Boundedness and Connectivity of Contemporary Families: A Case Study[1]

Eric D. Widmer and Linda-Ann La Farga
University of California, Irvine

We present a rationale for considering significant family units as open low-density ego networks rather than as small close-knit groups. Using a case study approach, we show that individuals are likely to have significant family members who are not strongly connected to each other, and whose own significant family members differ. However, based on relationships among parents and children, family networks follow well- known sociometric tendencies such as reciprocity and transitivity of choices. We further underline some implications of our findings for family research.

INTRODUCTION

For a long time, research has considered the question of family boundaries as settled, using either a predefined set of family roles or a common residence as valid criteria for defining what is the significant family unit. More recently, however, researchers interested in recomposed families have underlined that those boundaries are not obvious, because divorce and remarriage have created ties among different households and have extended the set of family roles. Another trend of research has emphasized that the connection between adults and their family of orientation are well developed and functionally important, and independence between family of orientation and family of reproduction is no longer taken for granted. Concepts such as "the modified extended family" (Litwak, 1960), "the new extended family" (Furstenberg, 1987), or the "remarriages' chain" (Cherlin & Furstenberg, 1994) suggest that many contemporary families are not nuclear in nature. However, researchers have not yet drawn the logical conclusion from those observations. If it is true that one can think of contemporary families as chains of relations, one can, and indeed should, use a network approach to study them. Up until now, such attempts have been extremely limited in number (for instance, Jedlicka, 1977).

In previous research (Widmer, 1997; Widmer, 1998), the senior author asked 25 female college students to define their significant family members. It was found that lists of significant family members not only included cohabiting parents and children, but also non-cohabiting siblings, grandparents, other kins, and friends considered as family. The variety of roles encountered was great, leading to the conclusion that it was difficult to define boundaries of significant family

units in terms of residence or with a limited set of roles. Interestingly, a large number of family members were reported by interviewees not to be strongly connected to each other. However, because this previous study was based on a single interview per family, it could not properly illustrate the fact that families are likely to be unbounded, low-density ego-networks, rather than the small close knit groups to which research often refers.

Expanding on our previous work, we undertook a case study, interviewing all the significant family members of a twice-divorced female. A case study approach is appropriate for exhibiting the operation of some general theoretical principle (Mitchell, 1983). In this case, we want to show that, by their very nature, contemporary families tend to be low density, unbounded networks rather than small, bounded groups with a high density of interactions. Thus, we are mainly interested in two questions. First, to what extent do people cited as significant family members by someone cite the same persons as significant family members? Second, to what extent do these persons cite each other as significant family members? These questions further assess the degrees of boundedness and connectivity of contemporary families. A limited overlap between definitions of significant family members and a small number of intercitations are expected to exist among family members, especially if some of them are divorced or remarried.

DATA

Ego (Betty) is a 54 year old, Hispanic female working as a social worker in a state-run facility for abused and neglected children. She lives in a middle-sized American town located on the West Coast and has been married twice, with both marriages ending in divorce. Betty has two children from her first marriage, as well as a fairly large family of orientation consisting of three sisters, two brothers, and one mother. Ego was chosen primarily because she has experienced both divorce and remarriage. The fact that Ego feels she lives in a cohesive family and has not reported any major family conflicts also confirms that our results are not caused by some family dysfunction.

In order to know whom the significant family members of Ego are, we draw from research which was mostly concerned with the definition of stepfamily boundaries (Furstenberg, 1987). We created a name generator, which reads:

> '*Give me the first name of the people in your family who are significant for you at this time*'.

The question then specifies:

> '*By significant, I mean those people in your family who have played a role, either positive or negative, in your life during the past year. As I just said, I am not only interested in the people that are significant to you because you love them or respect them, but I am also interested in those who have upset you or made you angry during the last year*' (Widmer, 1998).

Ego cited nine significant family members who also had to report on who were their significant family members. Then, using a snowball sampling technique, we interviewed any person who was cited by at least two persons cited by Ego, on the assumption that they are actors in the group dynamics.

