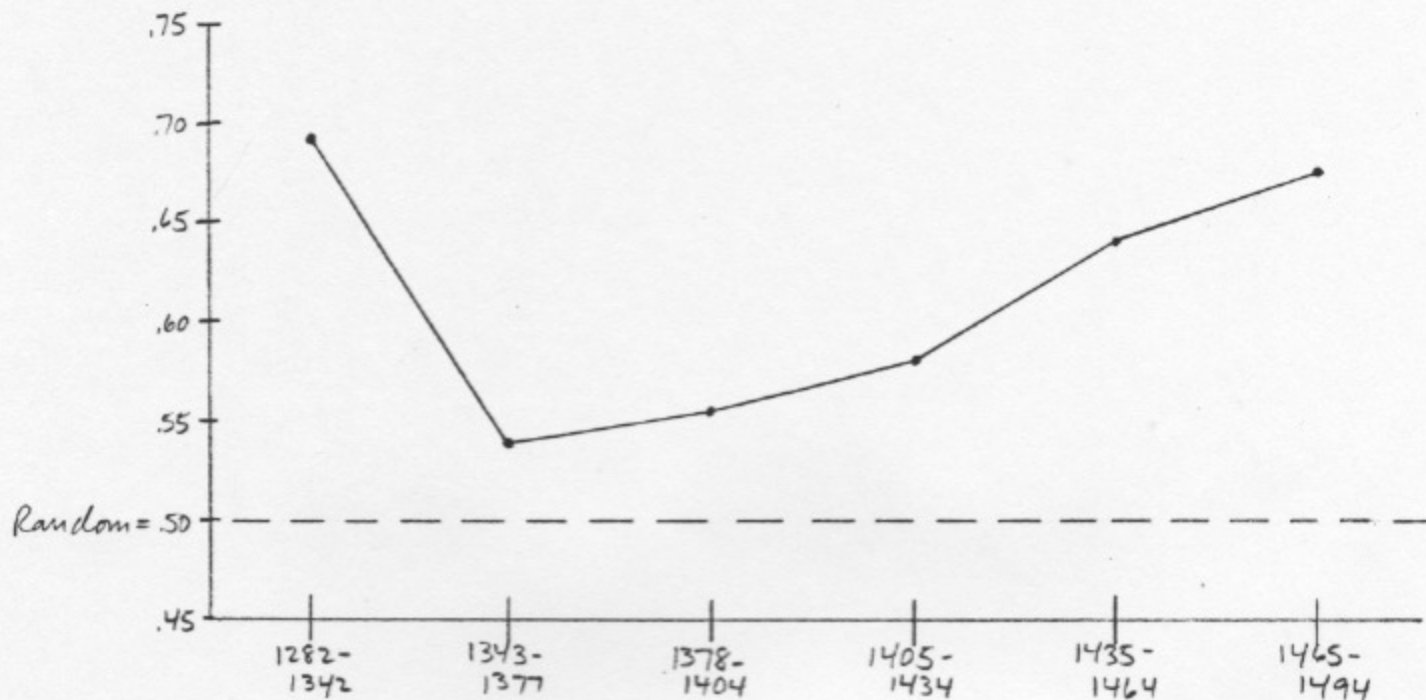
Further insight into the character of these elite transformations can be gleaned from examining censuses of dyads and triads--that is, distributions of the micro-relations which underlay the global portrait of figure 2. Two features of common interest to network analysts are asymmetry and transitivity.

Asymmetry--that is, the prevalence of same direction ties ( ), relative to both-way ties ( )--is commonly interpreted as an indicator of micro-concern with hierarchy. Here, we are speaking of marriage ties; therefore, asymmetry means one clan sending only daughters or sons to another clan (more likely than chance). Symmetry, on the other hand, means making alliances through exchanging children irrespective of gender. Asymmetry in networks arises because directionality of flow is culturally meaningful to participants--usually, it connotes relative status. [Asymmetry as measured here, however, does not differentiate daughters from sons; just exclusive one-way flow from indifferent symmetric flow.]

# DYAD & TRIAD ANALYSIS (partia())

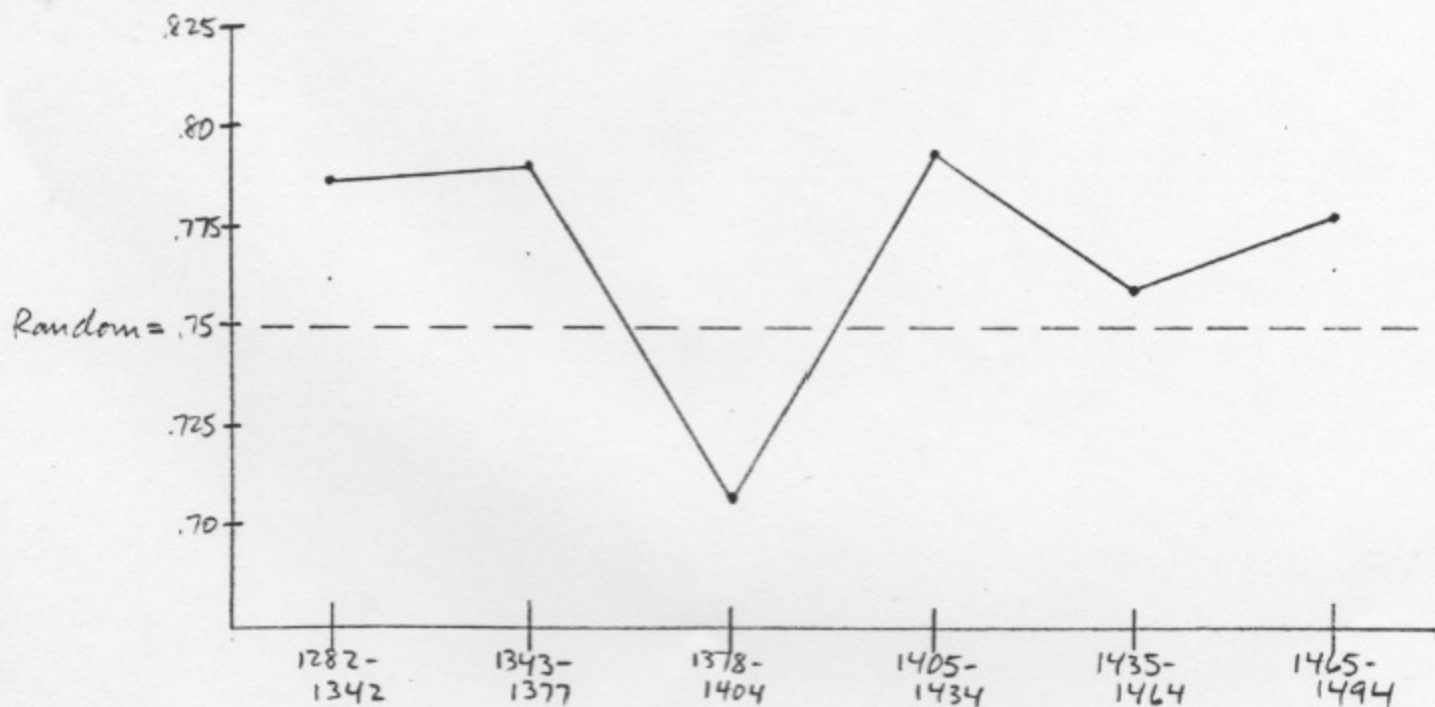
Dyad Asymmetry:

%  $\rightarrow$  vs.  $\leftarrow$



Triad Transitivity:

%  $\triangleleft \rightarrow$  vs.  $\rightarrow \triangleleft$



## 2-Dyad Analysis of Symmetry ( $\Leftrightarrow$ ) vs. Asymmetry ( $\Rightarrow$ )

### A) NEIGHBORHOOD ENDOGAMY:

All:

