

"Collecting Data on Intra-household Relationships in the Agincourt Health and Population Survey: Benefits and Limitations

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Abstract

This paper describes the design of a set of codes to collect data on the kin relationships of the residents of households, the process of data collection using these codes, and examples of analyses of the data collected. A number of questions of great interest to demographers, other social scientists, and public-health programs require information on the relationships between household members. Such questions include those about the co-residence of parents with their own children, the co-residence of the elderly with adult children or other kin, and the relative importance of marriage and consanguinity in determining living arrangements. Collecting and coding data on relationships between household members in a census requires a system that is concise, comparable across social settings, comprehensible to census workers and respondents, codable, and comprehensive. In the Agincourt Health and Population census, we employed a system based on anthropological work on kinship that breaks down every kinship relationship into its component elements. This paper has three sections, corresponding to the three phases of design, data collection, and analysis. It 1) describes the system and provides a rationale for using a kinship-based system for collecting data on relationships; 2) describes the process of implementing the design in data collection and coding, describing both advantages and disadvantages to the system and examining the accommodations required in practice and 3) provides examples of analyses we have carried out on these data, again describing both benefits and limitations. In conclusion, we make suggestions for the application and extension of this method for collecting useful data on the relationships between household members in censuses of African populations

Introduction

As with every other aspect of social life in South Africa, the composition, formation, evolution and dissolution of households has been fundamentally affected by apartheid. Numerous scholars have engaged with the thorny issue of defining households and then the even trickier task of representing them accurately through various forms of data collection. As a result of the labor migration policy of the apartheid state which forced men to leave the rural areas and move to cities to work as mine laborers, certain terms have been used to describe the black household – stretched, fluid, dispersed, and divided (Murray 1981; Spiegel et al. 1996). All these terms underscore the difficulty in understanding what actually defines a household and even more challenging, membership in a household.

It is no surprise, therefore, that data collection on households has proven to be a formidable challenge. Aside from determining size and dependency ratio, we need data on relationships between household members in order to explore questions related to kinship, co-residence patterns, intergenerational links and children's mobility. The South African National census as well as most household surveys usually collect such information through a list of predetermined relationships: household head, spouse, mother, father, daughter, son, etc. In this paper, we describe a different system that was developed for an annual census update that forms part of a demographic surveillance system in the Agincourt sub-district of the Northern Province in South Africa.

Part I: Rationale and Description of the Agincourt system of data collection

The Utility of the Household Concept

Whatever its limitations, the residential household has outstanding advantages as a basis for population censuses and surveys. Some of these advantages are practical or technical, while others reflect the cultural assumptions of demographers and of many of the populations they study.

On the practical side, residential households represent a set of physical locations that are

bounded and distinct. Conceptually, at least, every individual in a population may be attached to one and only one physical location. The households are thus mutually exclusive and, between them, include everyone in the population. This characteristic allows a census or survey based on residential households to establish the indispensable base population that is “at risk” for events such as birth, death, and marriage and forms the denominator for calculating vital rates. In carrying out a survey or census, the fact that the residential household is associated with a physical location and, generally, with a physical structure, conveys enormous logistical advantages, since buildings are immobile and enduring and thus much easier to map, list, and identify, than are individual people. The Agincourt DSS, like almost all population censuses, starts from an enumeration and mapping of structures and assures complete coverage by visiting every known structure. The structures in the survey area are identified by number and those numbers are marked on the structures. New households are identified, in the first instance, by identifying new structures.

In addition to these practical advantages, the residential household has an intuitive appeal because it corresponds to a very basic set of assumptions about the isomorphism of place and identity. European cultures are not alone in treating “home” as a meaningful concept and in assuming that physical location is directly expressive of, and formative of, personal identity. These assumptions add to the practical advantages of using households as units the further advantage of employing a unit that is meaningful and recognizable to both researchers and the populations being enumerated. (Census blocks, quadrants, etc. are, by contrast, physical locations that do not have this quality and are correspondingly difficult to deploy in the field.)

In all populations, there are exceptions to the rule that all individuals can be attributed to one and only one residential household at a particular point in time. People in institutions, children at boarding schools, travelers, homeless people, transients, and people in transition (the newly-married couple on honeymoon, for instance) pose familiar problems for census-takers in national populations. In some censuses, for instance censuses of pastoralists, these can present formidable problems, but in industrial

societies, it is generally quite easy to treat these as exceptions to be handled with careful definition and measurement or with ad hoc methods such as special enumerations of homeless people.

Problems with the Household Concept

There are, however, more fundamental problems with using the residential household as our unit of enumeration and analysis. Students of migration, not to mention migrants themselves, have long recognized that “home” has at least two senses: the place where one lives and the place from whence one comes. We may speak of the place of origin of migrants as their “home” country while simultaneously acknowledging that they have new “homes” in their place of destination. Migration in the sense of relocation raises issues of definition and measurement – we have to decide, for instance, how long migrants can be away from “home” before that stops being the location to which they are attributed – but does not undermine the basic utility of the residential household as a unit for population enumeration. More recently, discussions of “transnationalism” have questioned the possibility of unequivocal attribution of people to places (Adams & Kasakoff n.d.; Glick Schiller, et al. 1992; Glick Schiller, et al. 1995; Hannerz 19xx).

While these discussions may undermine the cultural identification of location and identity on which much of the utility of the residential household as an analytic category depends, they do not deny its reality as a structure organizing daily life and forming the essential context for demographic events. If, however, people may not be meaningfully attributed to one and only one location, the implications for demography are profound. At this point, we will not address those implications directly, but will consider two aspects of demographically relevant social relationships that are not captured by treating the residential household as a unit but require the further specification of relationships between individuals. For analytic clarity, we may distinguish the relationships within residential households and those between individuals who are in different households or in different locations.

Within households, students of population processes have been interested in the dynamics within residential groups. The nature of authority and power and decision-making,

whether between husband and wife, between mother-in-law and in-marrying wife, between generations, between co-wives or the children of co-wives, have implications for behavior that affects fertility, marriage, migration, health, and mortality through differential access to resources or differential treatment. To understand these intra-household dynamics we need to know about the relationships between members of residential units, which we may take as indicative of lines of allegiance and support, of access to resources, and of life chances in general.

