

# Social Network Analysis

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Sentinel Landscape Data Analysis workshop

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Venue: CATIE, Costa Rica.

# Talk outline

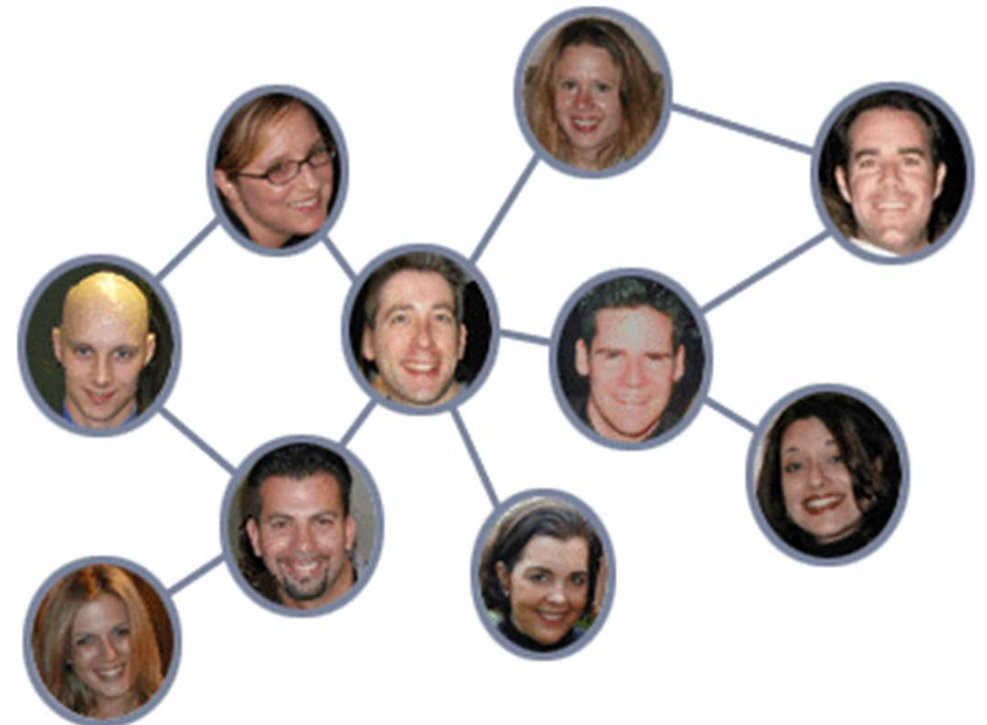
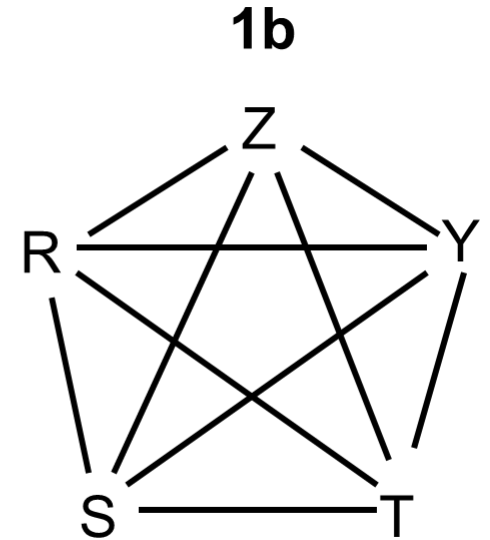
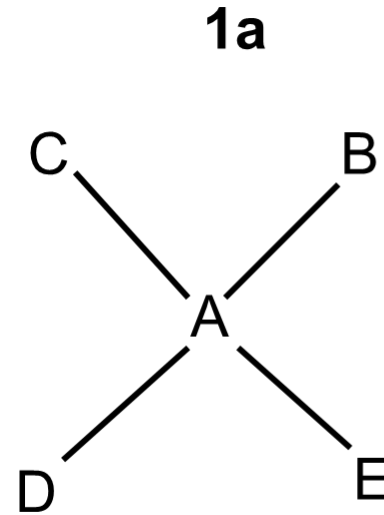
- **What is a Social Network?**
- **Data collection**
- **Visualizing networks**
- **Early results based on data from Nig-Hon SL**