Table 1
Ego's Network

Name	Description (relation, age, sex, education, occupation)
Betty	Ego, 53, female, high school, social worker
Alex	Son, 27, male, high school, dock worker
Cathy	Daughter, 24, female, in college
Dawn	Friend/co-worker, 24, female, high school
Erik	1st ex-spouse, 52, male some college
Fran	Middle sister, 42, female, vocational training, office manager
Guy	2nd ex-spouse, 51, male, college, disabled veteran
Henry	Youngest brother, 49, male, college, construction worker
Ike	Friend/co-worker, 32, male, college, program director
Jane	Eldest brother's 2nd wife, 36, female, high school, bank teller
Kate	Ex-mother-in-law, 72, female, high school, retired homemaker
Lynn	Eldest sister, 46, female, law school, civil attorney
Mark	Eldest brother, 50, male, college, computer technician
Nina	Mother, 74, female, high school, retired homemaker
Oneda	Youngest sister, 42, female, high school, insurance claim authorizer

Ego cited an extended range of role-persons as significant family members: her two children, her two ex-husbands, two close friends, her mother, and two sisters. After interviewing these individuals, we added five subjects, who were cited by at least two persons cited by Ego. They were three other siblings, a sister-in-law, and Ego's former mother-in-law from her first marriage. Information on these fifteen core family members of Ego is presented in Table 1.

RESULTS

Figure 1 depicts the family network up to a distance of three from Ego. The larger nodes represent the fifteen core members of Ego's family. Those nodes in black indicate the persons that have been cited directly by Ego as significant. This graph shows a total of 79 persons cited with 145 arcs linking them together.

Figure 1
Who is a significant family member of whom?

Legend

● Cited by Ego

○ Cited by at least two subjects cited by Ego (but not by Ego herself)

○ Others
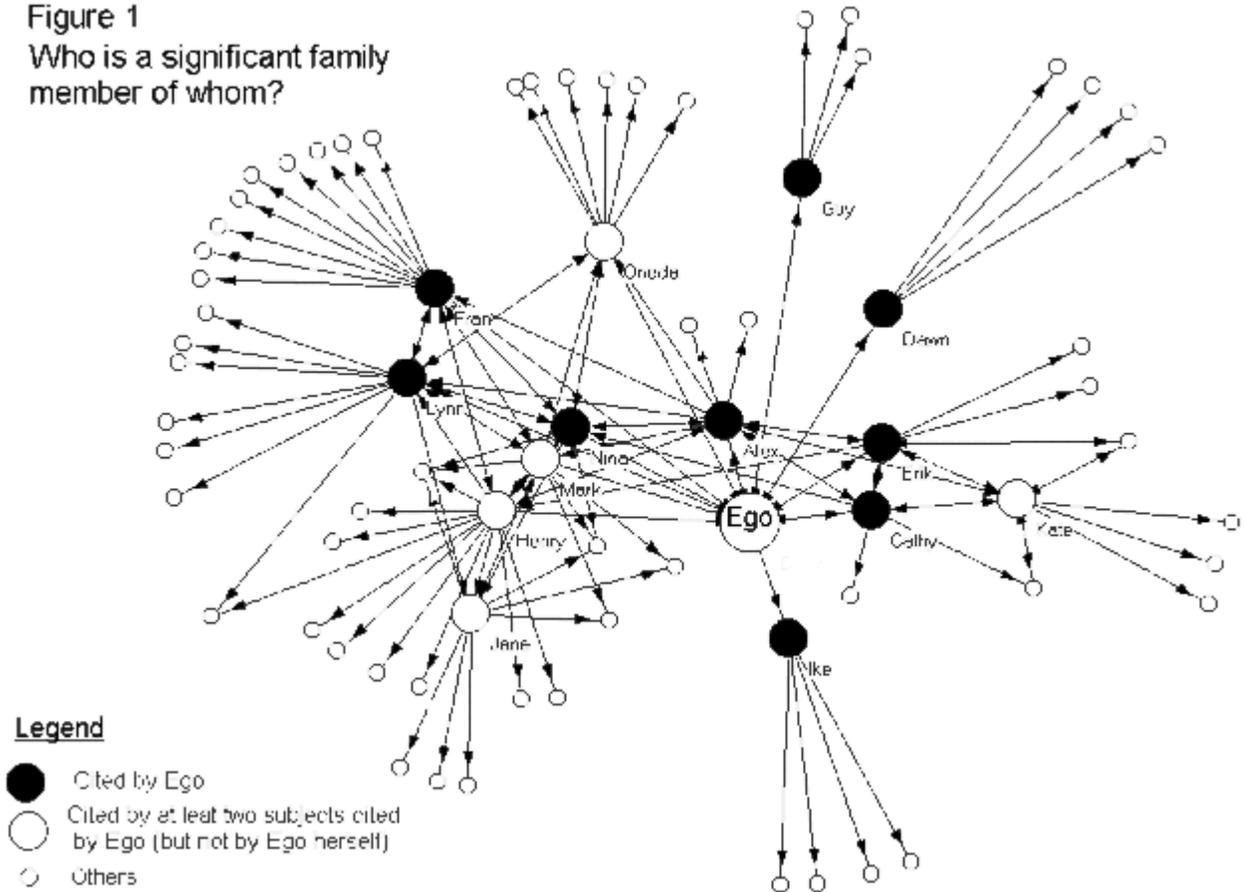
This network is 46% male. Eleven percent of subjects are younger than 20 years old, 34% between 20 and 40, 41% between 41 and 60, and 14% are older than 60. Eighteen percent of subjects live in the same county as Ego, 60% in the same state but not in the same county, and 22% in another state. It is striking to note that 42 of the 79 persons mentioned (53%) have no recognized tie with Ego.