Social relationships between residential groups, and between residential group members and non-residential others, also have demographic implications. These relationships may provide access to resources (material, social, and cultural) as diverse as money income, food, opportunities for employment and education, marriage partners, child care, and political support. They may also be channels for less desirable, but nevertheless important, impacts such as disease transmission, demands on economic resources, obligations to provide care, violence, or victimization. The brute fact is that co-residential groups are not identical with demographically relevant social groups. Other social groups may be relevant to the participants, for instance family or friends, or to analysts, for instance sexual networks or groups implicated in disease transmission, or to both. In southern Africa, as in much of the rest of the continent and world, migrant workers have been a long-standing and centrally important example of the importance of connections beyond the residential household (Murray 1981; Murray 1987; Ramphele 19xx; Peters 19xx; Kerven 19xx; Potts & Mutambira 19xx; Townsend 1996; Sharp 19xx; Sharp & Spiegel 19xx). There are, however, many other significant relationships that go beyond household boundaries, for instance those between neighbors, between kin, between members of congregations, or between members of ethnic groups.

The relationships between people, and the social groups they may form, are manifold, fluctuating, variable between social and cultural contexts, directed at many purposes, and subject to negotiation. Given this the search for a universal institution that includes all of them, or for an instrument that will allow them to be concisely and completely described, is inevitably destined for failure. Fortunately for us as students of population, such an institution and such an instrument are not necessary for our research purposes.

Concentration on demographic events and population processes, however broadly defined, limits the scope of our inquiry. For most societies, and especially for most societies in sub-Saharan Africa, the combination of residence and kinship goes a long way toward capturing the essential and demographically relevant groups and relationships.

The Concept of Kinship

The universality of kinship, and the question of whether “kinship” is an essential aspect of human sociability or a cultural construct and analytic imposition has been the subject of controversy within anthropology (Schnieder 19xx; Yanagisako & Collier 19xx), but there is little doubt that the distinction between kin and non-kin, and the differentiation of kin relationships, are significant features of social organization and structure. Certainly, kinship is directly relevant to demographic inquiry, even if demographers do not usually employ “kinship” as an analytical category. Demographic discussions of marital and non-marital sexual intercourse and fertility, of co-residence between parents and children, of intergenerational investments and wealth flows, of women’s status and decision-making power, of inheritance, and of family formation, all turn on questions about the nature and significance of relationship that can be encompassed as “kinship” {das Gupta 1997}.

In the Agincourt Programme, our intention in incorporating a question about relationship to household head was to collect data on the kinship relationships of people who live together so that we can address such questions as the centrality of marriage as a basis for household organization and the likelihood that children are living with their parents. A residential household that includes an adult man and an adult woman, for instance, may be based on marriage or on the relationship of siblings. A residential household that includes adult women of two generations may include a woman and her adult daughter or a woman and her son’s wife. Children living with an adult woman may be in the care of their mother, their father’s sister, one of their grandmothers, an older sister, or an unrelated woman. We assume that in each of these cases the difference in relationship has an impact on the quality of people’s lives, that it makes a difference to their income, nutrition level, degree of supervision, work load, access to health care, and so on.

One difficulty that has confronted anthropologists interested in studying kinship has been that different cultures and languages have different kinship terminologies. The significance of these differences for social structure has been a controversial topic since the mid-nineteenth century. For the collector of data, however, the problem raised is the more limited one of finding a vocabulary that allows comparable data to be collected in different cultural settings. A vocabulary or terminology, that is, that can be understood and recognized in all settings but is not framed in the terminology of any one language. This question may be clarified by familiar examples. In English, for instance, the term “cousin” refers to all the children of all the siblings of a person’s mother and father, while in French the terms “cousin” and “cousine” distinguish male and female within the group of “cousins.” Neither language, however, distinguishes between the children of the mother’s siblings (matrilateral cousins) and those of the father’s siblings (patrilateral cousins), nor between the children of the father’s brothers (parallel cousins) and those of the father’s sisters (cross cousins) even though these distinctions are crucial in determining appropriate behavior, mutual rights and responsibilities, and potential marriagability in many cultures. Conversely, English and French both use their term for “father” to refer to a specific person, while “classificatory” kinship systems may use the term for that person also to describe a father’s brothers and a father’s father and his brothers. The term, in fact, would be translated as “male from an older generation on the father’s side” (Fox 1967; Parkin 1997).

In these circumstances, comparative anthropologists have developed systems of notation that are not bound by any particular language or set of terms. We have adopted the system originated in the comparative studies of the Rhodes-Livingstone Institute (Gluckman & Colson 1951) that has become the generally adopted standard. This system is one that builds any possible kin relationship from the three basic relationships of parenthood, siblinghood, and marriage. It starts, that is, from the relationships of husband/wife, brother/sister, and parent/child. The eight terms needed to describe these relationships are each represented by a single letter: father (F), mother (M), brother (B), sister (Z), son (S), daughter (D), husband (H), and wife (W). From these, all other relationships may be constructed through combination, so a person’s paternal grandfather is FF, and “uncles” may be FB, FZH, MB, or MZH. Perhaps it is unnecessary to say that

human relationships may be more complex than this scheme allows, so that it is sometimes elaborated. Half and step relationships, for example are generally distinguished by the inclusion of the common relative. So a half-brother (with only one common parent) would be FS or MS rather than simply B, and a stepfather would be represented as MH rather than F (Barnes 1967:123). Further elaboration is also necessary to distinguish age, which may be a crucial determinant of relationship in some systems. A father's elder brother may, for instance, be in a position of authority over his brother's children that a father's younger brother may not share (Barnes 1967:123; Parkin 1997:9-10).

For our purposes, however, we have restricted the relationship codes to the eight core initials and their combinations. Since the DSS also collects data on each individual's age and marital status and links children to their mothers when they are co-resident, it is relatively straightforward to combine data from different fields in order to determine relationships with greater precision should that be needed for a specific analysis. With only the information that a household includes a person who is designated as the head's daughter (D) and another who is described as the head's daughter's son (DS), for instance, we cannot be sure whether we have a woman with her parent and her child, or a woman with her parent and one of her sisters' children, but the DSS provides that information by linking mothers and children through the mother's identification number.

