SOCIAL NETWORK ANALYSIS

Bounded versus Personal Networks: "Bounded networks" (for example, villages or work organizations) are much more desirable than "personal networks" in terms of the ability to calculate density and centrality measures. A bounded network (also called a "complete network") refers to bounded groups for which you have surveyed all members. This does not mean that the members have no relations outside the group, only that all members of said group have been surveyed. When the group being sampled is too large (as for example, in the case of a very large village or factory), people have by necessity drawn random samples and established "personal networks" for this sample. The disadvantage is that it is far more complicated to establish measures of density. This requires collecting data not only on the individuals whom ego reports as network members (alters), but also the relationships among all of the alters themselves. In this project we will restrict the analyses to bounded networks.

Theoretical justification for definition of Bounded Network: In this project we are particularly interested in relating trust in the games to network measures such as density and centrality. Given that our games are being played among members of a single village or factory, it makes sense to match the "network" with that boundary also. It is quite possible that these boundaries will have more meaning in some locations than in others. Ideally they should capture most of one's exchange networks for the given question. To test for this, after running through the list of identified bounded network membership, we will ask each participant to free-list other individuals with whom they share the same relationship. The extent of free-listing will give us a measure of how complete our bounded network appears to be in capturing the majority of relevant relations. If the village/factory boundary does not appear to be capturing the majority of such relations, the researcher is advised not to continue the network analysis in that village, as the boundary does not appear to be a meaningful one.

Size of Village/Factory/Network: Unless time and resources exist to survey hundreds of individuals, you may wish to be careful in your choice of villages and communities which you define as bounded networks. Some of us anticipate working in villages and factories with populations of up to 200 adults. This is probably the upper limit of a network with which you will wish to work.

Timing of the Network Survey: There are pros and cons to whether the network analysis is completed before or after the games; it is too long a process to be undertaken at the same time as the games. Prior experience has shown that the remuneration involved in the games is an incentive for people to cooperate in the demographic/network survey. For this reason, it may be advised to do it before the games. This also ensures that you actually get the data for anyone called to play the games.

Photos versus Listing of Network Members: It would be best if all members of the project used the same method for eliciting network connections. We advise that you use photographs for this process. Thus, each adult member of the village/factory will be

photographed and these photos will be used to carry out the actual elicitation process (see below). This will make the process more fun for informants, it will go more quickly, and it is likely to ensure more complete information. In the case of very large villages we advise that you take photographs of household heads only and verbally list other members of the household. Any absent member of the network for whom a photo is not available will also have to be listed verbally. If you wish to do network analysis and cannot use photographs, bear in mind that there could be significant differences in the frequency of "hits" when using lists of names rather than photographs. For this reason, your data may not be comparable to that of others in the network sub-group. For example, we anticipate that the photo method will be much faster, generating less fatigue for both research assistants and informants. This may result in more complete lists of network partners.

Technology: Many networkers have successfully used Polaroid cameras for the photographs. Bear in mind that the film is expensive (about $1 per picture). Some may choose instead to use a cheap digital camera and color printer and generate photos in the field. A computer (though not essential) will greatly facilitate the network analysis by allowing for the generation of the forms below once the members of the network have been identified and assigned ID numbers. Lamination machines are advised for the photos and versions of these now exist which do not require power (contact Jeff Johnson).

BOUNDED VILLAGE NETWORKS—PROCEDURES

1. In the village of choice, enumerate all households.
2. Visit each household and list all members in the household (male and female) over the age of 18. Beginning by drawing a complete genealogy is probably the best way to be sure that you don't miss anyone.
3. Complete the demographic survey (Part 1) below, listing each adult household member. This completes your list of all members in the bounded network. If any one is absent at the time you are ready to complete Part 2, but you think they will return in time for you to do the survey with them, then include them in the network. If they fail to return and you have no survey for them (Part 2) they will need to be dropped from the final bounded network, which must be a complete N X N matrix. That is, they will be dropped from the report of each person who listed them as a network partner. They will, however, be added to that person's free-list (Part 3). These adjustments can easily be done after the fact.
4. Photograph each adult member, or at least each head of household if the village is large. Write the individual's household and personal ID on the back of the photograph.
5. Back-translate the individual network question as it appears on Part 2 and below.
6. If you have a complete set of photos for the village/factory, use these to elicit network connections from each member of the network. Ask the network question listed on the form below (Part 2) and make up a list of all the photos that each

1. Once the bounded network is identified, make up a new roster (Part 2) including the names of all individuals in the bounded network lumped by their household. Print one complete survey (with the first 6 columns filled in) for each member of the network. If you do not have a computer in the field to complete this step, make one list of the entire network with ID's and use this to generate hand-written lists of network connections for each household.

