

The Marriage Core of the Elite Network of Colonial Guatemala

Narda Alcántara Valverde*

Silvia Casasola Vargas**

Douglas R. White***

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*Associate Researcher (2002)

Universidad Nacional Autónoma de México
Applied Mathematics and Systems Research Institute
IIMAS-UNAM
Apartado Postal 20-726
México, 01000 D.F.
MEXICO
Phone: (52-55) 56 22 62 30
Fax: (52-55) 56 16 26 70
e-mail: narda@leibniz.iimas.unam.mx

** Visiting Researcher, IIMAS-UNAM (2002)

silviacv@leibniz.iimas.unam.mx

***Professor, School of Social Sciences

University of California, Irvine
Irvine, CA 92697
email: drwhite@uci.edu

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Abstract

The problem addressed is how an elite group manages to trap recycle wealth intergenerationally through marriage strategies. Following Houseman and White's (1998b) definition of the core of a marriage network, we identify the core of the elite network of colonial Guatemala in the period 1640 and 1820 in structural terms, in relation both to the concept of marriage relinking (Jola, Verdier, Zonabend, 1970) and to the concept of wealth consolidation through structural endogamy (Brudner and White, 1997; White and Schweizer, 1998). We test hypotheses about the relationship between structure and marriage relinking and the consolidation of wealth and prominence in a sample of elite families from the dataset assembled by Casasola (1998, 2001). We propose a method for assessing the prestige core of a marriage network, and measure the correlations between prestige and wealth as well as the cohesive blocks of a marriage network that are defined by marital relinking. We find Houseman and White's definition useful to explain the structure and dynamics of cognatic descent groups, such as the Spanish kinship system. The variables that define the various structures and processes of elite formation fit a one-factor model, giving our finding a unitary interpretation in terms of class structure. We argue that study of the mechanisms and strategies of relinking family wealth and status offers an alternative approach to understanding class through the Weberian approach to differentiation of individual careers, income levels and occupational prestige.

Introduction

With the recent findings of Bowles and Gintis (2000a,b), the relevance of inheritance of economic status as a sociological topic is back on the agenda of contemporary public policy. Overcoming the measurement errors that led Bowles (1972) to question the relatively low correlation of wealth between generations, they go beyond the transient shifts in current earnings to measure underlying permanent income and to examine the phenomenon in detail. They find the well known “poverty trap” at the bottom of as achievement-oriented a society as America is even more severe than thought a generation ago. A person whose parents are in the bottom decile has 1 chance in 100 of making it to the upper decile. More surprising are their new findings, in explaining the fact that a person born in the top decile has a better than 20% chance of attaining the top in adulthood, and that genetic inheritance of traits contributing to cognitive skills measured in IQ explains very little of the variance. They examine a host of other factors that contribute to the intergenerational transmission of economic status but conclude that the mechanisms of the “wealth trap” remain something of a black box, and they call for a search for missing variables and additional mechanisms. The present study identifies a previously unidentified mechanism, in our case for colonial Guatemalan elites in the 17th and 18th centuries: specific strategies of marrying those with whom one is already related (an aspect of the phenomena we call marital relinking), relinking those within the same elite circles, that serve as a strategy to trap and recycle wealth not simply through inheritance of property and status, but the reunification of fortunes and other resources (like family skills) that would otherwise be dispersed. This kind of strategic endogamy is not a matter for public policy, but it needs to be understood as a mechanism for intergenerational transmission.

The elite of colonial Guatemala can be aptly characterised as a power elite, following the term coined by C. Wright Mills,² since it was composed of a handful of governing leaders who occupied simultaneous positions in the social, entrepreneurial, political and/or military arenas in Santiago de Guatemala. According to this point of view, the most salient characteristic of the power elite members is their capability of interchanging positions across the ruling institutions of the society (1956 (2000:19)). Although there is consensus among scholars about the existence of a Guatemalan elite, described in terms of 'oligarchic core' (Casaus Arzú, 1992), 'Criollo oligarchy' (Martínez Peláez, 1970), or 'Criollo nobility' (Chinchilla Aguillar, 1975), none of these authors described successfully the structure and dynamics of this elite. Casasola (1998, 2001)

conducted the first empirical research that unveiled the identity of the network that ruled over the region between 1640 and 1820³.

Casasola (2001) shows that the names of the conquistadors fade out from governmental and market positions at the end of the 16th century and were replaced by other Spanish names that by the mid-17th century identified the families in control of the economic, political and religious prominent positions in the region. Her survey with experts on the history of Guatemala corroborated which family names were perceived as the 'most prominent' of the colonial period. Although some of the conquistador family names survived until the 17th century, they did not compose the *core* of the colonial elite. The Encomiendas and Repartimientos⁴ of lands and Indians granted originally by the Crown of Spain to the conquistadors passed within two generations to the new immigrants, well-educated hidalgos⁵; foreign to the art of war, but keen to business and chivalry. Some of these immigrants became, altogether with their wives, the revered 'founders' of the elite families of Santiago de Guatemala.

Although Casasola (2001) found high agreement among expert historians as to prominent family surnames, she found no clear consensus as to the identity of the particular families that constituted 'la crème de la crème' in colonial Guatemala. In our attempt to solve this problem of identification, we were confronted with three different approaches to prominence. First, different authors cite specific families as most prominent, either by personal propinquity (the author descends from them), or because the authors worked on specific genealogies by commission of the descendants (Aparicio y Aparicio, 1978, 1970, 1969; Echeverría Lizarralde, 1965; Llarena y Ziri6n, n.d.). Second, authors extend the qualities of a prominent individual to his relatives and affinals. For instance, one Arzú was president, and therefore his family is called 'family of presidents' (Casas Arzú, 1992), one Landívar was an important poet and the author talks about the prominence of his family (Batres Jáuregui, 1957). Third, authors confuse families of colonial and post-independent times (Balmori et al., 1984; Brown, 1997; Casas Arzú, 1992). To take a more general approach, we focus on marriage strategy and structure.

Marriage strategy

Marriage usually implies investments of certain kinds of capital — neither necessarily, nor exclusively, of economic capital — for the families involved. Different societies have particular ways of celebrating marriage transactions. In the case of colonial Guatemala, elite

marriages were set according to the Spanish custom, sanctioned by the code of the Siete Partidas (Alfonso X el Sabio 1844; 1931; and van Keffens, 1968), and later modified by the Leyes de Toro (Alvarez, 1982). According to these laws both the bride and the groom should carry a certain amount of wealth into the new household. Genealogical evidence, however, points to the fact that the parties often negotiated in private meetings the value and the nature of these transactions. Inheritance of corporate (Crown) land was not sanctioned by law, and the parties involved were often taking advantage of the Crown's goods in these transfers. We know, however, that the groom offered a token of contract (arras propter nuptiae) to the bride, a transfer that had to amount, by law, to 10 percent of the groom's personal as distinct from the groom's family's wealth.⁶ We also know in the case of a consanguineous marriage that the family of the groom made payments to the Church to obtain a blood dispensation.⁷ On the other hand, the bride also received gifts — consumption goods — from both sides in the form of jewels, cash, rich linen and garments. These were for her personal use, but she could also carry furniture, servants, cattle, lands, real property and all kinds of things to be used in the new household. However, in a society where women inherited by right from both father and mother, and also from older siblings, aunts and uncles, how can we know for sure that the money and goods a bride took into her marriage were not her own share of inheritance and not a dowry granted by her family?