This simple set of relationships has the virtue of great flexibility. As can be seen from Table 1, the great majority of relationships between household members can be described with a single letter. In 2000, 72% of the population were either household heads or related as H, W, S, D, Z, B, F or M. But at the same time, the system can be elaborated to capture much more complex relationships. In the Agincourt population, these other relationships are generally uncommon, but an investigation of fosterage in other populations might well find frequencies that were important and notable. Similarly, varied systems of divorce, remarriage, and child custody would result in significant proportions of step- and half- relationships that would be of great significance in considering children's relative well-being.

The relationship codes we use, by employing a limited number of basic relationships to describe a potentially complex pattern of connections, have the virtue of comparability and flexibility without imposing any particular definition of appropriate relationships. We discuss the complexities of identifying the household head in the next section. The complexities of defining and identifying marriage are the same for this system as they are for any data collection system that includes union status. While this system sheds considerable light on the internal composition of residential households, it has the additional advantage of providing a framework for the investigation of links between households through the extension of kinship questions. In this paper, we discuss the question of how people are related to other members of the household. But the same approach may be taken to extend research. We may ask an adult, for instance, about his or her siblings, or for a child, about his or her parents' siblings, and very quickly map out a set of social relationships spanning and connecting residential units.

Part II: Implementation of the Household Relation variable

Process and outcome

The HHRelation field was first implemented in 1996. The design and implementation of the field and its codes benefited greatly from the assistance of Jonathan Stadler, an anthropologist who was conducting fieldwork in the area and combined familiarity with kinship theory with local knowledge. Implementation involved adding one field to the individual table for data storage, making a place on the census update form for data collection, and training field workers to establish accurate data on relationships. Initially, in many situations the fieldworkers were unable to code complex relationships and map them onto the household head, but training and support from the anthropologist eventually resulted in high success rates. The coverage of relationship information obtained in the 1996 population was 97,5% of individuals, and 96% of households had HHRelation codes for every member. Coverage has improved further and, in 2000, 99,5% of individuals and 98,5% of households had complete information.

The technique of identifying the household head, and working systematically through each member of the household to establish their relationship to the head, requires a lot of

practice. Linguistic precision and consistency are integral to data quality. Much time was spent making sure that all fieldworkers were using the same Shangaan terms for each of the 9 basic relationships. Furthermore, they need to be attuned to identifying biological relationships. For example, it is quite common to refer to someone as a brother (buti) or sister (sessie) if you have grown up with the person. To distinguish cousin from sibling, the fieldworker needs to ask whether “you were fed from the same breast.” In the same way, it is not uncommon to refer to a grandmother (kokwana) as mother (maki) if you have been raised by her. In this case, the fieldworker would have to ask whether she is the person who gave birth to you. In addition, fieldworkers are trained in decomposing the respondent’s answer into its component parts accurately. For example, if a person says that “x is my makoti,” the fieldworker has to be able to 1) probe whether this person really is a daughter-in-law in the sense of being a son’s wife and 2) be able to reconstruct the relationship in English using the codes provided.

Identification of the household head

The person identified as the household head by the fieldworker is the one recognized as head by the older women in the household. The pattern tends to be strongly gendered, with a man usually head if he is in the household. This is not automatic, however, and there are situations where a man moves in to stay with a woman and she retains the household headship. With co-resident siblings, the gender rule usually overrides other considerations, with an elder sister deferring headship to the eldest brother, even if he is younger than her. However, the identity of the head needs to be carefully probed in the field, since headship is derived from a composite of resource contribution and decision-making, and an elder sister who brings in money could be a household head. The eldest woman was deemed to be the best person to discriminate between herself and an eldest son in cases where there is no obvious elder male.

When a male household head dies, it cannot be assumed that the wife will become the household head. In many cases the son will become head, even if he is not working. The replacement of a household head who has died or moved out must be established with care. Generally, a man who is away will retain household headship unless the senior household members have decided that he is not coming back. If a woman is the main

provider for the household, then whether she claims to be the head of the household may depend on her judgement of her relationship with the man concerned. If the woman trusts the man she can allow him to be the household head, but if he is not trustworthy it is possible that she will claim the headship herself, particularly if the man is away a lot of the time.

Studies report that female household headship is increasing in Southern Africa (Datta 1995) and this finding is backed up by the Agincourt data. The proportion of de jure female-headed households increased from 29% in 1992 to 33% in 2000 and de facto from 39,6% in 1992 to 41,6% in 2000. The difference in the proportion of de jure and de facto female-headed households is attributable to the long-standing migrant labour system, which has resulted in the long term absence of adult men, many of whom are still considered the head of the rural home. The change may imply that either more female-headed households are coming into existence, or women with absent husbands are starting to claim headship. Either way, it would be erroneous to assume economic or social vulnerability simply on the basis of female headship (Ono-Osaki 1991; Peters 19xx). There is a spectrum of female-headed household types ranging from those that are isolated to those that are well connected to larger social networks (Garey and Townsend 1996).

Problems with identification of the household head

Defining household head continues to be a much-debated topic. The use of decision-making or employment as the standard criteria is problematic because people have very different ideas about what constitutes headship. Therefore, it has become preferred practice to let respondents decide instead of imposing a definition. In choosing this method, however, we run the risk of not knowing anything about the factors involved in choosing a head. In the Agincourt census, we do not know why someone is chosen as head, so that we are forced to make assumptions about the meaning of trends in headship.

Fieldworkers encounter situations where it is difficult to allocate a household head. Usually careful probing will resolve the dilemma, but there are situations where the

family itself is unable to allocate a head. This is especially the case when a head dies or moves out, but key documents and entitlements such as land ownership remain in the name of the deceased. A family who is away a lot of the time can own a house, and they may arrange house-sitters, usually relatives, to stay and look after the house. Often the house-sitters are young and of both sexes, and it is not clear who should be considered household head. If both parents have died and some of the children are working and still remain in the household they may find it hard to allocate headship amongst themselves because they all bring something home for the family. A similar problem can arise in a situation where two separate but related households share the same dwelling, for instance when a house collapses due to flooding and the inhabitants seek medium-term refuge with relatives.