	% ASYMMETRIC	In-Quarta: % ASYMMETRIC	Out-Quarta: % ASYMMETRIC
282-1342	.692	20/30 = .667	34/48 = .708
343-1377	.540	50/78 = .641	82/164 = .500
378-1404	.556	22/40 = .550	36/66 = .545
405-1434	.580	10/22 = .455	48/78 = .615
435-1464	.642	30/56 = .536	92/132 = .697
465-1494	.676	38/50 = .760	106/166 = .639

Popolani Males only:

	% ASYMMETRIC	In-Quarta: % ASYMMETRIC	Out-Quarta: % ASYMMETRIC
282-1342	.683	10/16 = .625	18/25 = .720
343-1377	.579	26/35 = .743	36/71 = .507
378-1404	.557	10/18 = .556	24/43 = .558
405-1434	.561	6/10 = (.600)	26/47 = .553
435-1464	.588	12/28 = .429	48/74 = .649
465-1494	.699	22/27 = .815	62/94 = .660

Magnate Males only:

	% ASYMMETRIC	In-Quarta: % ASYMMETRIC	Out-Quarta: % ASYMMETRIC
282-1342	.722	10/14 = .714	16/22 = .727
343-1377	.512	18/34 = .529	42/84 = .500
378-1404	.541	10/18 = .556	8/17 = .471
405-1434	.538	2/7 = -	12/19 = .632
435-1464	.688	4/7 = -	18/25 = .720
465-1494	.811	10/11 = .909	20/26 = .769

New Men Males only:

	% ASYMMETRIC	In-Quarta: % ASYMMETRIC	Out-Quarta: % ASYMMETRIC
282-1342	-	0/0 = -	0/0 = -
343-1377	.556	6/8 = (.750)	4/9 = (.444)
378-1404	.571	0/2 = -	4/5 = -
405-1434	.706	2/5 = -	10/12 = (.833)
435-1464	.720	14/21 = .667	22/28 = .786
465-1494	.526	6/12 = .500	24/45 = .533

Figure 3a plots the observed asymmetry pattern over time. Before 1343, there was an extremely strong micro-concern with relative status [assuming that is what marriage asymmetry culturally means--an assumption that will be investigated more deeply in the future.] But in the plague years of 1348, or thereabouts, this intermarriage dyadic preoccupation with relative status immediately vanishes. Over time, it gradually reasserts itself--finally returning to pre-1343 levels by the period of Lorenzo de' Medici (1465-1494).

On the surface, the micro-data on asymmetric dyads in figure 3a seems directly contradictory to the macro-data on global network concentration in figure 2. "Hierarchy" trends are moving in opposite directions. This apparent contradiction will be (partially) resolved below, after more clues have been assembled.

Figure 3b presents trends in transitivity--that is, the percent of transitive triads ( ), relative to cycles ( ). Transitivity of course is not itself a measure of micro-dyad concern with asymmetry; it is a measure of how consistently asymmetric dyads aggregate themselves together across multiple families. Asymmetric dyads under conditions of transitivity aggregate themselves together into self-consistent hierarchical "pecking orders"; intransitive triads (or "cycles") inhibit even hierarchical dyads from assembling into ranks. Instead, cycles induce group boundary closure, with scrambled hierarchy within the group.

Overall, there was a noticeable tendency toward transitivity, although not as striking as I had anticipated. Hierarchical tendencies between two families, in other words, usually were reinforced, not undercut, by marriages of those two families with outside third families. However, the Florentine elite was hardly monolithic or tightly structured. Inconsistencies, contradictions, and (apparent) confusions in network structure were rampant. Because of this, there was always structural room for maneuver up and down loose pecking-orders (something the economic and political turbulence of Florentine history should have led us to expect).

The one glaring exception to this overall (loose) tendency toward transitivity is the period 1378-1404, which exhibited a greater-than-chance tendency toward cycles. In my 1993 article, I offered an explanation of the Ciompi-rebellion causes of these unusual marriage cycles, and of the political-cooptation consequences of these period-specific cycles. Naturally, I am pleased to see (some of) my earlier hypotheses confirmed by more extensive data.

#### Residential Endogamy

RESIDENTIAL

MARRIAGE ENDOGAMY:

In-Quarter

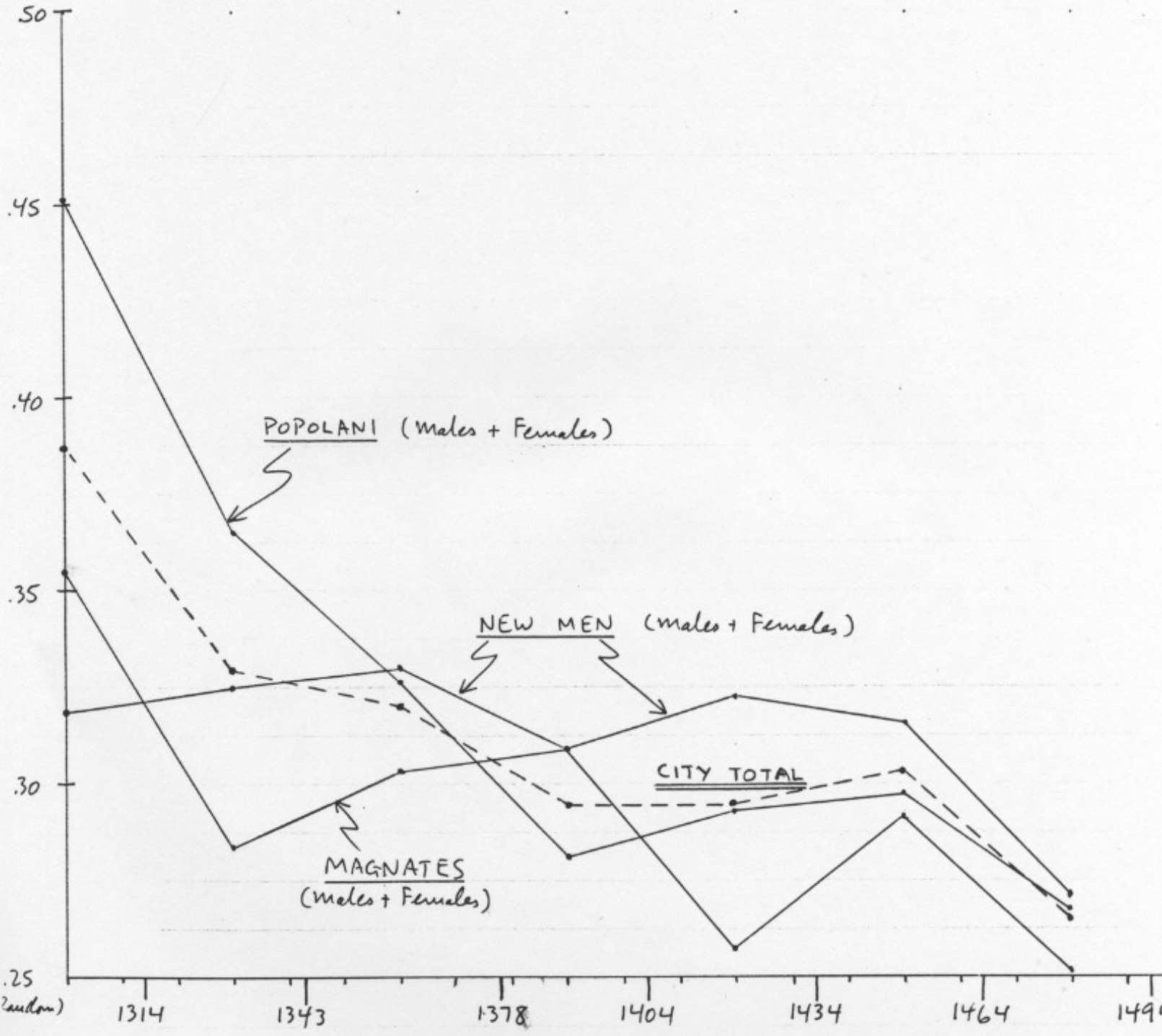


Figure 4 presents trends in residential endogamy--that is, the rates at which Florentine elite families married their "neighbors," defined as co-residents within the four quarters of Florence (Santo Spirito, Santa Croce, Santa Maria Novella, and San Giovanni). These residential trends are further subdivided by social class--(a) magnates, those old prestigious families legally excluded from holding public office; (b) popolani, those old (pre-1343) prestigious families who participated in Florentine governance; and (c) new men, those participants in Florentine governance whose families were admitted to the priorate only after 1343.