# What is a Social Network?

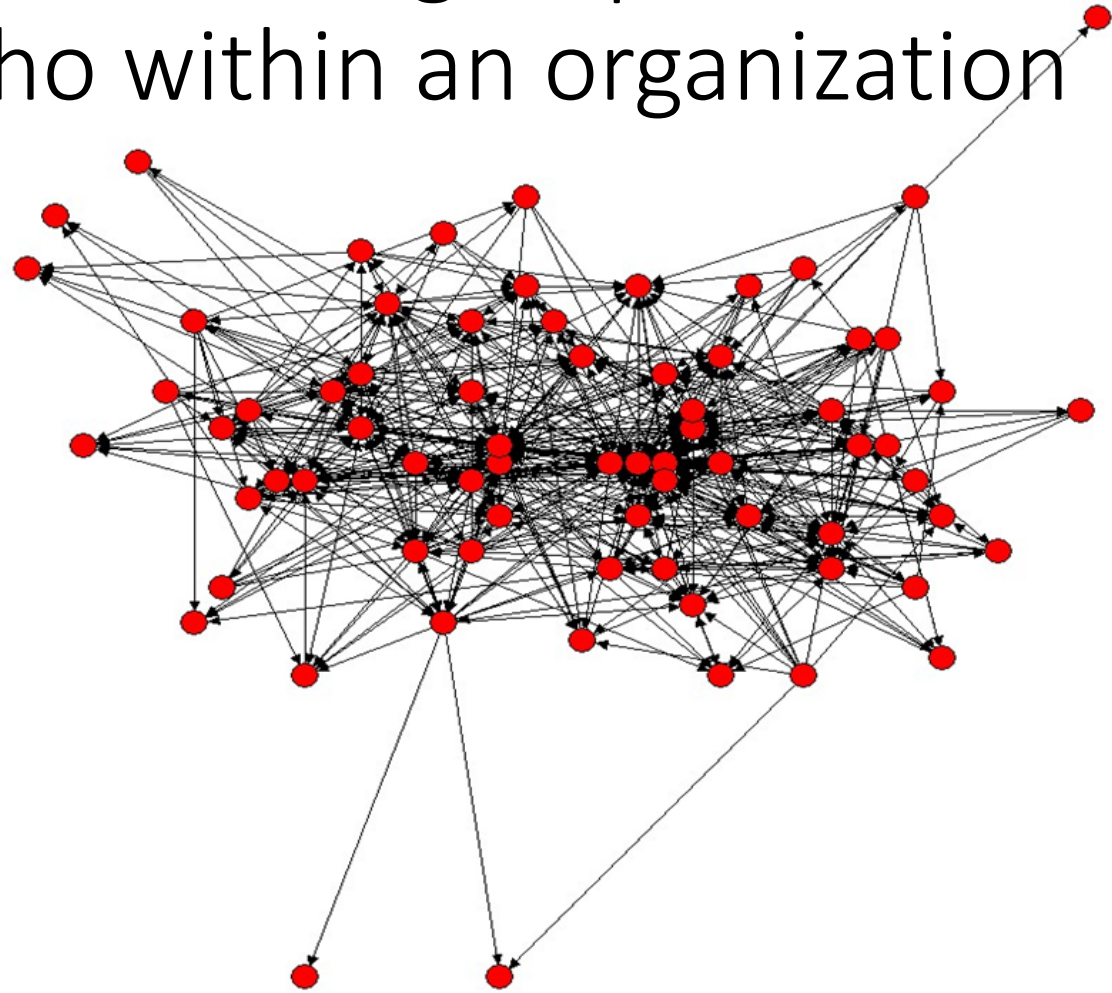
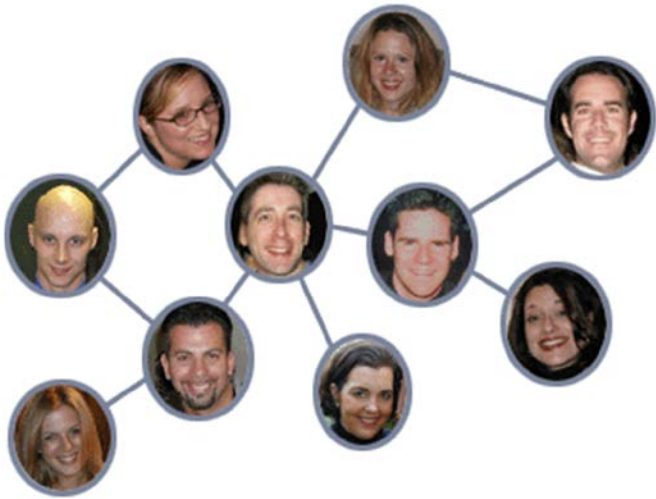
- A set of nodes (e.g., people, households or organisations)
- A set of connections between nodes (e.g., friends) in general channels for transfer or “flow” of resources (either material or nonmaterial)