When a household head dies or out-migrates the relationship of every member to the new household head should be re-established. As mentioned above, there should be no assumption about which person will be the next head. A regular field error is to neglect to reestablish relationship of members to the new head. The death of one head can result in all the remaining HHRelations being incorrectly established to the surviving household head. This has been a situation where the HHRelation field has produced misleading information.

Problems with delimiting the household

Establishing who is and who is not part of the household is of key importance to the whole census update interview and of the HHRelation variable in particular. The Agincourt census defines the household as all people who eat out of the same pot. The census makes a distinction between household and dwelling. Whereas the former refers to the social grouping, the latter pertains to the physical structure. Therefore, it is possible to have more than one household living in one dwelling. For this reason, each has its own ID system. Language translation issues complicated matters further. There is no equivalent of the word “household” in Shangaan so the word “muti” is used to talk about immediate family members who eat together. The word for extended-family is “ndyangu” which might be used to talk about the dwelling. The fieldworker has to be very careful in

choosing the correct terms to get across the sense of the question.

There is a range of operational definitions that the fieldworker is required to know and use when making these decisions. These include the definition of household, household head, in- and out-migration, resident status of household members, and the boundaries of the social grouping (household) vis a vis the dwelling structure. If fieldworkers lack clarity in any of these areas the variable HHRelation can lose validity. The most challenging aspect of delimiting the household is establishing the strength of links to other households of migrants that have moved in or out.

Advantages in the coding system

A clear advantage is that with training and practice the structure of household relations can be captured with relative ease. The coding can capture many permutations without losing information about the nature of the relationship. For example, the term “uncle” is used in a generic way to signify close relationships with older men. By coding the relationship as MB (mother’s brother) and so on, we gain a much more precise definition of a relationship, and are able to distinguish patrilateral and matrilineal uncles. The fieldworkers have found themselves relieved of the necessity of making potentially difficult decisions as a result of ambiguous terms.

The known HHRelation code is printed for each individual on the annual census update form. This has two purposes: firstly, it enables the fieldworker to refer to each household member by their relationship to the household head when establishing who is still a household member; and secondly, to edit the existing information if the previous fieldworker made a mistake or if the recorded household head had died or out-migrated. In addition, it helps knowing the household head when asking for directions to revisit that household in the village.

Problems with coding

Distant relatives who are household members can be hard to code. Long relationship strings such as “wife’s brother’s daughter’s husband’s son” are difficult to match back to the household head. There are codes for ‘Unrelated’ and for ‘Related indirectly’, which

are ‘catch-all’ categories for complex relationships, but the line between related and unrelated is blurred when a relationship is distant, or when there is more than one marriage involved in the chain of links, and when distant kin are considered relatives. When we code the relationships of children, we do not use separate codes for step or fostered child though we can make an educated guess using the mother’s presence information. In light of growing numbers of AIDS orphans and the fluidity of children’s residence, it might be useful to include these categories. However, it should be cautioned that the definition of fosterage is difficult to standardize. Finally, no matter how comprehensive this system is, it is likely that certain relationships that do not have a clear English translation are missed. For example, it is possible to have residents who are not directly related through kinship as we code it but nonetheless have a strong relationship with the household head. Given that the ideal is to minimize the numbers of relationships coded as “unrelated” or “related indirectly,” it would be worthwhile to explore this issue and possibly develop several appropriate categories for comparative work. On the other hand, in the Agincourt population, less than half of one percent of the population is either unrelated to the household head or related in some unknown way.

Part III: Using the System at the Analysis Stage

Analytic Advantages

The Agincourt census offers numerous advantages not afforded by conventional censuses in conducting different types of analyses on households, household dynamics and the relationship between household composition and different aspects of well-being. The level of detail in the household relationship code enables us to examine the role of social relationships in many dimensions. We can explore patterns of sibling, conjugal, fraternal, sororal, and inter-generational relationships, to name just a few. In addition, the use of the most basic kinship links minimizes the risk of labeling a relationship something that it is not. Having “building blocks” to create relationships forces the analyst to think about what goes into terms that are often taken for granted

For example, the fact that “mother’s brother” is specified instead of the more generic “uncle” means that we can have greater confidence in attributing certain effects to particular kin relationships. Malume, the Shangaan word for uncle, is often used to refer

to someone of the parental generation who is not necessarily the mother's brother or any kind of "uncle" strictly defined. Therefore, the code for "uncle" would encompass potentially a vast array of relationships each with its own social significance. The more precise "mother's brother" or "father's brother" increase the validity of these data make it possible to distinguish maternal from paternal connections when looking at such processes as patterns of child care. Combined with age, gender, marital, migrant and employment status, the kinship measures provide a powerful means to ask an array of questions on social organization and demographic outcomes.

The longitudinal nature of the census enables us to track changes over time both at an aggregate level and by household. Given the well-established idea that households go through changes over time in both size and composition (Goody 1962; Guyer 1981; Netting et al.1984), it is necessary to have household ID numbers that allow us to trace the life-history of a household. Whereas national censuses can only provide aggregate trends, the Agincourt system makes it possible to follow changes in particular households over time.

Analytic disadvantages

In the data model a household ID number is allocated to each household. The identity of the household head is linked to the household ID number. If the household head changes then new HHRelation values are established for each individual and a new household ID number is given to the household. An analyst may not find this appropriate for determining when a household gets a new identity. In the analyses reported in tables 2 and 3, this system was over-ridden and new household IDs were only allocated if all household members moved out of a dwelling structure and new members moved in. If there was any continuity between successive households in a dwelling structure we kept the same household ID.

In terms of the relationship codes, the one obvious limitation is the fact that all relationships within the household are recorded in relation to the household head. As a result, all resulting typologies will be contingent on the identification of the head. In addition, it is impossible, in certain instances, to reconstruct relationships between other

members. For example, if we wanted to know the patterns of co-resident adult siblings, we would underestimate the figure because we would have to construct possible sibling relationships outside of those pertaining to the household head. Two people, for instance, might be coded as SS (they are both sons of one of the household head's sons) but we could not tell if they were brothers or cousins. This limitation is generally a minor one, but it does hamper efforts to provide a comprehensive picture of intra-household relationships.