As Bell (1998) aptly points out, whenever transactions are mentioned on the occasion of marriage, many specialists tend to consider that those monies and those goods a dowry. Ethnographic and genealogical accounts often confuse dowries (as marriage gifts of consumption goods) with inheritance at the time of marriage, and also with groom price, in which corporate wealth, such as landholding, is transferred to the husband in exchange for rights for the wife (if the latter did occur with respect to Crown lands, transfers to a son-in-law were likely to be kept private). Thus, although in the case of colonial Guatemala the data show that in most cases the amount given in cash by the bride was considerably larger than the amount carried by the groom, it cannot be affirmed that that money was necessarily a dowry. The groom signed a receipt exacting the value of the cash carried by the bride (whether dowry or inheritance we do not know) that was destined for expenses of the new household or invested in some family business. The woman, however, could always recover her money in the event of the husband's death.

Since the Spanish kinship system was (and still is) patrilineal with respect of the family name, but ambilineal and bilateral for matters of descent and inheritance, all men and women are, simultaneously, members of their father and mother's descent groups. In colonial Guatemala, men and women customarily inherited alike, in equal shares, from both sides⁸. It was equally common that inheritance went from childless uncles and aunts to nieces and nephews; or from childless siblings to their younger brothers and sisters. Once reaching adult age, both men and women could dispose of their personal share of wealth as they pleased. Marriage was, indeed, an opportunity to invest this share with a good margin of profit, provided the intended partner was a suitable person. The fact is that some marriages involved higher wealth transactions — dowries, arras, and/or gifts altogether — than others.

Another aspect of marriage in this context is the transfer of social capital that took place in every union. A convenient marriage could be arranged, for example, between a rich heiress and a Criollo⁹ of a family of lesser wealth but with a title of Mayorazgo.¹⁰ Or, for instance, between a woman of the local elite and a healthy — yet penniless — hidalgo from the Peninsula. Spanish adventurers without fortune¹¹ were assigned, after marriage, to political or administrative offices of medium importance. These 'consort princes' were usually assigned to positions in the town council under the control of the local elite (Casasola, 1998, 2001).¹²

Considering the value of the economic transactions, the nature of the goods granted to the new couple, and the position held by the male of the couple in the political and administrative structures¹³, it becomes apparent that some marriages were more important than others. Clearly, in some cases the families risked a good portion of their economic capital in transfers of wealth at marriage while in others they did not. The question was: What determined the size and the type of the capital invested in each marriage? What was the rationale behind the marriage strategy of the colonial Guatemalan elite? Would it be adequate to talk of an investment 'strategy' based on the fluctuations in the 'marriage market'? (Bell, 1998). In the case of very high investments it would be farfetched to suppose that marriages were arranged at random or by personal preference of the partners. The question of the rationale behind the marriage arrangements remains unsolved, but we hope to do so in what follows.

The Sample

We took three descent groups of the colonial period in Guatemala for which detailed genealogical data were available, starting from the founding couples of the Varón, the Batres and the Cilieza families.¹⁴ These founders — Varón de Berrieza, González de Batres and Cilieza Velasco — were the first marriages that took place in American¹⁵ lands in which both partners were Spaniards. The genealogical records of their descendants contain detailed descriptions about a number of nuptial transactions, which give an idea of the type of wealth transfers occurred in the event of marriage. We know that, beyond any family myths, a number of the members of these families occupied prominent positions in the institutions of colonial Guatemala: the church, university, the local town council, and various businesses.

We registered five genealogical levels, starting from the founding couples. Although the genealogies date back to ancestors in Spain, these ancestors were not included in the database except when it was necessary to show early alliances. Each individual — including the incoming spouses in the early generations — was assigned a natolocal identification number according to the list of prominent family names of colonial Guatemala. Casasola (2001) submitted a list of 24 surnames, associated with wealth and/or prestige during colonial times, to 18 experts on Guatemalan history. Agreement among the judges validated a total of ten 'most prominent' family names: Arribillaga, Arroyave, Asturias, Batres, Coronado, Gálvez, Mencos, Nájera, Tovilla, and Varón¹⁶. In order to keep track of the four last names of each marriage partner (two from each parent), we registered the surnames of the parents of the spouses (even if not prominent names), whenever information was available.

The Batres-Arribillaga descent group is an example of a family that was prominent in Guatemala for two centuries. Individuals bearing both names together can be found in the records of the church, the university, the town council (cabildo), and in several businesses of Santiago de Guatemala. Descent groups related to Varón can also be associated with prominent public positions, especially in relation with the Mencos and Nájera names.

The Cilieza family, on the other hand, descending from a prominent elite ancestor for the network, illustrate the case of a descent group that precisely for lack of descent were either absorbed or displaced by other kinship groups. Historians did not regard Cilieza as a prominent surname throughout the entire period. The founder was an important encomendero in the early 17th century who renounced all his possessions and retreated to monastic life. Only one

granddaughter passed along some of his properties in a marriage with another elite criollo (a cousin). Related to the Varón and the Gálvez families for two generations, many of the later Ciliezas took monastic vows. Thus, the Cilieza descent groups have a short life in the public affairs of colonial Guatemala. We treated Cilieza as a prominent name only when it was clear that wealth transfers from the original ancestor were continuing in a particular line of the family.

Five types of marriage and the constitution of a semi-caste

We refer to the network of descendants, many of whom intermarried, as the Varón Batres Cilieza network. It contains a mixture of elites and non-elites. To try to separate their different statuses, we grouped marriages according to certain characteristics. We considered three primary dimensions of differential value: the economic transactions engaged, the origin of the partners — Peninsular Spanish versus Criollo Spanish —, and the prominence of the family names involved, as indicated by Casasola's validated list of prominent surnames. An individual was considered an elite Criollo(a) if one or more of the ten most prominent names were part of his/her set of surnames. Since we had to consider the available genealogical and historical data in its social context, we also considered the rights and duties involved in these various combinations of statuses that occurred in the sample. These fell into the five principal types of marriage (M1-M5) listed below. The classification is synthetic, in the sense that both wealth and family name were at issue in determining whether a person was considered elite. In the absence of prestigious ancestral names for an individual and of important wealth transfers from that individual's family, a Criollo was considered non-elite. The classification was validated by cross-tabulation to check for consistency with coded variables (number of prestigious names for husband and for wife, and significant wealth transfers).