In general, the data in figure 4 confirms what is already known--that the importance of residential endogamy within the Florentine elite declined over time. [Among the lower popolomino classes it increased.] What is new here, however, is timing and class composition.

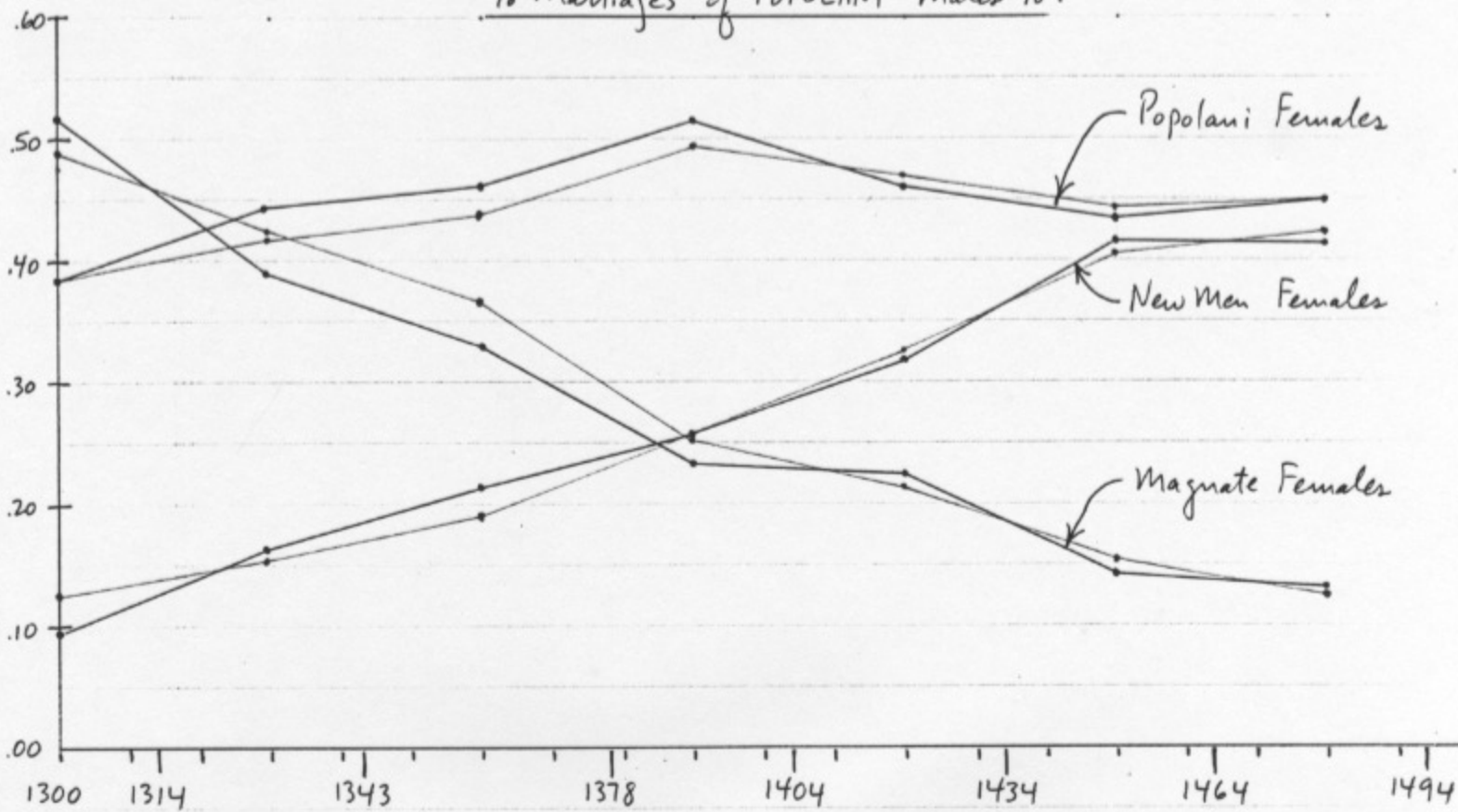
Among popolani families, residential endogamy started out at an extraordinarily high initial level--45% in-marriage during 1282-1314. Throughout the fourteenth century, however, it continuously declined, until by the fifteenth century, neighborhood was irrelevant to marriage. The fifteenth-century popolani were thoroughly intermixed and residentially-homogenous. Magnate families experienced a sharp and precipitous decline in intra-quarter marriage very early in time--from 1282-1314 to 1315-1342. After that, residential cleavages within the magnate class were irrelevant.

In contrast to these two trends, which differ in timing and magnitude but not in pattern, new men experienced essentially no change over time [until, arguably, Lorenzo's period when all three groups decline even further from already low levels--a phenomenon to investigate in the future]. For this reason, I interpret the new men as a control group. This enables me to say that about 32% of all Florentine families would marry fellow-quarter neighbors for reasons of physical propinquity alone, absent any other considerations. [Thus physical propinquity raises the expected null baseline from its purely random 25% level.] Therefore, among popolani and magnati, both the high fourteenth-century levels of residential endogamy (especially pre-1343) and the low fifteenth-century levels of endogamy (beginning after 1378) are important substantive phenomena that require historical explanation.