The next two sections describe research projects that the authors have undertaken using the household relationships data from the Agincourt Survey. These extracts from work in progress (Collinson et al., n.d.) and accepted for publication (Townsend, et al., n.d.) illustrate some of the capacities of this data. We include them for this illustrative value, rather than as a comprehensive account of the analytic advantages and drawbacks of the data system we are describing.

In these examples, we take different approaches to the problem of categorizing households. One important difference is in our criteria for the categories we will use. Collinson et al., who are concerned with the transition from one type of household to another, employ a set of mutually exclusive categories. For many purposes, it is analytically desirable to have such a typology. It is, however, impossible to establish such a system without making arbitrary decisions about which criteria to use. We may decide that having a female head and including members of three generations and including adult siblings are all characteristics of households that we wish to investigate. Since these criteria do not coincide we must face the choice between establishing nine categories (and the number of categories of households increases as the square of the number of characteristics we want to investigate!) or deciding in advance which characteristics should take precedence. For example, female-headed households can be three-generational and they can (and increasingly do) include adult siblings. Households that include adult siblings may or may not be three-generational. The point is that sibling relationships are often one of several features of a household, and siblings may live together quite frequently even though there are, as we see in Table 4, only a few "sibling-only" households. The large percentage of households categorized as

“complex-related” and “complex-unrelated” in Table 4 illustrates the difficulty of separating out one category from another. Our second analytic example employs overlapping categories in order to investigate the impact of residential arrangements on children’s education.

We would like to emphasize that the form of the typology of households employed depends on the analytic question being addressed. One of the great advantages of the system of relationship codes we describe here is that it allows enormous flexibility in categorizing households at levels of detail and aggregation dictated by the analyst’s questions rather than the limitations of the data.

A) Household Typology

This paper (Collinson et al.) explores household dynamics in the period 1996-2000, and shows that the mean household size is decreasing, while the number of households in the Agincourt sub-district is increasing. At the same time, households are tending to contain more generations and become more complex.

The relationship coding system described above allows a finer relationship typology than conventional coding used in household surveys and censuses. Table 1 gives a breakdown of relationship to household head by 36 kinship categories, with the catch all categories ‘related’ (for more complex, but related, relationships) and ‘unrelated’ (for household members not related to the household head). Data are given for 1996-2000. There appear to be no dramatic changes in residential arrangements at the aggregate level in these five years, but the proportion of heads and proportion grandchildren may be increasing. The former is mainly due to an increased number of households over the period, accompanied by a reduction in average household size (see table 2.). Table 1 provides a ‘don’t know’ category, where household head relationship data were not coded. The decrease in the proportion of unknown relationships reflects an improvement in data quality over time. This points to operational challenges which large household surveys and censuses may experience when introducing this coding system.

Table 2 shows the trend in total fertility rate, mean household size and the number of households over the five-year period. Total fertility rate and mean household size are both declining, while the number of households present on a reference date each year is increasing. Other work in Agincourt shows that the total fertility rate has declined from around 6 in the 1970's to 2.8 in 2000 (Garenne et al. 2000).

Table 2. Total fertility rate, mean household size and number of households, Agincourt, 1996-2000

	1996	1997	1998	1999	2000
Total Fertility Rate	3.17	3.12	3.12	3.03	2.76
Mean household size	6.75	6.69	6.60	6.53	6.45
Number of households on 30 June	10109	10290	10516	10720	10860

Table 3 shows the number of generations in households, and indicates that the average number of generations in households is increasing. The proportion of one and two generation households is decreasing, while three and four generation households are increasing.

Table 3. Number of generations in a household, Agincourt, 1996-2000

Number of generations	1996	1997	1998	1999	2000
1	12.30%	12.50%	12.40%	11.90%	11.70%
2	40.30%	39.70%	39.30%	39.30%	39.20%
3	39.50%	39.80%	40.20%	40.40%	40.50%
4	7.70%	7.80%	7.90%	8.20%	8.40%
5	0.10%	0.20%	0.20%	0.20%	0.10%

Table 4 gives the distribution of household types and shows how it changes over the observation period. These categories are mutually exclusive and represent some of the most common forms of residential arrangements. Changes in the distribution of household type are slow to unfold, but the following are possible trends moving in one direction. The proportion of nuclear families is decreasing. The proportion of 'complex, related' households, '3-generational linear' households and 'single parent' households are increasing.

Table 4. Household types, Agincourt, 1996-2000

Distribution of household types					
	1996	1997	1998	1999	2000
single person	7.2%	7.6%	8.0%	7.6%	7.4%
couple	2.7%	2.7%	2.7%	2.8%	2.7%
nuclear	25.5%	25.1%	24.9%	24.2%	23.6%
single parent	8.2%	8.5%	8.6%	8.8%	8.8%
3 generation linear	18.5%	19.2%	19.8%	19.7%	19.8%
3 generation skip	1.3%	1.3%	1.4%	1.4%	1.5%
Multi generation linear	2.7%	2.7%	2.5%	2.7%	2.8%
Siblings only	0.6%	0.7%	0.6%	0.7%	0.7%
nuclear with stepkids	0.1%	0.1%	0.2%	0.3%	0.4%
3 generation with ste	0.0%	0.1%	0.1%	0.1%	0.1%
Complex, related	27.9%	27.8%	28.0%	28.9%	29.7%
Complex, plus unrelat	1.2%	1.0%	0.9%	0.8%	0.9%
Don't know	4.0%	3.2%	2.3%	2.0%	1.5%
	100.0%	100.0%	100.0%	100.0%	100.0%

Transitions occur between household types in the normal household reproduction and life cycle process. Households are also formed and households dissolve. Table 5 gives the estimated annual transition probabilities of households: remaining in the same category, transitioning to another household type, forming or dissolving. Probabilities are calculated using household-type transition matrices, that present frequencies of household transitions from one year to the next, and pooling the data over the five year period.

Table 5. Estimates of the annual transition probabilities: pooled across 1996-2000.