Boundedness

From Figure 1, one can see that Ego's significant family is not a bounded closed group, but a rather widespread unbounded network. A first confirmation stems from the fact that among the 79 persons cited, 59 were cited by only one subject. To further assess the boundedness of this network, we computed a matrix of citation matches among the 15 core members.[2]   The overall match is .14, meaning that on average core members share 14% of their own network with others. When only the nine persons cited directly by Ego, plus Ego, are considered, this percentage remains about the same (15%), as is the case when Ego is taken out of her network (13%).

Let us also point out that 27 of the 105 dyads included in the core family network do not share any significant family members at all, and 25 share only one person, Ego in 21 cases. Two thirds of the pairs (70 pairs) share less than four persons as significant family members, and only 10% report sharing more than 6 members. On average, each pair shares only 2.57 members. Those different estimates suggest that the degree to which each person's family network overlaps with

others is weak, thus lending support to the conclusion that Ego's family network is not clearly bounded.

Connectivity within the core

We now want to address the issue of intercitations among the 15 core family members of Ego. Density of citations within the core is .34. This means that many members do not consider each other as significant. If we measure the density only among Ego and subjects who were cited as significant by Ego (for a total of 10 subjects) the density is .38. If we get rid of Ego, who obviously cites every other person and is over-cited because of the study design, the density of citations becomes only .24, that is, only about a quarter of the possible links among the 9 persons directly cited by Ego exist.

To measure the degree of significance of other core family members in a more precise way, we asked each subject to report the degree of closeness they feel toward each other member.[3]
    Results for the core network, as well as for only those subjects cited directly by Ego, are reported in Table 2.

Table 2
Closeness in the Core Family Network of Ego

Closeness among family members of Ego	Codes	Fifteen core members (n=210)	Nine subjects directly cited by Ego and Ego (n=90)	Nine subjects directly cited without Ego (n=82)
Very close	1	15%	18%	8%
Close	2	17%	17%	15%
Somewhat close	3	16%	16%	14%
Acquaintance	4	12%	18%	22%
Barely known	5	11%	10%	13%
Not known at all	6	29%	22%	28%
Total		100 %	100%	100%
Average		3.7	3.52	3.98

Again, we face a similar result as with the citations of significance. Only a minority of relationships are among 'very close' or 'close' persons. Two thirds of the relationships among core family members of Ego are considered 'somewhat close' or less. Let us stress that this result holds true even when one considers only subjects cited by Ego. It is especially noteworthy that 28% of the subjects do not know each other at all.

Influence of Family Roles

We now take a closer look at the correlation existing between intercitations, overlap and family roles. Table 3 reports measures of boundedness and connectivity according to family roles.

Table 3
Family Ties, Overlap and Intercitations

Family ties	Number of relations	Average overlap	Proportion of mutual citations	Average closeness
Parent-child	11	.40	100%	1.54
Spouses/ex-spouses	3	.24	100%	1.5
Siblings	16	.27	56%	2.09
Kins	14	.23	29%	2.34
In-laws	8	.08	0%	3.94
Former steps & inlaws	19	.07	11%	4.05
Others	36	.02	3%	5.53

In this family, biological parents and biological children cite each other systematically as significant others; they also report a high level of closeness and their definition of significant family members overlaps much more than for other categories (even though it is still far from 1.0). Spouses and ex-spouses cite each other as well, although this result should be considered cautiously since it is based only on three relations. Results for other categories are much more nuanced. Even though siblings constitute a large number of the existing ties, the level of reciprocity in citations is only 56%. In-laws, former steps and former in-laws have a very low overlap, do not have many mutual citations, and report an average closeness at the 'acquaintance' level. Other relations (such as former in-laws or friends of siblings, etc.) are almost completely disconnected and show almost no overlap.