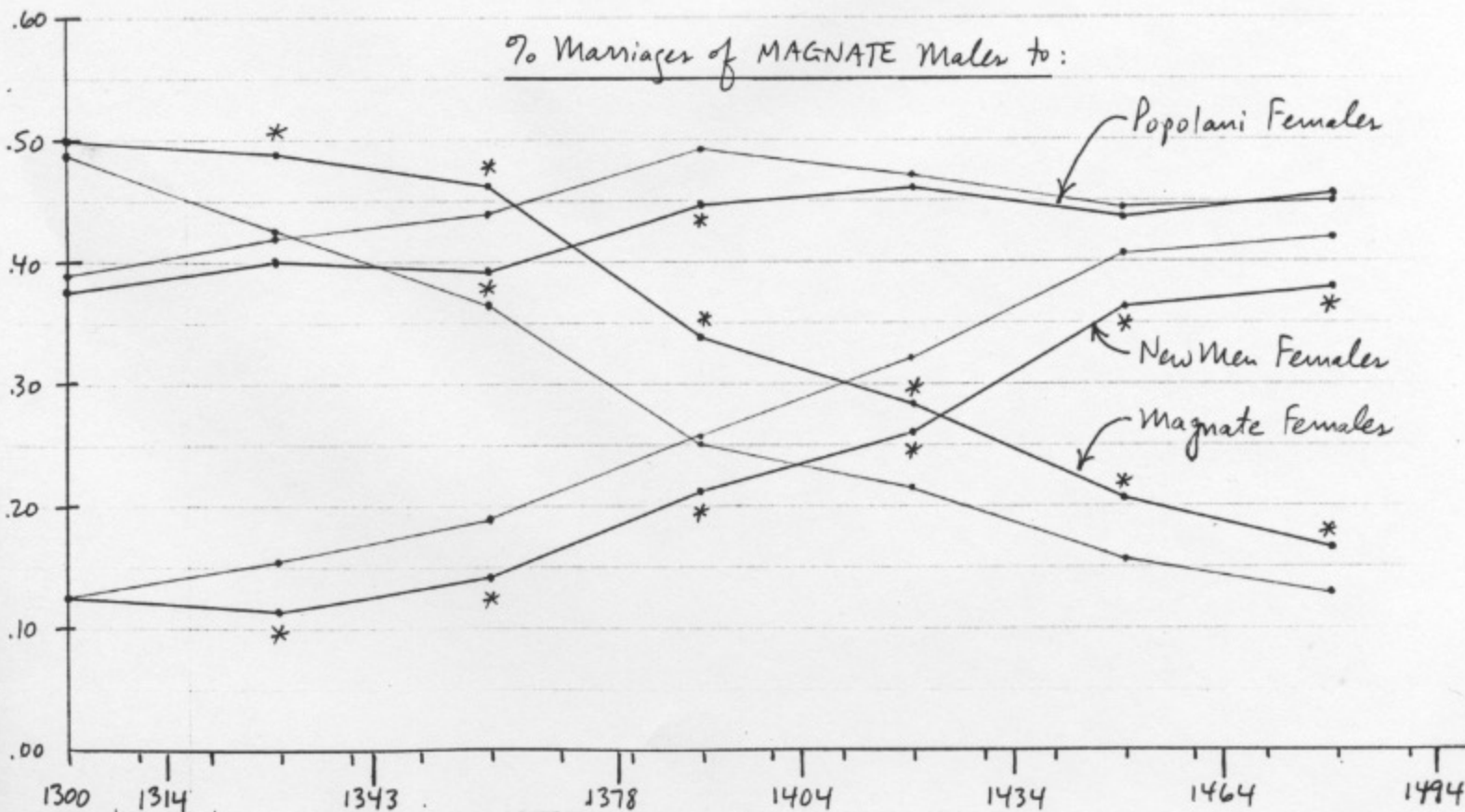
Much of my 1993 article is taken up with explaining the post-Ciampi decline in popolani residential endogamy. But the data here suggest an important amendment to the pre-1378 part of my earlier argument. I had suggested that a baseline "medieval" intermarriage structure in Florence could be

cial Intra-Class Marriage Rates (8/94)

% Marriages of POPOLANI Males to:

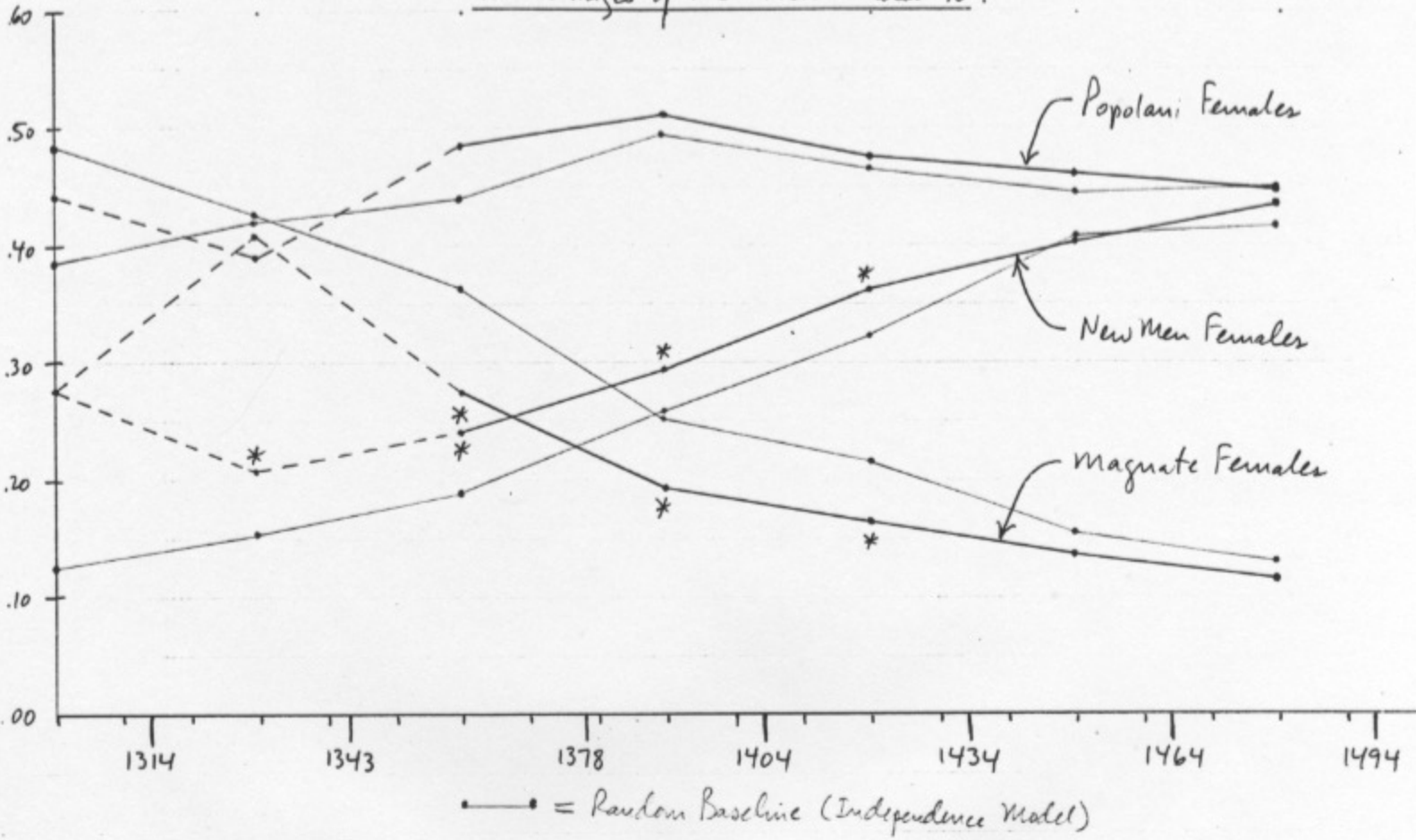


% Marriages of MAGNATE Males to:



—•— = Random Baseline (Independence Model)

% Marriages of NEW MEN Males to:





characterized (in idealized form) as a federation of neighborhood-based marriage hierarchies. That is, competing local "baron" families organized neighborhood-patrician followers through asymmetric hypogamous marriages, but were linked among themselves only thinly at the very top through a few super-elite cross-neighborhood marriages. In other words, within the elite, strongly hierarchical concentration within neighborhoods obtained, but only loose concentration in the city as a whole.

Figures 2 through 4 are totally consistent with this portrait, but only for the period before 1343 (not 1378, as I implied). [In my defense, I did insert a caveat footnote in the paper about possible vagaries in timing.] All the figures point to an extremely important intervening transformation in Florentine elite structure around 1343 or 1348, of which I did not know the existence earlier. Future stages of research will probe this important matter more.

#### Social Class Endogamy

Figure 5 (three parts) presents rates of social class intermarriage, over time. Panel 5a presents rates of marriage of popolani males to popolani, magnate, and new-men females. Panel 5b does the same for magnate males, and panel 5c does the same for new-men males. The heavy lines on all these graphs are the actual empirically observed rates; the lighter lines are the statistically expected rates, based only on relative numbers of marriages in these three categories. Asterisks indicate statistically significant differences between expected and observed rates, based on Chi-square tests (not reported here). It is important to take into account statistically-expected rates in interpretation here, since magnate families declined dramatically in size and number (and importance) over time, while new-men families did the opposite. [Recall the remark above about "degree" over-time.]