The types of marriage that occurred were these:

- **M1** Elite Criollas married to Spaniards from the Peninsula. These were hypogamic marriages for females both in terms of wealth and rank, since even if these men had money (of dubious origin) they didn't have prestigious names or Peninsular noble titles; they were adventurers more often than not. They often achieved their hidalgo status in the New World, and partly as a result of their marriages.
- **M2** Isogamous elite marriage (elite Criollas married to elite Criollos), including not just important economic and social transactions on both sides, but also the transfer of

corporate wealth, usually associated with the administration of large encomienda landholdings.

- **M3** Isogamous elite marriage, but with no important economic and social transactions (elite Criollas married to elite Criollos).
- **M4** Hypogamic male marriage, with no important economic and social transactions (Criollos from an elite family married with women of lower station; female hypergamy).
- **M5** Hypogamic female marriage, with no important economic and social transactions (Criollas from an elite family married with Criollos of lower station).

There is a sixth logical possibility that did not occur:

- **M6** Isogamous non-elite marriages.

Although many of the descendants of the elite founders became non-elites in the course of time, like many of the Cilieza descendants, it is notable that all of the non-elite criollos manage to marry elite criollos, thereby re-establishing elite status via the marriage. This marriage network of descendants from prominent-names ancestors, then, shares one of the properties of a caste system: Namely, through intermarriage, all of the descendants keep their status as an (elite) caste. Our term for this type of social structure is a semi-caste. It does not share the other defining feature of a full caste system, which is that nobody marries in from outside. Here, for example, elites are also replenished with new cultural and economic capital from in-marrying Spanish partners, and non-elite descendants may marry elites from outside, such as the families of the eight other prestigious names apart from Varón or Batres.

The frequencies of each type of marriage for the 183 marriages that took place between 1640 and 1820 in the Varón Batres Cilieza network¹⁷ are shown in Table 1. Also shown are the frequencies of the higher of the two levels of wealth transactions that were coded.

Table 1: 'Five Types of Marriage'

The popular belief is that the elite families of colonial Guatemala preferred marrying their daughters with Spaniards (31% of all elite marriages). Slightly more numerous than these **M1** marriages, however, were the elite Criolla marriages with elite Criollos **M2/M3** (34% of all elite marriages). As noted, few of the Spanish males were in a position to make substantial

wealth investments in the marriages (these were far more likely to come from the female side), while of the elite Criollos taken by female elite, roughly half the men contributed important wealth.

The transactions that took place on the occasion of **M2** marriages included cash, jewels, real property, servants, workers, and rights over corporate property. The men typically held high positions in the local government, and the women often ran family businesses and could own corporate wealth. We used corporate landholding transactions to distinguish these marriages from the M3 marriages.

An interesting feature of these marriages is that 39% of them were celebrated between consanguines, usually first and second cousins, but also uncles and nieces. Table 2 shows the strong relationship between consanguine marriage and corporate wealth transfers in the M2 marriages. The remaining three types of marriages did not imply large wealth transactions although one or both of the partners carried prominent family names. Families with more children, of course, had more possibilities of making some (or possibly more) successful marriages, but typically not all the children in a family could be married to others with equal standing.

Table 2 : ‘Marriage transactions and blood/non blood unions’

In making the distinction between M2 and M3 marriages, both among elites but different in type of wealth transactions, a correlation was also evident between type of wealth and the number of prominent names associated with the two spouses (tau-b of .44 with wife’s names and .38 with husband’s names). Controlling for our categorization of M2 and M3, these correlations disappear, which is an indication of consistency between judgements about the categories and the formally coded variables.

The **M3** marriages, between elite Criollo men and women that involved no important transactions, could enjoy of the privileges of being part of the elite, but were less likely to be land administrators, and the women did not run important businesses. About 20% of these marriages, however, did involve important wealth transactions although not of the type of corporate wealth and land transactions that defined the M2 marriages.

M4 marriages are quite common (38%), as is female hypergamy in most stratified societies, but marriage with a non-elite Criolla involves important wealth transactions only exceptionally. **M5** marriages, where the man was of lower station than the woman, are the lowest in frequency of the sample (14%). These categories conform to a common trait of elite behavior, that women tend to marry men of higher or equal social status more often than the converse.

We could have simply concluded, at this point, that the M2 marriages constituted the core group in which wealth, especially the wealth associated with large landholdings, was transmitted among the colonial elite, and that the M3 marriages constitute a secondary core.¹⁸ However, what we still wanted to know about the wealth and prominence core of the network is how the transmission of core attributes was associated with the structure of the network.

In this respect, an early hypothesis proved to be one that could not be tested. We tried to find the core network by identifying the eldest males of each generation, since the Roman law (which had a bearing on Spanish custom since the Council of Trent) dictated that the eldest male should inherit the bulk of the parents' wealth (Ots Capdequi, 1969; van Keffens, 1968). This rule ran counter the Spanish custom of inheritance in which both males and females should inherit in equal parts from father's and mother's side. In the case of colonial Guatemala, however, the elite seems to have found a way to combine both codes. Although everyone inherited from parent's personal wealth, we observe a tendency to name the eldest son as heir of corporate wealth, e.g., in the *Mayorazgo*. But we also found cases of younger brothers and daughters exercising rights on corporate wealth. The problem was that we could not find in the genealogical data *when* exactly and *why* these principal heirs were endowed with these donations, nor any explicit statements for not choosing the eldest male as principal heir. A very possible guess is that, given the presence of corporate wealth in marriage transactions of the M2 kind, the fortunate heirs and heiresses were endowed when betrothed to promising prestigious partners, and neither the gender nor the order in which they were born into a family had to do with this decision.

Name Redundancy and Marriage Relinking

Leaving behind the attempts to find the elite core through intrinsic attributes of the marriages, our next step was to classify marriages by *name redundancy*. This time we focused on a relational attribute, namely, the ties that link the partners of each marriage with the rest of the Varón Batres Cilieza network and beyond. We sought to identify, firstly, all those unions that

could potentially relink the wealth, rights and any elements of social capital¹⁹ of families through marriage.

Marriage relinking is a term used to describe a marital union (either within a descent group, as included in Houseman and White's, 1998b, definition, or more commonly) that reconnects lines of descent that are already interconnected through marriage. A corollary of relinking marriage is its potential for relinking or transmitting resources of some kind, across genealogical levels, back into the same family or grouping of families that have been linked before. The simplest kind of marriage relinking is a consanguineous marriage (*vertical* relinkage), or marriage between two partners linked by a tie of consanguinity (e.g., first or second cousins, uncle and niece). The second kind, horizontal relinking, comes in two varieties: *redoublement* (the term used by researchers in France) or redoubling of ties between two families, united by two or more marriages; and renchâinement, in which three or more families are cyclically linked by marriage.²⁰ White (1997) and Brudner and White (1997) define a set of relatives as structurally endogamous if they are linked by overlapping cycles of relinking. We consider the simpler (vertical) form of relinking first, especially since 39% of the M2 marriages were found to be consanguineous or 'blood marriages'.