Social network indices, include:

- degree of a vertex is the number of its adjacent edges
- centrality measures based on shortest path



Network size largely depend on the question –  
small, who knows who within a group of friends  
to large who emails who within an organization



**Node/actor:** Any entity in a network  
(person, social unit,...)

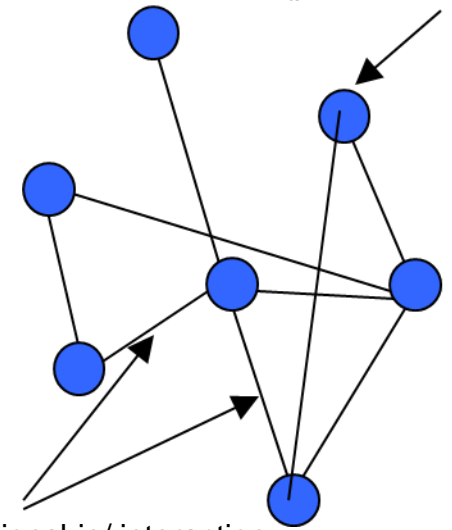
# Two Main Concepts in Network Analysis

- Actors/Nodes

- discrete individual, household or other type of collective social units

- Relational tie

- Actors are linked to another by social ties
- A tie “establishes a linkage between a pair of actors”
- Example of ties in SNA:
  - Evaluation of one person by another (expressed friendship, linking, or respect)
  - Transfers of material resources (business transactions, lending or borrowing things)
  - Association or affiliation (jointly attending a social event, or belonging to the same social club)
  - Behavioral interaction (talking together, sending messages)
  - Movement between places or statuses (migration, social or physical mobility)
  - Physical connection (a road, river, or bridge connecting two points)
  - Formal relations (authority)
  - Biological relationships (kinship or descent)



**Tie:** Relationship/ interaction  
between two nodes.

# Data collection - specific to SL work

Actors/Nodes – household attributes such as household location, gender, age, income level etc. and composition variables such income, wealth index, etc. – based on the information collected from all the sections of the household module, except section N.

Relational tie – data from section N of the household module: Social networks

# Section N: Social networks

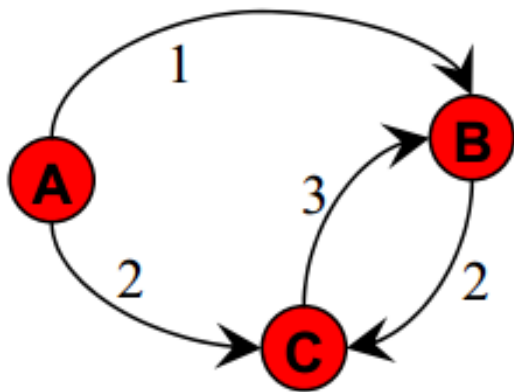
## SENTINEL LANDSCAPE HOUSEHOLD MODULE

This part of the questionnaire is aimed at gaining an understanding of the social networks within the area. We would like to know up to 6 people you seek assistance if you need advice or help with any issues. This could be any person in an organization, a neighbor, friend or family member. If at any time you feel uncomfortable answering these questions then please inform me. Are you happy to continue? *If yes continue, if no please continue with section O.*