Perhaps the most surprising finding in all of these graphs is the fact that popolani families married other social classes at rates no different than what would have been expected statistically by chance (that is, by relative sizes alone). Magnate, popolani, new-men: such social class labels mattered not a whit for popolani marriage behavior. Popolani families were astonishingly catholic in whom they married.

Popolani families, remember, were the most powerful families in Florence. As a set of individual families, they clearly dominated Florence for centuries. The data here, however, are unambiguous: as a behavioral group, at least as expressed in intermarriage, the popolani simply did not exist. Popolani sat at the intersection of social prestige and

political power, but the multiplicity of their bases of dominance apparently led to the dissolution, not the confirmation, of their group identity. Whatever others may have thought of them, they continually thought of themselves only as "public citizens of Florence"--that is, as a set of individual families with a natural right to rule, but not as a dominant group with special corporate self-consciousness. [I recognize that this conclusion extrapolates a bit from the data--a flaw to be corrected in future drafts.] Perhaps this is one corollary of "hegemony": group identity is a matter of concern for folks out of power, not for folks who possess it. [This is consistent with what I argued, for a more limited time period, in my earlier article.]

Bolstering this interpretation is the fact that magnate families became markedly endogamous as a group precisely at the moment that they finally lost all claim to power. They had been first excluded in the 1290's, but they nonetheless struggled within the system until their final attempt at a come-back coup, which failed in 1343. Before 1314, the data show magnates behaviorally to be no different from popolani--despite legal sanctions, they temporarily intermarried popolani and new men just as freely as did popolani. Between 1315 and 1343, however, magnate endogamous behavior appeared, to be locked in "forever" by the events of 1343, even as their collective fortunes (and numbers) gradually sank under the horizon thereafter.

The data are even more specific than this. Magnate endogamy was purchased primarily at the expense of lowered rates of marriage with new-men, not popolani. While it is true that magnate males resisted marrying popolani females from 1343 to 1400 (or so), before 1343 and after 1400 magnates did not discriminate against popolani (whom, as we have already seen, never discriminated against them in the first place). The mutual antipathy really was between magnates and new-men. [This statistical finding is quite consistent with narrative accounts.]

Conversely, new-men endogamy, present as soon as significant numbers allow us to observe it with confidence (i.e., after 1343), was purchased exclusively at the cost of lowered marriage with magnates. Not even temporarily did new-men families discriminate against popolani. [For new men, this is not a surprise--the popolani were precisely the club new men wanted to join. The surprise is the reverse--popolani not discriminating against new men.] Not until the Medicean regime (post-1434) did the new men relinquish their antipathy to magnates. At that point, legal banishment from office had been lifted; perhaps more to the point, magnates by then were no longer any threat. It is interesting to observe, however, that even at such a late date, magnates themselves continued to



hold a grudge against new men (not popolani), who by then had far surpassed them in numbers and power. Old memories in fading aristocrats die hard.

### Wealth Endogamy and Hypogamy

There is also the matter of endogamy and (possible) hypogamy defined, not across social classes, but across economic classes--that is, across wealth. This is a tricky matter on which there has been some controversy recently between Anthony Molho and the late David Herlihy.

In the sections above, I did not discuss the (rather enormous) detailed research underpinnings of data sources & coding, data linkage & management, and computer algorithms--because I at least have confidence in my ability to back all this up in due course. [Of course, this will all be explained in full-scale publication.] In the matter of wealth across two centuries, however, certain practical difficulties require discussion, in order to underline the tentative, rather than definitive, nature of the following conclusions.

As mentioned in the data section, I have tax-assessment wealth at the level of all last-named households for 1351, 1378, and 1427. [The first two coded by me; 1427 coded by Herlihy and Klapisch.] For 1403, 1458 and 1480, however, I currently possess only partial enumerations--the wealthiest 500 households for all three years (courtesy of appendices in Martines and in Molho), and 10% samples for 1458 and 1480 (courtesy of Herlihy and Klapisch, again). This means that if I want to make statements covering the entire swath of time, I must aggregate to the total clan level--that is, I must sum the wealth of all households with common last names (adding no-named households where I know these to be actually clan members). Naturally, this does not cover most of the (unknown) poorer members of clans in 1403, 1458 and 1480, but I argue that it nonetheless does a reasonable job of recreating (approximately) the relative wealth rank-orders of the 960 clans in my data set. Average wealth of households per clan can then be estimated (again approximately) by dividing total clan wealth by numbers of households per clan--known exactly for 1351, 1378 and 1427; and estimated for the other years, either by extrapolation from 1351, 1378 and 1427 or by estimation from numbers of marriages in my data set. [The latter method of estimating clan size is more accurate, but here I confine myself to the (easier) first method.]

Placing the whole analysis on a household level of aggregation certainly would eliminate much potential error, but currently I cannot (yet) do this.

Caveats notwithstanding, the (approximate) findings about

wealth endogamy are presented in table 1. Because of the issues just discussed, I focused only on quartiles of wealth, thereby treating only large differences in measured average wealth as meaningful. I further collapsed the full 16 cells of the 4x4 tables into 5 cells, according to the scheme shown in table 1, in order to smooth out obvious noise fluctuations (which presumably would not be there with cleaner data).

In all six subtables, one for each period, the data are saddle-functions. That is, in all time periods, the rich were endogamous; the poor were (even more) endogamous; but the middle classes were not. Moreover (not surprisingly), the rich did not marry the poor, and conversely.

Hypogamy is an intermarriage pattern where all (but especially upper) classes are more likely to send daughters down the social ladder than to receive them up. There is no evidence of hypogamy in any of these wealth tables. (Nor was there any evidence of hypogamy across social classes, defined non-economically as "date of first prior".) To be fair to Herlihy, these analyses do not yet take into account the impact that dowry had on wealth--a matter he regarded as quite crucial in the measurement of hypogamy--and so must be regarded as only provisional. But so far the data support the position of Molho--namely, that elite [i.e., rich] Florentine marriage was both endogamous and homogamous.

Consistent with Cohn, but not emphasized by Molho, is the further fact that the poor were even more endogamous than the rich. Indeed, the endogamous (and homogamous) marriage behaviors of the rich and the poor in Florence may not be independent phenomena--mutual aversion may have driven mutual endogamy.

The quantitative degree of this otherwise constant feature of Florentine society, however, does appear to have changed somewhat over time. Holding aside the perhaps aberrant 1388-1418 subtable (which contains the dirtiest data), the fourteenth century [that is, both the 1336-1366 and the 1363-1393 subtables] exhibited more intense wealth endogamy (and mutual aversion) than did the fifteenth century [i.e., the 1402-1442, the 1443-1473, and the 1465-1495 subtables]. This is indicated by the "En=" and "Ex=" statistics below each table, which simply add the northeast and southwest cells, and the northwest and southeast cells, respectively. [Such sums measure the "slopes" of the saddle-function.] These statistics, high always, are especially pronounced in the two earliest time periods. This time trend to me (and probably to Molho) is counter-intuitive; I do not know at the moment how to explain it.

An unresolved tension between the analyses above is that

figure 3a's asymmetric marriage dyads showed such clear historical variation over time, whereas apparently neither hypogamy nor hypergamy existed--at least with respect to wealth or social class. A sharp dyad-concern with relative ranking between marriage-exchange partners, in other words, was manifest both early and late in the Renaissance, but this (apparently) was not based on the usual attributional criteria. What in fact such relative rankings were grounded in is another important topic for future research.