Current	Next year			single parent	3 gen	3 gen skip	Multi gen	Siblings	nuclear stepkids	3 gen stepkids	Complex related	Complex unrelated	Dissolve
	single person	couple	nuclear										
single person	0.761	0.021	0.048	0.024	0.009	0.007	0.005	0.005	0.001	0.001	0.021	0.001	0.097
couple	0.044	0.779	0.079	0.002	0.002	0.008	0.007	0.000	0.003	0.001	0.027	0.003	0.047
nuclear	0.009	0.003	0.877	0.012	0.035	0.000	0.000	0.000	0.003	0.000	0.034	0.002	0.025
single parent	0.016	0.001	0.018	0.826	0.055	0.000	0.001	0.003	0.000	0.000	0.038	0.002	0.039
3 generation linear	0.003	0.001	0.018	0.012	0.876	0.006	0.015	0.000	0.000	0.000	0.052	0.002	0.015
3 generation skip	0.026	0.015	0.000	0.003	0.048	0.814	0.026	0.000	0.000	0.000	0.041	0.000	0.027
Multi generation line	0.031	0.008	0.011	0.007	0.061	0.006	0.812	0.000	0.000	0.000	0.052	0.002	0.011
Siblings only	0.057	0.007	0.004	0.000	0.000	0.004	0.000	0.744	0.000	0.000	0.142	0.007	0.036
nuclear with stepkids	0.014	0.014	0.097	0.000	0.000	0.000	0.000	0.000	0.806	0.042	0.014	0.000	0.014
3 generation with ste	0.000	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.000	0.909	0.061	0.000	0.000
Complex, related	0.005	0.001	0.019	0.009	0.031	0.002	0.004	0.002	0.000	0.000	0.909	0.002	0.015
Complex, plus unrelat formation	0.019	0.005	0.034	0.015	0.051	0.002	0.005	0.000	0.000	0.000	0.109	0.724	0.036
	0.263	0.064	0.289	0.159	0.074	0.012	0.009	0.014	0.005	0.002	0.108	0.002	

Many households are transitioning into ‘complex related’ households: notably, ‘three generational’ households (with and without step-children), three-generational skip households, siblings only (e.g. by a sibling having a baby), and multi-generational linear. Household types most likely to be formed are nuclear, single person and single parent households. Those most likely to dissolve are single person and couple (without children). The households most likely to change over a year are ‘siblings only’ and ‘complex, unrelated’ households (they have the lowest probabilities on the diagonal of the transition matrix). When ‘siblings only’ households change, their most likely transition is to ‘single person’ or a ‘complex, related’ household. Other highly probable changes are from couple into a nuclear household, ‘nuclear, with step-kids’ into nuclear, and ‘single parent’ into ‘three-generational linear’.

If we make the assumptions that the transition probabilities will be stable for all future periods and that changes in household type depend only on these transition probabilities and not on anything else (e.g. previous history), then it is possible to compute the expected period for which a given type of household will continue to exist, and the number of years that such a household is expected to spend in various states (until it dissolves). This fundamental matrix is given in table 6.

Table 6. A fundamental matrix of the expected number of years spent in each household type until dissolution

	single person	couple	nuclear	single parent	3 gen skip	3 gen skip	Multi gen	Siblings	nuclear stepkids	3 gen stepkids	Complex related	Complex unrelated	Expected years to dissolution
single person	5.139	0.729	5.236	2.011	5.731	0.534	0.895	0.202	0.107	0.125	8.849	0.188	29.746
couple	1.924	5.017	7.353	1.973	6.929	0.686	1.141	0.155	0.177	0.185	11.094	0.258	36.892
nuclear	1.478	0.563	13.371	2.614	9.499	0.584	1.236	0.176	0.198	0.171	13.706	0.275	43.870
single parent	1.500	0.470	5.768	7.779	9.439	0.570	1.215	0.236	0.105	0.119	12.997	0.275	40.472
3 generation linear	1.490	0.570	6.730	2.793	16.765	0.852	1.883	0.197	0.113	0.164	15.985	0.306	47.849
3 generation skip	1.885	0.898	5.553	2.251	9.567	6.006	1.979	0.179	0.102	0.124	13.655	0.240	42.440
Multi generation line	2.034	0.761	6.454	2.602	10.757	0.857	6.723	0.200	0.114	0.137	15.289	0.298	46.226
Siblings only	2.116	0.651	5.602	2.137	7.664	0.656	1.146	4.104	0.101	0.113	15.887	0.337	40.513
nuclear with stepkids	1.670	0.853	9.527	2.368	9.037	0.597	1.219	0.182	5.295	2.504	14.356	0.258	47.868
3 generation with ste	1.493	0.566	6.791	2.727	12.389	0.774	1.627	0.236	0.116	11.142	20.687	0.310	58.855
Complex, related	1.494	0.564	6.822	2.694	10.201	0.735	1.499	0.255	0.117	0.131	23.037	0.311	47.859
Complex, plus unrelat	1.571	0.582	6.537	2.550	9.574	0.666	1.372	0.193	0.110	0.124	15.609	3.875	42.764
Formation:	130.8	32.0	143.8	79.0	36.8	6.0	4.5	7.0	2.3	1.0	54.0	1.0	
Long-run percentage	1242	442	4050	1615	4451	339	633	128	81	88	6671	132	19872
Actual 2000	6.2%	2.2%	20.4%	8.1%	22.4%	1.7%	3.2%	0.6%	0.4%	0.4%	33.6%	0.7%	
Difference	7.4%	2.7%	23.6%	8.8%	19.8%	1.5%	2.8%	0.7%	0.4%	0.1%	29.7%	0.9%	
	-0.012	-0.005	-0.032	-0.007	0.026	0.002	0.004	-0.001	0.000	0.003	0.039	-0.002	

Given the number of new formations of households we can also compute the long-run distribution of household types that the system is evolving towards. By comparing this long-run equilibrium with the distribution of household types in Table 4 it is possible to see how the distribution is changing. While we do not expect the assumptions to hold, the analysis nevertheless demonstrates which household types are under pressure. The results show that in 2000 there are more complex households and more 3-generational households emerging in time, whereas fewer nuclear households and fewer ‘single person’ households.