When vertical marriage relinking occurs in societies with bilateral name inheritance, name redundancy usually appears. In this particular case, patterns of redundant names can be observed rather easily (as shown in Table 3) since the Spanish kinship nomenclature includes at least two surnames for each individual, and even the use of father's and mother's second surnames is not uncommon.

We use a method of systematically checking for family name redundancy by listing strings of four surnames for each partner. Redundancies of the same names between husband and wife are a good way to find close-kin marriages. Relatives will share at least one out of four names if they have grandparents in common, or if two of the grandparents come from the same patriline. Table 3 shows the close consanguineous relinkages of the Varón Batres Cilieza marriage network.

Table 3: 'Vertical Relinking'

To facilitate the identification of close-kin marriages, both in Table 3 and our larger database, we listed each marriage partner by ID number, sex, father and mother's ID numbers, and with all four last names: father's first surname, mother's first surname, father's second surname and mother's second surname. Succession in terms of wealth or prominence could pass through any of these family lines, this being a kinship system with ambilineal descent and bilateral inheritance. The surnames that indicate consanguineous relinkages of the two spouses through a common ancestor are highlighted in the table.

Examining the full database using this procedure,²¹ we found that 20 or 11% of the 183 marriages of the sample were between close consanguines: 7 matrilineal parallel cousin marriages, 5 second parallel cousin, 4 uncle-niece, 3 second cross cousin, and 1 cross cousin. Furthermore, five of these vertical relinkages are of serial depth 2, where one partner already came from a consanguineous relinkage. The relinked parents in Table 3 – those numbered 8, 11, 12, 15 and 18 – are also highlighted. Further relinkings that would be of depth 3 are found in the genealogical records, but they happen outside of the historical period studied.

Name redundancy can also be an indicator of horizontal relinking, or marriage cycles linking families that are already inbred, producing generations of siblings that are related either through blood ties or by affinal ties or by both. Pairs of couples whose marriages relink two families (redoubling of ties) are presented in Table 4.

Table 4 ‘Horizontal Relinking — Examples’

Sets 1 through 3 show two brothers marrying two sisters. Although none of these marriages is a vertical relinkage, the descendants of each set of marriages will bear the same string of names (i.e. Micheo Nájera Barreneche Mencos; Asturias Pavón Arroyave Arribillaga; Pavón Arribillaga Muñoz Castilla). Set 4 shows a similar case as the above, with the difference that the resultant strings of names are inverted (I.e. Rosal Márquez Herrera Sunsín; Márquez Rosal Sunsín Herrera).

Sets 5 through 7 include first and second cousin marriages (either cross or parallel). These sets of marriages produce descendants with name strings where only one name is different (highlighted). Notice that set number 7 includes two vertical relinkages. Sets 8 and 9 are

composed of uncle/niece and cousin marriages. Each set produces siblings with the same strings, except for one name.

Set 10 is composed of two parallel cousin marriages, one in second degree and the other more distant. The first marriage of the set is a close vertical relinkage while the second is a less apparent consanguine marriage. The number of names that will be different in each resultant string is one and two, respectively.

Set 11 is composed of three marriages. The first two produce siblings with the same string of names (as in sets 1 through 3); while adding the third marriage to the set we see that no name is lost, but one (Pavón) redoubles.

Name redundancy is, thus, a local network variable. It allows us to see network effects in the local neighborhood of each ego, and assures us that relinking is a phenomenon that does operate locally. Furthermore, it defines a potentially effective mechanism for consolidating elite status in the face of dispersal of resources such as the division of property among multiple heirs in each generation, and similar dispersal of social capital.

Since each marriage in the context of an elite family conveys a wealth transfer, one of the best ways to reinvest that capital is by relinking it through successive in-group marriages. Elite behavior in many societies coincides with a preference for consanguineous or two-family relinking marriages. Wealth consolidation might explain the preference of Guatemalan elite for such marriages, as well as the opposition of the Church to consanguineous marriages, especially since the strategy of relinking precludes single religious members from participation in the cycles of wealth and power.²² Insofar as consanguineous marriages and redoubling are mechanisms for consolidation of wealth within a core group of marriages, such marriages tend to provide a narrow circle of relinked kin rather than a broad base of integration amongst elites. We wanted some more general means to identify such a core, one that would elucidate the role of marriages in relinking families and the transmission of wealth and prominence, and of the formation and function of a more broadly integrated elite, if such integration was to be found.

La crème de la crème: The core network

Marriage relinking can readily be taken as a sign of concentration of power and wealth in the hands of a few. Elite behavior everywhere in the world seems to confirm this feature. However, consanguineous marriage over generations characterizes many different kinds of

communities (Brudner and White, 1997, Houseman and White 1998a; Houseman and White, 1998b), including peasant and urban working class. The crucial point of analysis in any type of society lies in focusing in the relationship between the circulation of persons (marriage partners, in this case) and of the things involved in the marriages (dowries, gifts, rights, property). Marriage relinking or consanguineous marriage in particular can be misleading as signs of power and wealth, since they are not exclusive behaviors of the rich. Although we found a number of consanguineous marriages in the Varón Batres Cilieza network, for example, not all of them can be considered as part of the network core. The core of the marriage network has to be conceptualised from another perspective. Houseman and White's definition of core of a connected marriage network (1998b: 241 footnote 2; restated here in somewhat different order), which motivated our discussion of relinking thus far, is useful in this respect:

"This core network is made up of those marriages having a sufficient degree of interconnectedness to enable one to speak meaningfully of network structure."

"[It is] equivalent to the set of all marriages connected [by parent-child links] to at least two other marriages also in the core."²³

"[It] includes

[a] those unions whose partners are connected to each other by one or more prior consanguineous ties (consanguineous marriages);

[b] those unions whose partners are connected to each other by one or more prior affinal ties..., as well as, ...

[c] those unions that connect (sub)cores to each other"²⁴

We use name redundancy in yet another way, tapping into the way a large social group may be integrated through relinking and structural endogamy. We decided to use as our measure of the prestige of each marriage the number of surnames in the set of ten of the validated list of Casasola. These names are related to strategic positions in the government (Ayuntamiento), in academia (University of San Carlos de Borromeo), and the high clergy, as well as to land tenure (haciendas), land administration (encomiendas), services (water, the local army), and the local market (distribution of goods among regions). The highlighted surnames in Table 5 are family names identified as being among the ten most prominent. As an indicator of prestigious

marriages, all those marriages selected for Table 5 involve at least one prominent name possessed by each of the husband and the wife and four or more prominent names between them.²⁵ Of the 183 marriages in our time frame, 32 prestigious marriages were identified.