### Multidimensional Scaling of Path Distances

Finally, in an appendix, I present a series of two-dimensional scaling plots, one for each time period, of the relative distances between top families on marriage. (A "path distance between families" here is simply the shortest number of chained marriages it takes for one clan to "reach" another.) When viewed as a series, these plots give a "moving picture" of how elite marriage structure was changing over time, as viewed from the "birds-eye" perspective of looking down at the structure. [This is in contrast, say, to the "sideways" view of centrality, which looks at the (changing) relative slope of the "mountain".]

There were far too many clans in the actual MDS analyses to present visually in any picture, so for plotting purposes I show only the 60 or 70 largest (in degree) clans in the appendix. Please remember, however, that the statistical analyses underlying these spatial plots are based on all 500-600 clans, not just on the 60-70 shown.

The information contained in these MDS diagrams is too rich and impacted to be absorbed on first glance. One needs to know a lot about who these families are to be able to interpret them at all. Nonetheless, in lieu of the detailed discussion to occur in future drafts of this paper, I will simply note a few highlights.

1. One remarkable feature of the shift from 1282-1342 to 1343-1377 (a transition noted above as very significant) is that in 1282-1342 magnates were distributed more-or-less evenly around this space of very elite families [albeit with a clear skew toward the left of the diagram], whereas in 1343-1377 magnates moved tightly into the center of the space. [Note at the bottom of the second plot the change in magnification.] Later, magnates started to break apart spatially and then, eventually, to disappear (since they no longer were among the top 60 or 70). Magnate endogamy, while real, was insufficient to offset the sheer loss of numbers.

Various pieces can now be assembled into a tentatively clear portrait of the mysterious (to me at least) 1343-1377

transitional marriage structure. Figure 2 showed a dramatic centralization of the Florentine elite as a whole at 1343 (or so); figure 3a showed an equally dramatic decline in asymmetry within micro-dyads; and figure 5b showed that magnate endogamy emerged around that same time. Putting the MDS plot together with these other clues reveals the paradoxical fact that, in 1343 or 1348, the Florentine elite as a whole concentrated through marriage precisely around that group, the magnates, that it had just politically evicted for good. Figure 5c, as well as 5b, suggests a reason: Concentration was driven primarily by sharp magnate-new men polarization, which drove apart the top and bottom of the overall elite-marriage distribution. Vertically-oriented asymmetry ties shredded, as the system tended to stratify into separate layers. Popolani resisted this trend, however, and more-or-less successfully maintained their (somewhat frayed) position as bridge. Magnates stayed at the center because popolani continued to hold them individually in high regard, even though magnates did not reciprocate (popolani having joined the new men as political allies in 1343).

Thus, while the role of the plague has not yet been folded into this account [it can hardly not have been important], it seems plausible that the political events surrounding 1343 are at least part of the story about the dramatic first transition in Florentine elite structure.

2. The last two plots, covering 1435-1465 and 1465-1494 (the periods of Cosimo de' Medici's and Lorenzo de' Medici's reigns, respectively), are extremely revealing about the changing basis of Medicean control, insofar as these were manifest through marriage.

After Cosimo's rise to power in 1434, the Medici continued to marry old prestigious families, continuing a pattern discussed at length in my 1993 article. Instead of this Medici marriage cluster moving to the center of the Florentine social elite, however, (as certainly the Medici did in politics) the Medici and their Florentine marriage partners [there were also important extra-Florentine marriages by the Medici] remained aloof, on the fringes of the rest of Florentine society, just as before. Unlike in 1378-1420, however, this 1435-1464 distancing was presumably voluntary.

Some of the details of this Medici marriage cluster are of great historiographical note: Within the marriage clique of the Medici were the Strozzi, one of the most vigorously proscribed families of the period, banished from Florence by the Medici; the Pazzi, infamous conspirators who later tried to assassinate the Medici; and the Pitti, leaders of the 1466 anti-Medicean republican party which emerged at Cosimo's death. Among the closest in-laws of the Medici, only the

Capponi seemed never to have given the Medici serious trouble. But the Capponi were considered one of the few independently powerful rivals of the time capable of autonomously standing up to Cosimo's will.

One would think that a clique of old prestigious troublemakers, far removed from the center of the Florentine elite, would be highly unpromising soil upon which to build Medicean domination. And insofar as we are speaking of the marriage clique itself, this was clearly true. However, note well that there is a hole in the center of the rest of the Florentine elite, as well as some distance between the Medici marriage clique and the others.

A spatial hole indicates an absence of marriage ties--extremely peculiar at the dead center of any MDS plot [which after all is algorithmically designed to try to minimize path distances, a minimization usually accomplished through trying to construct a dense center]. Furthermore, pre-1434 Medici supporters and opponents are somewhat intermixed around this hole--quite the opposite of the situation that prevailed before 1434.

Control under Cosimo, in other words, would seem to have been based once again (in different form, but not different logic, from that discussed in my 1993 article) not on the interactionist principle of bringing close friends closer to you, but rather on the structuralist principle of driving barriers between your opponents. In this context, marrying highly problematic others may not just be a way of keeping a better eye on them, but also a device for removing them from the center of the rest of the action. How under Cosimo a structural hole was created and sustained in the very center of the Florentine elite, however, is a matter of possibly deep import, which I cannot yet explain.

3. Compare this Cosimo marriage system to that of Lorenzo. Lorenzo's Medici, like the Medici of Cosimo, were off on the marriage fringes of the Florentine elite. But there the similarity ends. Visually illustrated by a flip in their spatial location to the exact opposite end of the social space from where Cosimo's Medici were, Lorenzo's Medici married mostly political allies--often new-men allies at that. More interactionist in his network logic, Lorenzo sent marriage ties to friendly families who already supported him for other reasons. No doubt this made followers (especially new men followers) even more loyal than before, but it provided no leverage on Florentine elite structure as a whole. Quite the opposite perhaps--it isolated the Medici party, and it removed Lorenzo's supporters from their positions deep in the bowels of the rest of Florence, where they could do more good. Most ominous for Lorenzo was the fact that the structural hole at



the center of the Cosimo elite vanished.

I suspect that Lorenzo turned to this "surround yourself with friends" marriage pattern because of his close brush with death during the Pazzi conspiracy, and all that. But I do not believe this courtly approach to marriage was an effective control mechanism. Of course other things besides marriage are involved in control, but to the extent that the Medici could not longer control the Florentine elite at its constitutive base, more and more formal-institutional devices had to be employed, for which Lorenzo was famous (or infamous). Such methods (the Council of Seventy, etc.) are more visible and obvious to everyone.

The rapid fall of the Medici regime, immediately after Lorenzo's death, is perhaps testament to the possible veracity of the admittedly speculative remarks here.