In order to know when transitivity[4] holds and when it fails to hold, we further investigated the roles of persons shared by any pair of the core network, as well as the roles of persons that are specific to just one member of the pair. It was striking that parents and their child always shared the other parent, even in cases of divorce. Sharing of another child (sibling of the child) was also frequent although less likely. However, parents' parents and parents' siblings, parents' friends and parents' new spouses, were much less likely to be shared as significant by the child.[5]

Spouses and ex-spouses were most likely to share their common children. However, they usually did not share their own children, their siblings, or parents. These crude tendencies point to the fact that marriage and remarriage do not create much transitivity. Furthermore, it suggests that the parent-child link is the backbone relationship on which family networks are built. Relations among siblings, kin, and divorced parents are likely to be explained by a tendency of the parent-child relationship to create transitivity.

CONCLUSION

Our study points to the fact that neither boundedness nor connectivity can be taken for granted in contemporary families. However, this does not mean that we face unstructured families. Transitivity of parent-child relationships, along with other structural properties still to be discovered, probably account for much of the dynamics by which each family network is shaped.

These results may modify the current understanding of family dynamics. If significant family units are chains of relations, then the type of social integration one can expect from them is different from that which is provided by smaller and more connected groups. Social control, social support, conflicts, material exchanges, and power structures of families are likely to have features discovered in other types of networks (for instance, structural holes, differential centrality of actors, cliques, etc.). Influence of those features on individual adjustment, especially for children with divorced or remarried parents, is worth studying.

Measurement issues are also raised by our findings. To measure properties of family systems, researchers have extensively used scales based on the assumption that well-defined family units exist. Scale items such as *"Family members consult other family members on their decision"*, or "*we like to do things with just our immediate family*" (Farrel & Barnes, 1993; Olson, McCubbin et al., 1983), which are supposed to capture family cohesion and adaptability, have little relevance if families are low density unbounded networks. As a matter of fact, had we asked any pair of the 15 core members to estimate those items, we would have gotten reports concerning different sets of people, thus questioning the validity of such scales. Of course, it is always possible to define beforehand who is going to be included as part of "*the family*" and make it clear to interviewees (in considering, for instance, the household as the relevant unit). However, we are again faced with the problem of having some or most of them with significant family members not included in the *a priori* definition.

Although our results are based on a case study, we believe the conclusions we draw to be true for a large number of families. Divorce and remarriage obviously affect the transitive closure of families. Inclusion of kin and pseudo-kinship ties has the same effect. The lack of transitivity of relations with in-laws and steps confirms the hypothesis that families are not close-knit bounded groups, but rather chains of relations. Further studies should be conducted to confirm, extend and refine, what is presented here. Using a network perspective to study family dynamics is necessary, since a majority of persons, due to the increase of divorce and remarriage (Glick, 1989), are likely to deal with those unbounded low-density family networks in their everyday life.

REFERENCES

Borgatti, S.P., M.G. Everett, and L.C. Freeman. (1991). *UCINET*, version IV. Columbia, SC: Analytic Technology.

Cherlin, A.J., and F.F. Furstenberg, (1994). Stepfamilies in the US: a reconsideration. *Annual Review of Sociology*, 359-381.

Farrell M. P. and Barnes (1993). Family systems and social support: A test of the effects of cohesion and adaptability on the functioning of parents and adolescents. *Journal of Marriage and the Family*, 55, 119-132.

Furstenberg, F.F. (1987). The new extended family: The experience of parents and children after remarriage. In: Pasley K., Ihinger-Tallman, M. *Remarriage and Stepparenting: Current Research and Theory*, 42-61. (New York: Guilford).

Glick, P. (1989). Remarried families, stepfamilies and stepchildren: A brief demographic analysis. *Family relations*, 38: 24-27.

Jedlicka D. (1977). *Serial marriage networks: A study of change in the American Family*. University of Georgia, unpublished Manuscript.

Litwak, E. (1960). Geographical mobility and extended family cohesion. *American Sociological Review*, 25, 385-394.

Mitchell, J.C. (1983). Case and situation analysis. *The Sociological Review*, 31(2), 187-211.

Olson, D.H., H.L. McCubbin, et al. (1983). *Families: What makes them work.* (Beverly Hills, CA: Sage).

Widmer E.D. (1997). Families as cognitive networks: Theoretical and methodological propositions. Paper presented at *the National Council on Family Relations, 59 Th annual conference program*. November 7-10, 1997, Arlington, VA.

Widmer E.D. (1998). Families as networks: A structural approach of family relationships (Under review for publication).