Table 5 ‘The Marriage Core Network’

Taking Houseman and White's definition of core marriage, of the prestige 32 marriages, 16 are vertical relinkages, thus satisfying condition a): { 1, 3, 4, 7, 10, 13, 14, 18, 19, 21, 22, 24, 25, 28, 29, 32 }. Of these, all but number 18, probably also a consanguineous marriage, were identified in Table 3 (cross-references between Tables 2 and 3 are given in the next-to-last columns of each table). Condition b), horizontal relinking, is satisfied by the remaining 16 marriages, constituting 50% of the prestige marriages. If we combine the 16 vertical relinkings in Table 3 with the 32 names in Table 5, and eliminate the overlap (32+20-15), we have a total of 37 names that constitute a core of relinking marriages. If we examine the eleven sets of redoubling marriages in Table 4 against Table 5, we also see that if one of the redoubling marriages is a prestige marriage, then so is the other (5 sets; in 6 sets neither is a redoubling marriage; $p=.002$ by exact test), these relinkings too should be added to that core.

A subcore is a set of marriages that is cohesive in the sense that the connections amongst these marriages via parent-child links cannot be severed by removal of fewer than two of the marriages in the set. Thus a subcore is a set of marriages in which every pair of marriages is connected by two independent paths of parent-child connections.²⁶ Both core and subcores are defined in terms of maximal sets that have these properties. In the graph theoretic terms that provide a vocabulary for measuring cohesion (White and Harary 2001), a subcore is thus a bicomponent of a network.²⁷

Recalling our definition of vertical and horizontal relinking marriages – referenced by [a] and [b] in the Houseman-White definition – such relinkings are necessarily contained within subcores. A subcore of a connected marriage network includes not only the relinking marriages but also the ancestral marriages and connections involved in such relinkings. A subcore defines a structurally endogamous group (White 1997): Its members have redundant kinship connections, and multiple ties with every other member. If a group is structurally endogamous, then some of its marriages (possibly many or all, depending on the degree of relinking) are

between people who have prior connections in terms of intersecting lines of descent from a common set of ancestors.

Connected subcores of a marriage network form a core of a marriage network, as in Houseman and White's (1998b) definition.²⁸ If there is more than one subcore, the difference is that some of the subcores are disconnected or connected by only a single path of parent-child connections. If there are no distinct subcores, every marriage in the core is connected by multiple paths to every other. All the relinking marriages will be found within the core.²⁹

There is no relinking, by definition, across subcores, but subcores can be connected into a single core – as referenced by [c] in the definition – if they share a common marriage or if there is a path of parent-child links that connects them. Thus, for the Varón Batres Cilieza network of descendants, we can identify the structurally endogamous sets of marriages, which may fall into distinct subcores, but are connected in this case into a single core.

Having classified the difference between marriages of type M2/M3 and M4/M5 in terms of the declining importance of wealth transfers in elite marriages, we turn to defining some additional variables that deal with the relationship between attributes, such as prominence and wealth transfers, and network variables, such as blood marriages and social cohesion, such as co-membership in a subcore or similar types of network variables. These variables will be used in stating and testing further hypotheses.

Variables

Since it may seem incongruous to define formal variables when working from genealogical data we discuss the rationale of each variable in turn. For network variables it is useful to describe our marriage network in terms of a p-graph, or graph with parent-child links between marriages as the nodes, as defined as an appropriate model for the study of marriage networks by White and Jorion (1992, 1996).

When the network sampling is relatively complete in a population, as with our complete sample of Varón Batres Cilieza descendants and their marriages in a specific time period, subcore membership is a meaningful and well-defined binary variable for measuring the extent of the largest structurally endogamous subcore containing all relinking marriages (vertical and horizontal) in the population. (K2 – Subcore membership – is a binary variable for membership in the large cohesive subcore or bicomponent of our p-graph).

By adding to the p-graph (which has only parent-child links) the links between siblings, we are able to measure a second binary variable quite different from the first, which is membership in the largest cohesive block of marriages in which every marriage is connected by three or more independent paths of parent-child or sibling links.³⁰ Graph theoretically (White and Harary 2001), this is the tricomponent of the parent-child cum sibling tie network. (K3 – Cohesion – is a binary variable for membership in the largest cohesive tricomponent of the network that includes both the p-graph and sibling relations).

The number of prominent names (from 0-4) for the husband and the wife are well defined attributes. To measure the prominence of a marriage, we add these numbers together (0-8).³¹ (Hprom – Husband’s name prominence – is measured by the number of surnames, from 0 to 4, of the husband that are in the validated list of prominent names; Wprom - Wife’s name prominence – is defined similarly for the wife. HWProm - Husband/Wife name prominence – is the sum of HProm and WProm).

The coding of close consanguineous marriages is straightforward, and easy to check using our name redundancy criterion (Blood – Consanguineous marriages – is a binary variable in correspondence with the 20 close blood marriages in Table 3).

As a measure of categorical status we use the original M1-M5 categories but collapse the M2 and M3 categories to avoid a definition that is confounded with wealth distinctions.³² The M4 and M5 distinction is retained since M4, the more normative case of hypergamy for women, is higher in status. (Status – is defined by marriage types M1-M5, but disregarding wealth criteria, so that M2 and M3 are merged into a single category). The use of marriage type for status thus distinguishes origin as well as elite status and isogamy/hypergamy/hypogamy in the categories of Spanish, elite Criollo(a), and non-elite Criollo(a).

To measure rank among Criollo(a)s, M1 was treated as missing data, and the categories are ordered from low, M5, followed by M4, to high (M2/M3) (Rank – is the same as status, except that M1, elite female with Spaniard, is coded as missing data since the rank of these marriages is indeterminate, and is thus disregarded).

The only problematic variable in terms of data quality is the measure of wealth transfers at marriage. For simplicity we used a tripartite coding. We did not think the coding sufficiently reliable to differentiate wealth transfer on the husband’s side and the wife’s side separately, although it might add to our analysis to do so (Trans – Wealth Transfer – is coded 0 for no

important wealth transfers, 1 for important wealth transfers but no corporate or large landholding transfers, and 2 for large landholding corporate transfers.

Hypotheses

Our hypotheses concern two issues: (A) marriage relinking and network cohesion, and (B) the role of relinking marriages and cohesion in the transmission of wealth.

Given that bounded kinship groups such as named lineages or clans are absent in this network, the meaningful family subgroups are not unilineal descent groups but sets of cognates that are more densely intermarried. Houseman and White's methods identify the cohesive subcores of the network as a bounded group defined by structural endogamy, within which there are both (a) vertical and (b) horizontal relinking marriages. Brudner and White (1997) show that subcores of marriage networks may in some cases define the boundaries of social class or other socially cohesive groups such as elites. The largest subcore – a social unit by which elites might be socially and materially integrated through relinking, as defined by variable K2 – will also involve both (a) vertical and (b) horizontal relinking, as in Houseman and White's definition, and should be associated with greater wealth (variable Trans) and prestige (variable HWProm).

Greater cohesion in a subcore involving not just parent-child but also sibling (and sibling-in-law) links between marriages should also be associated with higher wealth and prestige. Sibling-in-law relations allow wealth to be consolidated between different ancestral sources. Reconsolidation of wealth through relinking marriages is more likely the greater the number of siblings because this entails the division of family inheritance amongst a greater number of heirs. Hence relinking marriages will be less important when there is a single child as heir. The type of cohesion that is important as a predictor of wealth reconsolidation marital relinking is not simply that of creating an 'alliance' between the parents of the bride and parents of the groom, but that of sibling-in-law alliances and relinkings when there are multiple siblings, as measured by variable K3.