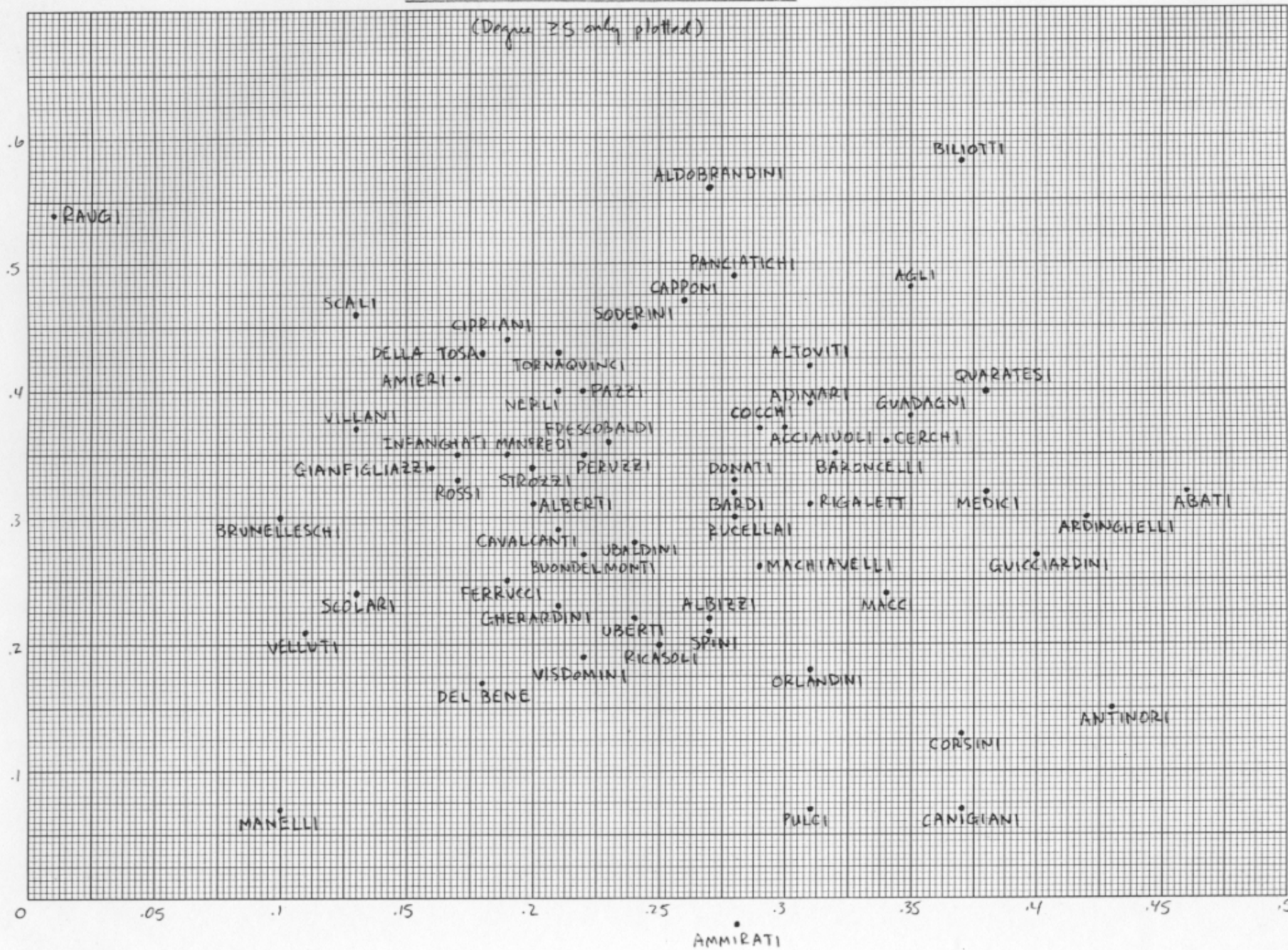
Much more could be said about these spatial analyses, especially about the middle two 1378-1404 and 1405-1434 plots. But the 1378-1434 period was examined at length in my 1993 article. And besides, a conference deadline looms. So for now I will just leave it at that.

### Conclusion

The purpose of this paper was neither interpretation nor explanation, much less general theory. Rather I simply wanted to develop a few previously unknown facts about the longue duree of elite marriage structure in Florence, in order to constrain my future interpretive/explanatory efforts. The next, more focused steps of my research will be guided by the very broad-brush patterns uncovered in this first-draft study.

1282-1342 MDS of Path Distances

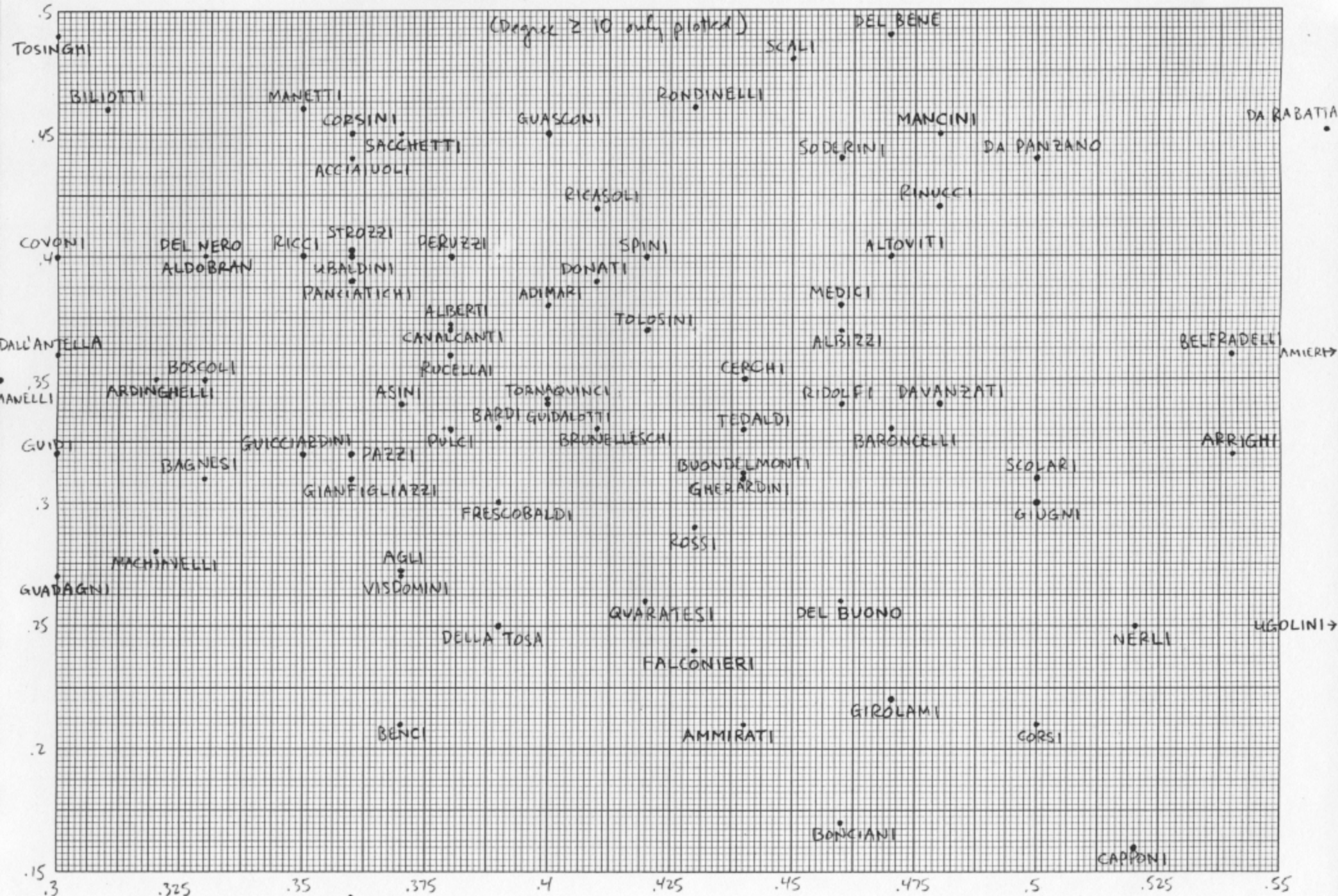
(Degree 25 only plotted)