As mentioned earlier, the Agincourt census allows immense flexibility in collapsing and forming different typologies of household formation. Table 4 provides one way of constructing a household typology but it is not the only way. Different typologies can be developed to different questions. Clearly the frequencies given in Table 1 can serve as a guide to collapsing extremely rare incidences of certain relationships (e.g. great-great-grandchild), but the decision to favor one particular configuration over another should be conceptually grounded. For example, we know from the literature (Stadler 1994) that sibling relationships have become very important in this area. Therefore, it makes sense to look at the prevalence of co-residence siblings as has been done in Table 4. How best to use the relationship codes to come up with a typology that reflects the reality of the social situation is immensely challenging but we remain conceptually open to thinking about appropriate ways to develop household types.

B) Children’s Residence Patterns and Educational Attainment

In this research (Townsend et al. forthcoming) we 1) describe the residential arrangements of the Agincourt population and 2) analyze the impact of their residential arrangements on children’s educational attainment. In order to do this, we created a typology, shown in Table 7, somewhat different from that described in Table 4. The main difference is that the categories in Table 7 are neither mutually exclusive nor exhaustive. As a result, the totals do not sum to either 9,305 households or 100%. Instead, we find that 35.9% of households have as one of its attributes a three-generational (in some form) set-up. We define nuclear as households that have only parents and their children. This

Table 7. Characteristics of residential households, Agincourt study area, South Africa, 1997

Type of household	Mean household size	Number of households (per cent of households)
Nuclear	6.2	2412 (25.9%)
Headed by a woman	5.7	2385 (25.6%)
Three-generational	8.8	3344 (35.9%)
Polygynous	11.8	616 (6.6%)
Including one or more adult men	7.1	8067 (86.7%)
Including one or more migrants	7.6	4946 (53.1%)
Headed by a refugee	7.6	2346 (25.2%)
All households*	6.4	9305 (100%)

*Note that categories do not add up to 9,305 or 100% because they are not mutually exclusive.

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typology also includes characteristics not based on the relationship codes such as the presence of refugees, migrants and men. We suggest that adding on this layer of identities contributes to further refining household typologies given that the meaning of relationships is mediated by factors such as migrancy and gender. The census classifies people as temporary residents (migrants) if they have been physically present in the household for less than 6 months of the preceding year and permanent if more than 6 months. This data is especially useful in linking household members to others living elsewhere. Of note in this typology is the large number of households with at least one adult male. This is particular important when we attempt to understand the effects of female headship on children's well-being. Without controlling for the presence of men, we risk getting a misleading picture of household and children's vulnerability.

Table 8 shows the distribution of children in the Agincourt population living in various residential arrangements. Included in the descriptors are co-residence of both parents and migrant status of parents. Of note here is the presence of adult men in children's lives even if it is not necessarily their fathers, many of whom are migrants. The decision to retain overlapping categories is central to our analysis because it speaks to the larger question of accurately reflecting the complexity of household composition in statistical models. In other words, we assume that households come with an array of features such as female headship, multi-generational or sororal links and that all are important in drawing any conclusions about the relationship of any particular feature on indicators of

Table 8. Percentage of children resident in various types of household situations by age and sex, Agincourt 1997

Type of household	0-1		2-5		6-10		11-15		16-18	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Nuclear	22.5	23.6	25.9	24.0	28.8	30.0	28.6	28.6	24.2	20.8
Headed by a woman	19.5	20.8	20.3	20.5	21.3	20.1	22.4	23.6	24.6	25.1
Three-generational	58.2	55.6	48.1	48.8	44.3	43.5	43.8	43.9	46.7	53.0
Polygynous	15.7	16.3	15.3	15.3	13.2	13.9	11.1	10.4	11.1	11.5
Including one or more adult men	92.3	91.9	90.8	90.9	90.7	90.9	88.6	89.4	90.2	87.8
Including one or more migrants	62.6	62.3	60.7	61.9	61.3	61.7	60.7	59.8	59.4	60.1
Headed by a refugee	36.5	35.4	35.2	35.9	31.3	32.9	27.2	26.4	28.4	26.1
Both of child's parents present	56.3	57.8	56.5	57.7	58.6	59.4	55.3	54.9	52.6	48.7
Child's mother migrant	4.6	3.8	5.7	5.6	7.6	7.7	10.6	10.8	11.4	14.3
Child's father migrant	52.6	53.6	56.1	57.6	57.8	61.1	61.5	60.5	58.2	58.8
Number of children	1226	1279	3408	3442	4588	4526	4108	4031	2217	2103

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well-being. Statistically speaking, instead of having a categorical variable with several mutually exclusive household types, we create dummy variables for certain features and test the relative effect of one holding other factors constant, controlling for multicollinearity. Conventional models of household composition generally focus on only one feature, such as female headship or the number of young children in the household, and do not take into account other important characteristics that might mediate these features. The models presented in this analysis reflect an attempt to move beyond simple typologies of household composition.

The statistical models (not presented here) include all household features described above as independent variables, thus assessing the relative influence of each feature while controlling for the effects of the others. We found that children whose parents are members of the same household as them have higher levels of schooling than others, as do children whose fathers are migrant workers. Children who live in households headed by Mozambican refugees have lower levels of schooling than those who live in non-refugee households. Living in a household headed by a woman is not associated with

lower levels of education, and for some age and sex groups appears to be an advantage. In addition, there are also some important sex and age-specific effects attributable to particular configurations of power distribution within the household.

Discussion: beyond the residential household

The examples we have given show some of the flexibility of this system of collecting and recording data on the relationships between household members, but they are only a first indication of the kinds of research questions that may be addressed. There is no shortage of important research questions related to household composition and dynamics. For example, we can look at other dimensions of children's well-being such as nutritional status or illness using a similar strategy as was taken with educational attainment. We can also start to look at the connections between residential arrangements and adult health, employment, and household economic status.

While we have attempted to develop household typologies, our analysis, thus far, has been limited to aggregate level comparisons over time or household level analysis at one point in time. We have yet to fully exploit the prospective nature of the database and to develop our analysis of household dynamism. We have provided some preliminary results on the probabilities of households remaining or "surviving" in one state (e.g. nuclear) and moving into another (e.g. three-generational) but we need to take this work much further.