Data Analysis

Recall that to test our hypotheses about the effects of the global network structure of relinking, we defined variables K2 — membership in the largest bicomponent (subcore) of the network p-graph (marriages and parent-child links) — and K3, membership in the largest

tricomponent of the p-graph-cum-sibling ties. Hence we constructed two networks, a p-graph of marriages and parent-child links, and a second network consisting of the p-graph plus sibling links. The nodes or marriages of these graphs are the same (N=189, including six parental couples added from the earlier time period to link some of the siblings). We computed the boundaries of the largest K2 bicomponent (subcore) of the p-graph using Batagelj and Mrvar's (1996) Pajek software³³ and the boundaries of the largest K3 tricomponent in the second network using White and Harary's (2001) methodology for identifying hierarchies of cohesive subgroups in social networks and Moody and White's (2001) algorithm to compute the cohesive subsets.³⁴ A brief excursus on these measures of cohesion – which double in the case of kinship networks as measures of relinking – is in order.

A subgraph has node connectivity \underline{k} if it cannot be separated by removal of fewer than \underline{k} nodes, which implies as well that every pair of nodes in such a subgraph will have \underline{k} or more node-independent paths between them. Unlike a p-graph, which can have no more than connectivity 2 (a subcore), the maximal connectivity of subgraphs in a p-graph with sibling links added is limited by the maximal size of sibling groups. We limited our criterion for cohesive groupings in that graph to $\underline{k} = 3$, a value just larger than the maximum possible cohesion for p-graphs alone, which is $\underline{k} = 2$.³⁵

Using these two binary measures of membership in cohesive groups of marriages in the network p-graph and p-graph-plus-sibling ties, we were then able to correlate the K2 and K3 cohesive subgroups of marriages with measures of wealth and prestige. Since relinking is a central feature of the recurrent consolidation of social and economic capital in each generation of an elite network, relinking marriage should correlate with measures of wealth and prominence.

The K2 measure of the cohesion in the marriage network is equivalent to Houseman and White's identification of subcores that contain the various types of vertical and horizontal relinkings. The cohesive sets of marriages identified in the K2 measure and subcore differ from the relinking marriages, however, in that they also include all the ancestral marriages involved in the relinkings among descendants.

On this larger scale of analysis there appear some interesting conceptual aspects of our problem of identifying the core of a marriage network – and potentially, of its effects. Thus far we have looked at the relinking marriages only, but not the ancestral marriages involved in the relinkings. Clearly, these particular ancestral marriages – the ones that give rise to relinkings –

are more likely to be those that have significant resources (wealth or prestige) to transmit. The variables K2 and K3, then, go considerably beyond the identification of relinking marriages in Tables 3-5 to identify the total ensemble of marriages cohesively involved in the relinking phenomena.

For our network, we find that 55% of the marriages (identified with variable K2) form a dense multiply connected subcore. This subcore is connected as well (by common nodes) to two small subcores, each associated with consanguineous marriages (identified by the letters “SC” in the last column of Table 3). Using Houseman and White’s definition to help distinguish some of the marriages within this core, there are:

- 20 vertical relinkages consisting of the close consanguineous marriages listed in Table 2 (there are 8 other more distant vertical relinkings not listed in Table 2), 17 of which are within the largest subcore;
- 85 additional marriages with horizontal relinkages, unions whose partners are connected to each other by one or more prior affinal ties,³⁶ and
- two distinct subcores with three marriages that belong to both the largest and one of the small subcores.

An Additional Measure of Redundancy

The degree of endogamy in the largest subcore of Varón Batres Cilieza network seems to be unusually high, considering that the individuals in this network are descendants of twelve independent couples (the Varón, Batres and Cilieza ancestors and nine close in-laws), but also considering that there are 87 ancestral surnames in circulation. Each ancestral couple, with its patronymic, gives rise to a cognatic descent group that comes to overlap with others through marriage. Cognatic descent groups, in a case like this, have no clearly defined boundary such as a single surname, since affiliation with a cognatic group occurs also through the mother.

Female links and descent lines, because of transmission of property to daughters, may be as important or even more so than male lines. The largest female descent group is from the Varón ancestor (58 marriages); the next largest pair is from two of the Batres ancestors (with 14 and 10 marriages, respectively); and the next pair from two Cilieza ancestors (10 and 7 marriages). Since the largest male descent groups are of size 17, 10 and 7, the compactness of the female descent groups (of which there are 54, compared to the male 87) is much greater, and the largest

female descent groups is three times the size of its male counterpart. There is endogamy within the female as well as the male descent groups, consistent with cognatic rather than unilineal descent.

A measure of redundancy in the ties that link and relink relatives in a structurally endogamous group – the elusive “degree of structural endogamy” – is the relinking index of White, Batagelj and Mrvar (1997), which controls for the number of independent founding ancestors in a marriage network, and given the number of nodes in the largest bicomponent (subcore), computes the density of relinking as a percentage of the maximum possible density. For the Varón Batres Cilieza network, the relinking index is 60.3%, one of the largest on record. Of the relinkings that *could* be effectuated within this network, that is, even if larger sibling sets might be required, 60% are actualized! That is an indication of the strength of the relinking strategies at work among the elite families of this network, and helps to understand how this network is able to operate as a semi-caste, where everyone is either an elite or able to marry an elite, but sufficient resources are also preserved within the network to do so.

Findings

Tau-b correlations among the variables are shown in Table 6. All the correlations are statistically significant at $p < .01$ or less (often at $p < .0001$). Network variable K2, subcore membership (relinking in the largest structurally endogamous group) has high ordinal correlation with magnitude of wealth transfers (.487) and rank (.483). Variable K3, tri-connective cohesion in the network, including sibling-in-law and sibling ties, has its highest correlations with name prominence as a measure of elite status (.418), rank (.383), and wealth transfer (.334). Blood marriage, also a network variable but a local one, has its highest correlations with rank (.390), prominence (.354) and wealth transfer (.321). Prominence, wealth, rank and blood marriage are correlated in the range from .321 to .609.

Table 6: ‘Correlations among Variables’

A principal component analysis of covariance among these variables fits a single factor model that accounts for 50.3% of the total variance, with common variance diminishing in the following order: rank (.821), wealth (.802), prominence (.728), K2 (.684), K3 (.595) and blood

marriage (.592).³⁷ The fit to a single factor model speaks to both the reliability of the variables and the interplay between the network and the attribute variables.³⁸ It is significant, however, that network variables K2 and K3 have a relatively low correlation (.282), but used together they are strong predictor variables for the attribute variables.