SALVIATI

1343-1377 MDS of Path Distances

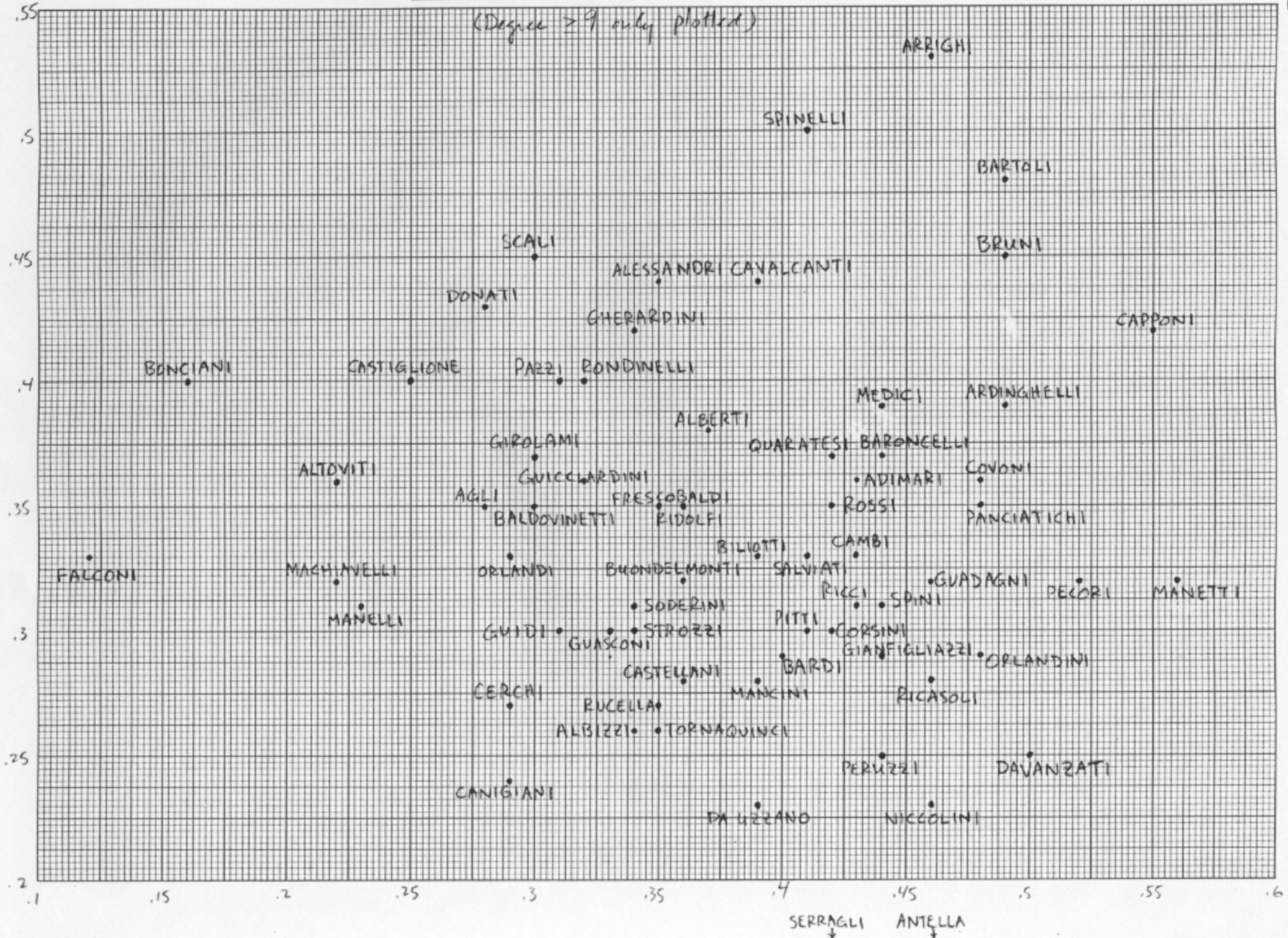
SERRAGLI



(NB: This graph 2x magnification of others)

1378-1404 MDS of Path Distances

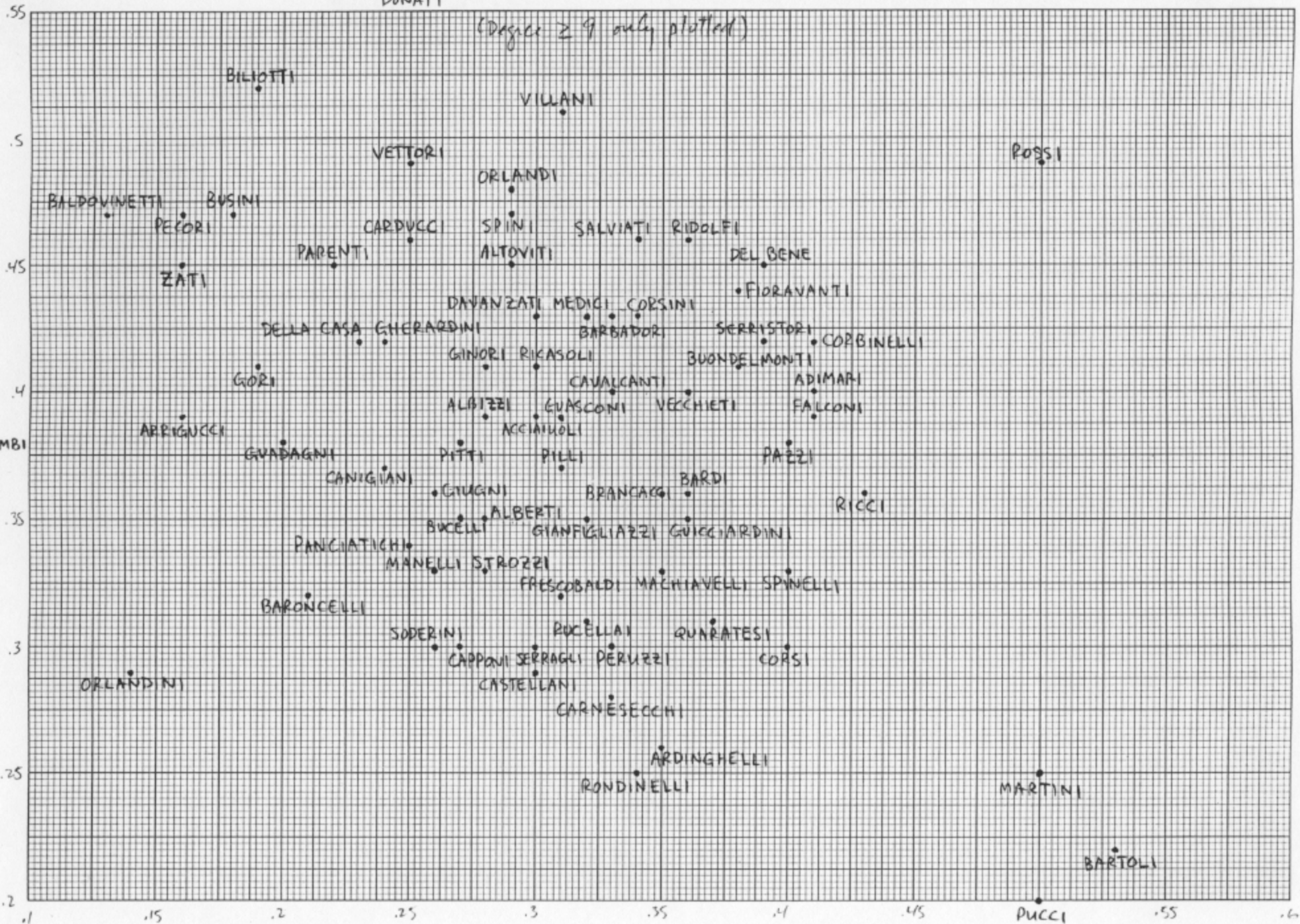
PILLI



1405-1434 MDS of Path Distances

DONATI

(Distance  $\geq 9$  only plotted)



1435-1464 MDS of Path Distances