2. Revisit each of the members of the bounded network (all adults in the village over the age of 18) and ask them the question on the individual network survey below (Part 2), thus enumerating their connection to all other members of the network.

7. Once you have completed going through the entire network with each member of the network, follow-up and ask if there is anyone else with whom he/she discusses village problems with who does not live in this village (Part 3). This free list should be collected for each member of the network and will give us an idea of how complete the network is. Also record the village of residence and relationship to the network member for each additional free-listed network partner.

NETWORK QUESTION

The network question that we will be using in Part 2 of the survey is:

"In this packet you will find a photograph of all/most of the adults in this village. Pick out the photographs of all the people you usually talk to about any kind of problem in this village."

[Note: if there are some individuals for whom you do not have photographs, be sure to follow this by running through each of the names individually. If the village is large and you have photos of each household head rather than each individual, make it clear that the photos represent entire households and they must list all of the individual members of that household with whom they talk about problems in the village.]

BOUNDED NETWORK—COMPLETE MEMBERSHIP LIST (PART I OF 3 PARTS)

Date: _____ Research Assistant: _____ Village: _____

LIST EVERY MEMBER OF THE VILLAGE/FACTORY (THE ENTIRE BOUNDED NETWORK) OVER THE AGE OF 18.

FOR VILLAGES, LIST FAMILY MEMBERS TOGETHER BEGINNING WITH THE HEAD OF THE HOUSEHOLD.

Network Member First Name	Network Member Father's Name	Network Member Father's Father	Head of HH (Y or N)	House-hold ID	Person ID	# Years Lived in this Village	Sex (M or F)	Year of Birth	Years of School

PART 1   PAGE ____ OF ____ PAGES

INDIVIDUAL NETWORK—(PART 2 OF 3 PARTS)

Date: _____   Research Assistant: _____

THIS NETWORK BELONGS TO:

Name: (First) _____ (Middle) _____ (Last) _____ ID _____

Household Name: (First) _____ (Middle) _____ (Last) _____ ID ____

ASK THE FOLLOWING QUESTION OF EACH MEMBER OF THE BOUNDED NETWORK:

"In this packet you will find a photograph of all/most of the adults in this village. Pick out the photographs of all the people you usually talk to about any kind of problem in this village."

Local translation of the above:

Network Member First Name	Network Member Father's Name	Network Member Father's Father	House-hold ID	Person ID	Relation to You (see Codes Below)

PART 2   PAGE ____ OF ____ PAGES

Codes for Relationship: Mother (M), Father (F), Brother (B), Sister (Z), Son (S), Daughter (D), Wife 1 (W1), Husband (H), Clan (C), None (N), Friend (FR), or combinations thereof. Examples: Wife 2's Son's Son (W2SS), Mother's father (MF), Sister's son's daughter (ZSD)

INDIVIDUAL NETWORK—FREE LISTING OF NAMES—(PART 3 OF 3 PARTS)

Date: _____   Research Assistant: _____

THIS NETWORK BELONGS TO:

Name: (First) _____ (Middle) _____ (Last) _____ ID _____

Household Name: (First) _____ (Middle) _____ (Last) _____ ID ____

ASK THE FOLLOWING QUESTION OF EACH MEMBER OF THE BOUNDED NETWORK:

"Are there any other people outside of this village you usually talk to about any kind of problem in this village? Please list all of them."

Local translation of the above:

Non-Network Member First Name	Non-Network Member Father's Name	Non-Network Member Father's Father	Head of Household (Y or N)	Village of Residence	Relation to You (see Codes Below)

PART 3   PAGE ____ OF ____ PAGES

Codes for Relationship: Mother (M), Father (F), Brother (B), Sister (Z), Son (S), Daughter (D), Wife 1 (W1), Husband (H), Clan (C), None (N), Friend (FR), or combinations thereof. Examples: Wife 2's Son's Son (W2SS), Mother's father (MF), Sister's son's daughter (ZSD)