What does a single factor model indicate about our hypotheses and the core of the marriage network? The network and the attribute variables interact as if there were a unified attraction among wealth, prominence, and relinking (K2 and Blood), plus greater cohesive relinking involving larger sibling sets (K3). Sociologically, these variables interact to produce one another by means of relinking marriage strategies for the transmission of wealth, status, and prestige, with the latter three variables the ‘attractors’ for relinking marriages. Wealth is among the ‘attractor’ variables having the highest commonality with the factor, in spite of our concerns about its reliability. Clearly, our major hypotheses are supported.

The single factor model for summarizing the interactions among our six major variables is a clear indicator of social class differentiation. These variables include major features of class – endogamy, intergenerational transmission, and differential access to resources. Although other standard variables taken as class indicators were not coded, such as occupational prestige, we would expect them to be predicted from our other variables and to fit the single factor model as well.

If we did not have a validated list of prominent names (hence no rank measure or name prominence variable for each couple), however, would we be able to recover the same one-factor structure that would rank our marriages in terms of elite status? It is of interest that even without these two variables, the one-factor model replicates and accounts for 49.6% of the variance among the variables of wealth, K2, K3, and Blood, with almost identical commonalities (.814, .758, .632, and .590, respectively).

Do centrality measures fit the one-factor structure? This is also of interest. While correlated with the principal component, they also load heavily on a second factor, so they do not help to recover the cohesiveness of the elite class or semi-caste structure. This finding implies that it is not so much the distinctive or dominant positions of individuals in the network that constitute class position, but the boundaries of cohesion within the network at the group level that contribute to the social construction of class.

A final question relates to the issue of relational versus attributional indicators of class.

Do the network measures (K2, K3, Blood) fit a single factor model, and if so, do their combined factor scores predict the attributional variables (rank, prominence and wealth), either singly or in combined factor scores?

A single factor model does account for 49.1% of the variance in the three network relational indicators of class, with factor loadings of .752, .694 and .653 for K2, K3 and Blood, respectively (and eigenvalues on the second and third factors less than 1). The single model for the attributes is stronger with 68% of the variance accounted for, and the correlation between the two factor scores is .724 (52.5% of the covariance, $p < .001$). The prediction is somewhat improved, however, if betweenness centrality is added to the factor model for the network variables (ignoring the second factor on which centrality also loads).

Our final question is whether the single factor of the three more holistic or structural network variables associated with marriage strategies – horizontal relinking (K2), vertical relinking (Blood), and cohesive relinkings involving siblings-in-law (K3) – are in fact good predictors of our attributional indicators of social class: the variables of Wealth, Status and Name prominence. Table 7 shows significant correlations between the network factor scores as against Wealth (.579), Status (.537) and Name prominence (.410).

Table 7: 'Predictions from Network Variables'

Conclusion

Structural endogamy in a marriage network is central to the self-constituting processes of many social groups, including classes. Study of the mechanisms and strategies of relinking family wealth and status, as we have seen, offers an alternative to understanding class through the Weberian approach to differentiation of individual careers, income levels and occupational prestige. For the Guatemalan elite, we find that the relinking of families and the transfer of goods and wealth at marriage were key events in intergenerational succession that involved the continual realignment of wealth and status into a class ranking identifiable in terms of prominent names as well as office and landholding.

We found that Houseman and White's definition of marriage core network is suitable for identifying the marriage core of redundantly relinked kinship systems of cognatic descent, in conjunction with prominent names redundancy. In addition, their measure of membership in

network cores (variable K2 being equivalent in this respect to the largest structurally endogamous group in the marriage network) is strongly associated with the circulation of wealth and prominence in this elite network. Similarly for the related measures of network cohesion (our variable K3). Redundancy appears as an emergent property of cohesive groups in such systems and it relates to names associated with the crucial positions of wealth and power of the society where they exist: the seats of government, the church positions, the local market and the ownership of land. Redundancy also appears in the different forms of relinking that occur in the marital network.

The case of the elite of colonial Guatemala exemplifies that by use of various strategies for relinking wealth and rights through successive consanguineous and affinal marriages, an extended kinship group can constitute an elite with well-defined but flexible borders and structure, in which the core is composed by the set of those marriages with the highest degrees of multiple-connectedness in the elite network, including the multiple bonds created by depth and breadth-wise marital relinkings. These connections act as convergent channels of access to and transmission of resources (social and economic capital). These are not passive kin and affinal ties, but active strategies in the construction of an elite class, and their maintenance requires regular economic and social investments.

The marriage strategy of the elite of colonial Guatemala seems to have relied less on particular individuals and more in the potential of each union in terms of descent (number of children), wealth (marriage transfers of various kinds), and rights (access to positions of social control). By relinking this potential through successive generations of marriages, some descent groups managed to remain at the core of the network for more than two hundred years.

Marital relinking is not an elite strategy to trap wealth that is unique to colonial Guatemala. It is a common phenomena found among elite families everywhere. What this study contributes and not been done to date, in trying to search for more of Bowles and Gintis (2002a,b) “missing variables” of the observed inequalities in intergenerational wealth transmission, is to identify some of the mechanisms and measures appropriate to understanding how and to what extent marital relinking contributes explain the magnitude of the “wealth trap” phenomena.

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Footnotes

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² “By power elite we refer to those political, economic, and military circles which as an intricate set of overlapping cliques share decisions having at least national consequences. In so far as national events are decided, the power elite are those who decide them” (C.W. Mills, 1956 (2000:185)).

³ Alcántara & Casasola (forthcoming) offer an historical overview of the coming of age of this elite.

⁴ The encomiendas and repartimientos were not forms of appropriation but of exploitation of the land through the labour of the Indians. The crown of Spain received part of the benefit from these lands, and the king took good care to limit the administration of the encomiendas and repartimientos by the conquistadors, to two generations (Zavala, 1940; Luján Muñoz, 1979). When the crown recuperated the control over the encomiendas (between 1536 and 1545), the king of Spain granted these goods to new immigrants (Luján Muñoz, 1979; Martínez Peláez, 1970; Rodríguez Becerra, 1977; Zavala, 1940).

⁵ A status of nobility without a title that could be acquired by 'self-virtue or courage' and passed from parents to sons, [according to the estates which composed the Cortes of Aragón] (Sanchíz Ochoa, 1976).

⁶ Men and women alike could reclaim their share of inheritance at the moment of coming of age (25 years old), or when betrothed, usually at 14 and 12 years old respectively (Alvarez, 1982, Vol. II: 136; Ots Capdequi, 1969: 49).

⁷ Ordóñez Jonama, 1991, 1987.

⁸ Las Siete Partidas, Partida VI, Título III, Leyes xvi-xvii.

⁹ Criollo or Criolla is the colonial term that designates a man or a woman of Spanish ascent, born in América.

¹⁰ The Mayorazgo was a Spanish institution that consisted in “the unification of an important set of non-alienable goods, mainly real estate property, which were strictly inherited by primogeniture” (Chinchilla Aguilar, 1975: 342)

¹¹ The data show that, with exceptions, the value of the marriage payments (arras) made by the Spanish grooms were inferior to those given by the local grooms.