We began this paper with a brief discussion of the strengths and weaknesses of the residential household as a category of analysis. Quite clearly, people's important social relationships are frequently concentrated on the people they live with. Equally, they are not restricted to these people. We assert that one of the great strengths of the system we have described is that it provides data at the household level that not only allows us to address a large number of important questions, but provides a foundation or stepping stone to investigations of relationships that extend beyond the household.

The relationship codes allow this extension because, in intensive investigation, we can "reverse the question" and ask about the whereabouts of other relatives. While the

survey question tells us, for example, that some of the people in the household are the head's sons or brothers, we can easily ask about the head's other sons or brothers. The same set of codes can be used to map equivalent relationships both within and beyond the household. We may thus investigate networks that cross-cut households without abandoning the household as a social reality and analytic category. In an intensive ethnographic examination that started from a single household, we traced the connections between a group of neighboring households, and also their connections to remote individuals and residences (Madhavan and Townsend 2001). In the process we were able to compare the picture of social life derived from the census and from participant observation. The fieldwork brought home three important intersections between residence and movement in the lives of the Agincourt population: 1) many people identify with, and have recognized claims to membership in, more than one household; 2) many people move regularly and frequently between different households, both adjacent and distant; 3) the movements of any individual are coordinated with, and have an effect upon, the movements of others. These findings illustrate our general conclusion that the social households in which the members of the population live overlap one another and are spatially dispersed. Neither spatial proximity in the form of co-residence, nor kinship connection, automatically implies any very close social connection.

Our conclusion, and the very nature of our original question, underscores the limits of using household census data given its inability to link members of one household to another. However, the census provides a valuable lens to compare co-residence patterns with patterns of mobility and connection that emerge from the ethnography. The sense of order in household arrangements that we get through a census contrasts with the far more "fluid" or "dispersed" patterns that we find through ethnographic research, but the residential arrangements and units are not irrelevant. What is particularly significant for our discussion of method is that the census provides not only a sampling frame for intensive investigation, but also, through the relationship codes, a framework for extending links across residential boundaries. We can locate a particular household in the Agincourt census for the year 2000 and determine who is living with whom and what their kinship links are. In further research, we can treat this household as a starting point

and use the same codes to trace and identify a much larger network of kin and non-kin that extends over space and time. The relationship codes allow us to situate the residential unit within the social network.

We plan to extend this method and to use the household level data in the Agincourt census as part of another research triangulation project (Townsend et al. 2001). To understand the relationship between social connections and children's well-being (education, nutrition, health, etc.) in the Agincourt area, we will be undertaking intensive fieldwork in which we will be observing 12 contact households and their networks over a period of three months. Throughout this process, we will be comparing the intra-household relationships and inter-household connections that come through in the fieldwork with the census records of each of the households. In particular, we are interested in seeing how kinship links as defined by the census translate into actual support links. Instead of using census data on intra-household links as proxies of support, we will compare these assumed links to the observed levels of interaction.

Discussion: beyond Agincourt

Censuses are rarely used in qualitative work except to provide a sampling frame or some background information. The inclusion of the household relationship code in the Agincourt census substantially expands research triangulation potential both conceptually and methodologically.

As South Africa has recently undertaken its second post-apartheid national census, it is, indeed, timely to think about the feasibility of replicating the Agincourt model at the national level. Specifically, we need to ask ourselves what kinds of questions are realistic to ask on a national census. There are several issues to think about. One, can we think about intra-household relationships in the same way in all parts of this country? Two, would it be possible to train thousands of enumerators to collect data on intra household relationships using the Agincourt model? Three, are there modifications that can be made to the Agincourt model that would make it feasible to use on a national scale?

The 2001 National Census defines household head as the main decision-maker in the household. In the case of equal decision-makers, the older person is chosen. These criteria are problematic at best and misleading at worst. As has been noted by many scholars (Posel 19xx), it is difficult even to define what a decision-maker is, let alone identify who this person is. Furthermore, by privileging the older person, we risk underestimating the contribution of women to the maintenance of the household. In addition, we can question the comparability of this information across provinces given the wide variety of meanings attached to decision-maker. Would it be more realistic to use the Agincourt definition of household head as the person who is identified by the senior most woman in the household?

The National Census uses 13 categories to describe relationship to household head. Notably missing from this list are terms for “uncle” and “aunt”, which are subsumed under the category of “other relative.” Notably present, however, are categories for adopted and step children. The Agincourt system uses a small number of fundamental kinship links as building blocks to describe a very large number of possible relationships. It can, as we have described, easily identify aunts and uncles, nephews and nieces, and distinguish between matrilineal and patrilineal kin. As for the sub-categories of children, the meanings of “adoption” and “step-child” are imprecise in practice and culturally variable. This raises a problem when making cross-province comparisons. One advantage of the Agincourt system is the fact that it allows for cross-cultural comparisons easily.

The basic concept of using fundamental links in combination to describe a range of relationships can be extended beyond the links we have used. For instance, this year’s South African census treats live-in domestic workers and their families as separate households from the employer’s. More often than not, however, domestic workers in such situations are financially, practically and even emotionally dependent on employers. Would it not, therefore, make sense to include them as members of one household and code them as domestic workers of the household head? We have not included this possibility in the Agincourt census either. In the Agincourt area, there are not that many families with residential domestics, but since those households frequently recruit from

kin, some domestics are coded in the census as co-resident relatives rather than employees. While the national census obscures the relationship between household heads and domestics by separating households, the Agincourt system as we have used it may conceal this relationship under the cover of kinship. In either case, it makes sense to think about developing new categories in order to capture important intra-household relationships. Such a code could be included relatively simply in conjunction with the kin codes and would give a truer picture of the complexities of contemporary households.

In conclusion, we have described a system for describing intra-household connections that combines a few basic terms to describe a large array of relationships. This system is conceptually simple, relatively unambiguous, flexible, comparable across very different cultural systems, and analytically useful. We have found it to be relatively easy to implement in the field and have obtained complete coverage. We also claim that this system provides a basis for investigation of socially and demographically important relationships across the boundaries of residential households.

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