¹² The strategy of “adopting” males into a descent group, or even into a male descent group, has been practiced since antiquity, when men of a certain social station are scarce. Schwimmer (1995 (2001)) gives examples of slaves

marrying with Hebrew women in biblical times. These men were never accepted as members of the group, but their children were. A similar thing happened with the Peninsulares in the elite of colonial Guatemala and their children.

¹³ Although women could be successful entrepreneurs, by law they did not occupy political office.

¹⁴ We use here the terms “family” and “descent group” interchangeably, as opposed to “lineage”, which usually denotes unilineal (matrilineal or patrilineal) kinship systems. Ambilineages, however, are corporate descent groups in which membership is passed either through males or females.

¹⁵ We adhere to the Spanish custom of calling America to the piece of land that extends from Alaska through the Land of Fire, and Americans, to the inhabitants of this vast territory.

¹⁶ We list here the short version of the original names, which were: de Arribillaga, Arroyave, Alvarez de las Asturias, González de Batres, Coronado, Gálvez Corral, Mencos, Delgado de Nájera, de la Tovilla, and Varón de Berrieza (Aparicio y Aparicio, 1961, 1969, 1970, 1978; Falla Sánchez, 1983; Ordóñez Jonama, 1993, 1991, 1987). These family names were preceded or followed by at least one other surname, according to Spanish kinship custom.

¹⁷ The sample is a subnetwork of a larger elite network. We added 6 marriages of ‘dummy’ parents to the 183 marriages considered under study; they represent parental couples to some of the siblings in the earliest generations.

¹⁸ It is historically significant that that some of the surnames involved in the M3 marriages became elite family names only during the early 19th century, during the transition from colonial to independent times.

¹⁹ As defined by Bourdieu (1980): "Le capital social est l'ensemble des ressources actuelles ou potentielles qui sont liées à la possession d'un réseau durable d'inter connaissance et d'inter reconnaissance; ou, en d'autres termes, à l'appartenance à un groupe, comme ensemble d'agents qui ne sont pas seulement dotés de propriétés communes (...), mais sont aussi unis par des liaisons permanentes et utiles. (Social capital is the set of actual or potential resources that are related to the possession of a durable network of acquaintance and recognition, or, in other words, to the membership to a group, as a set of agents which not only are endowed with common traits (...), but also linked by permanent and utilitarian ties) Our translation.

²⁰ Bourdieu (1962, 1976), Jola, Verdier and Zonabend (1970), La Maison (1972) and Segalen (1985) are the first to define these terms and distinguish among types of relinking.

²¹ This is a low-tech alternative to computer programs that will identify all blood marriages in a population, to any given degree (White and Jorion 1992), but is particularly useful because typically the most significant consanguineous marriages are those between close relatives.

²² The Catholic church found in time the way for its members to participate in such limited pools of resources by creating institutions as the Capellanías, and the Obras Pías, and by asking for substantial wealth transfers on the occasion or ‘marriage’ between a man or a woman with Christ (priests, monks, nuns). Moreover, in the New World, the church administered Encomiendas and all kinds of land usage and property with profit.

²³ Two marriages are connected by parent-child links if the persons in one marriage are parents of one of those in the other. When those in one marriage are parents of both those in the other we also have a kinship connection, and also a rare case of marriage between siblings.

²⁴ Brudner and White (1997) and White and Schweizer (1998:33) also analysed the cores of marriage networks in cognatic societies. The original definition of the term core for marriage networks, as given by White and Jorion (1996), applies to either cognatic or unilineal societies. Some of the societies studied by Houseman and White (1998b) were cognatic, some unilineal.

²⁵ Marriage 17 is an example of how some (not all) of the Cilieza descendants figured among the most prominent of families. Only three of the names here are from the top ten prominent names, but the name Cilieza also appears here and is counted as a prominent name because this woman was granddaughter of the Cilieza encomendero founder who left land rights to her mother. This couple originated the Batres Arribillaga descent group that appears everywhere related to wealth and power in colonial Guatemala.

²⁶ In graph theoretic terms, a subcore of a graph of parent-child links among marriages has the property of 2-connectedness (White and Harary 2001:329): All pairs of marriages in a subcore will be connected by two or more node-independent parent-child paths and no subgraph of a subcore can be disconnected without removing at least two marriage nodes in the subcore.

²⁷ A bicomponent of a graph is a maximal set of nodes that is not separable by removal of fewer than two nodes and that has with two or more node-independent paths between every pair of nodes in the set (White and Harary 2001:323; 330). A core of a marriage network, on the other hand, is a 2-core, a special case of k-core (Seidman

1983), which is a maximal connected subgraph in which the minimum degree is k . In a 2-core the minimum degree is 2. A bicomponent of a graph is contained in a 2-core, but not necessarily vice versa.

²⁸ Recall from the previous footnote that a core of a marriage network is technically a 2-core, a maximal set of nodes in which every node is connected to at least two others (Wasserman and Faust 1994:266).

²⁹ It is relinking marriages that give 'structure' to a kinship network, as a departure from branching trees of genealogies. This is what Houseman and White mean by "a sufficient degree of interconnectedness to enable one to speak meaningfully of network structure."

³⁰ We thank Jim Moody for generating the K3 variable from his connectivity algorithm (Moody and White 2001).

³¹ Extensive testing of the associations between the husband and wife variables as predictors of other variables showed that the husband's name had greater predictive power than for the wife, but only slightly so in most cases. Use of a weighted sum makes little difference in subsequent analysis.

³² The marriage type classification M1-M5 is a synthetic coding judgment but the cross-tabulations shows high reliability as against the criterion variables of elite/non-elite status and wealth transfers.

³³ The Pajek program default reads genealogical exchange data (GED) files, commonly used in genealogical research, as p-graphs. The resultant Pajek network files can be exported to programs such as UCInet and NetMiner.

³⁴ The computation of cohesive subsets can also be attempted, more clumsily, with UCInet, using point-connectivity to count the number of node-independent paths between each pair of nodes, but those nodes that are all complete connected by values above a certain cutoff (in our case, $k = 3$) do not necessarily form a set of nodes that are internally k -connected, and the process of iteration can be complicated.

³⁵ Since any graph of the bicomponent of a p-graph of a marriage network must have some marriages with no children, the degree of these nodes can never exceed two since degree is the sum of 1 parental couple for the husband and 1 for the wife (assuming that a person has a unique pair of parents). A kinship graph of marriages and parent-child connections between marriages thus cannot contain a k-core in which $k > 2$, and cannot by the same token contain a tricomponent of connectivity 3.

³⁶ Note that where marriages are nodes and parent-child links the edges in a marriage graph, affinal relinkings involve a cycle of parent-child links in which there are two or more ancestral marriages.

³⁷ With listwise rather than pairwise deletion for missing data the results are similar: 53% of the total variance, with common variance diminishing in the following order: rank (.828), wealth (.729), prominence (.769), K2 (.747), K3 (.623) and blood marriage (.579).

³⁸ The first principal component has more than three times the variance than the second, and the eigenvalue of the second is less than one, which are strong indicators of one-factor structure.