ID	Name	Gender <i>1 = Male 2 = Female</i>	Lives where?	What is the nature of the advice you would usually seek from would him or her?  <i>1=family; 2=field; 3=business; 4=health</i>	Did you see him / her		Does he/ she comes to you for advice or help?  <i>1 = Yes, 2 = No</i>	Phone number
					Last week?  <i>1 = Yes, 2 = No</i>	Last month?  <i>1 = Yes, 2 = No</i>		
1								
2								
3								
4								
5								
6								

# Representing social network data nodes & ties

- Two common ways of representing social network data are by drawing the network where the nodes (red, circle) A, B & C are Households and vertices (arrows) is a type of interaction (1=farm, 2=business & 3=health) and in a square matrix with as many rows (and columns) as households in the data set

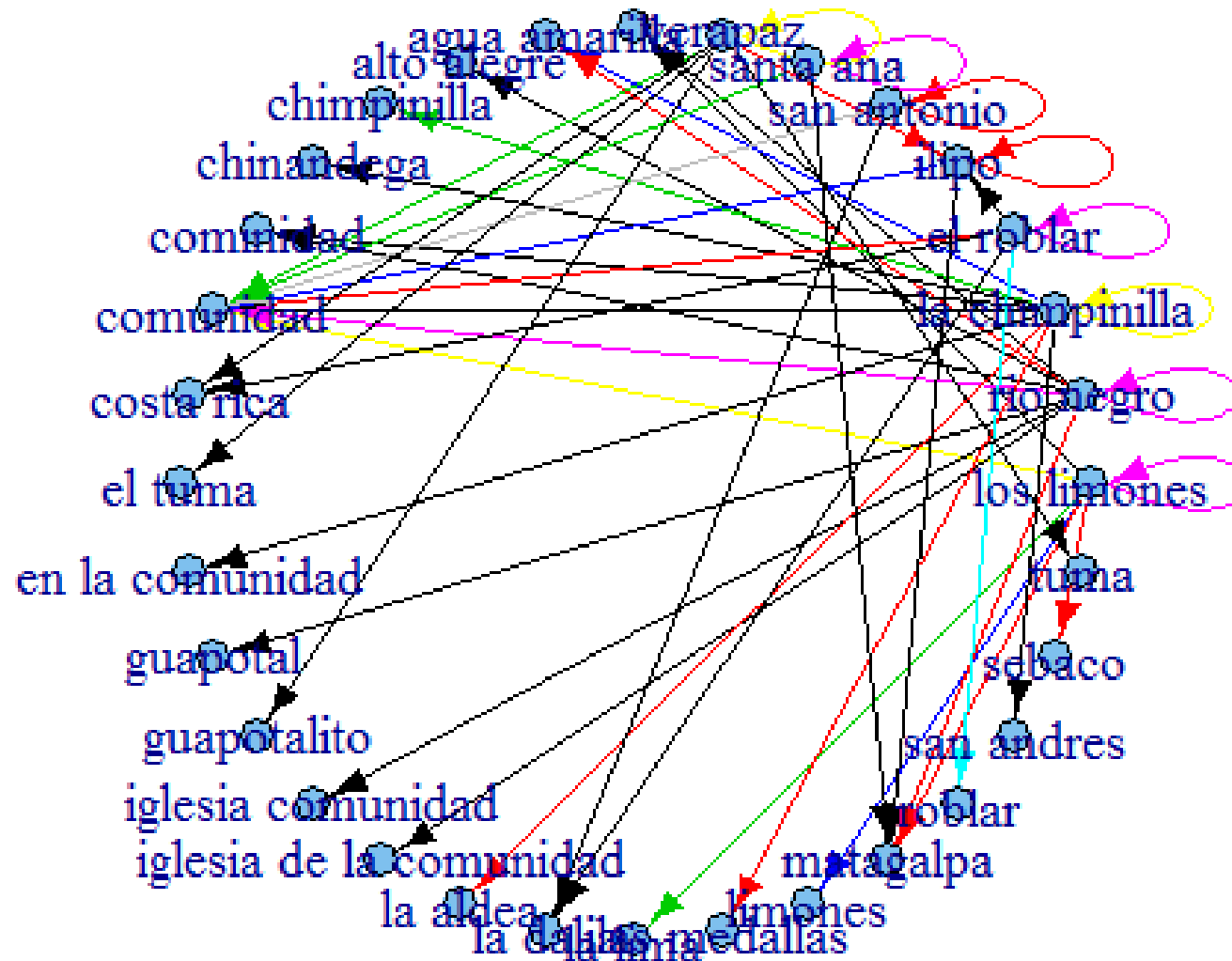


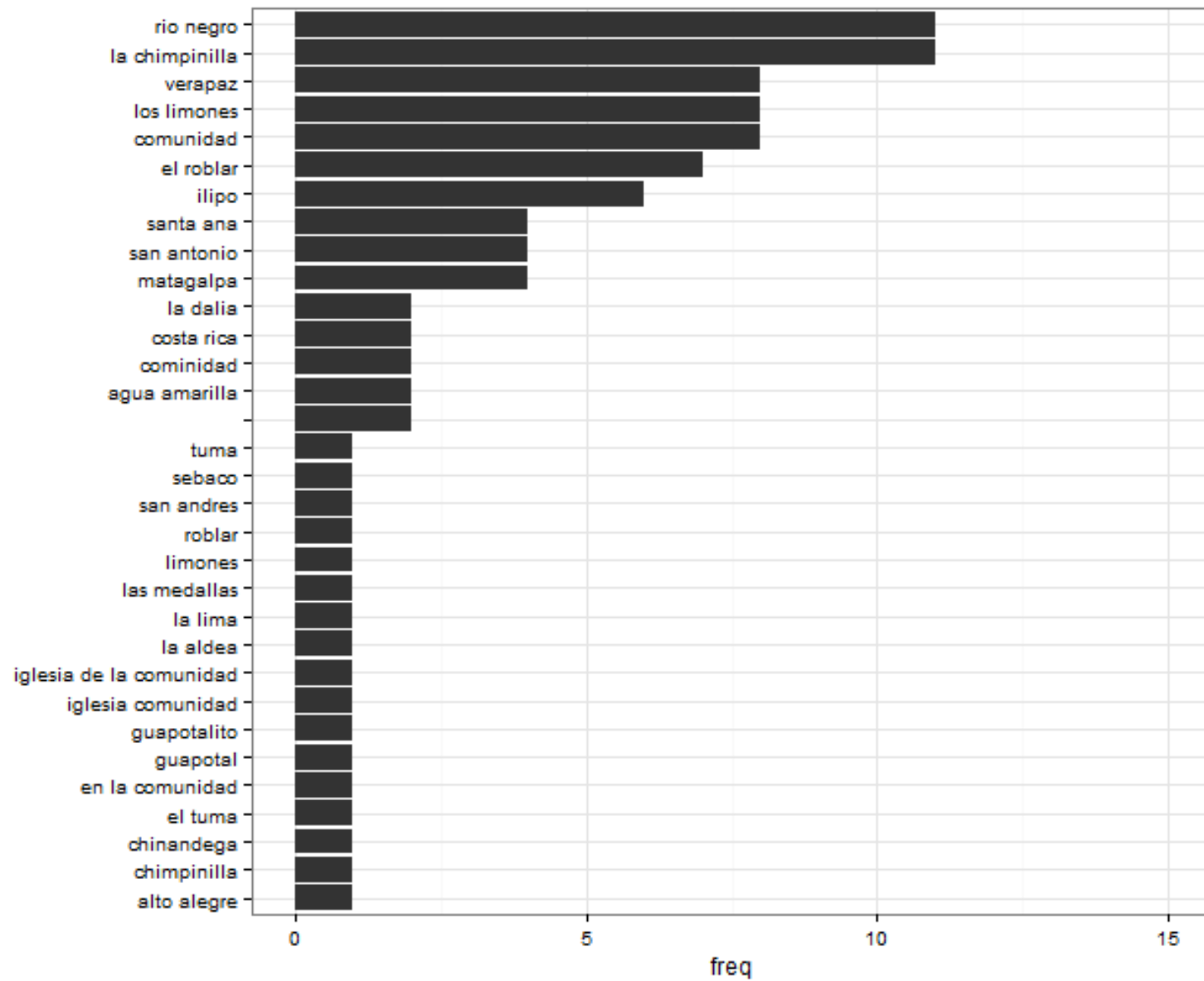
	A	B	C
A	0	1	2
B	0	0	2
C	0	3	0



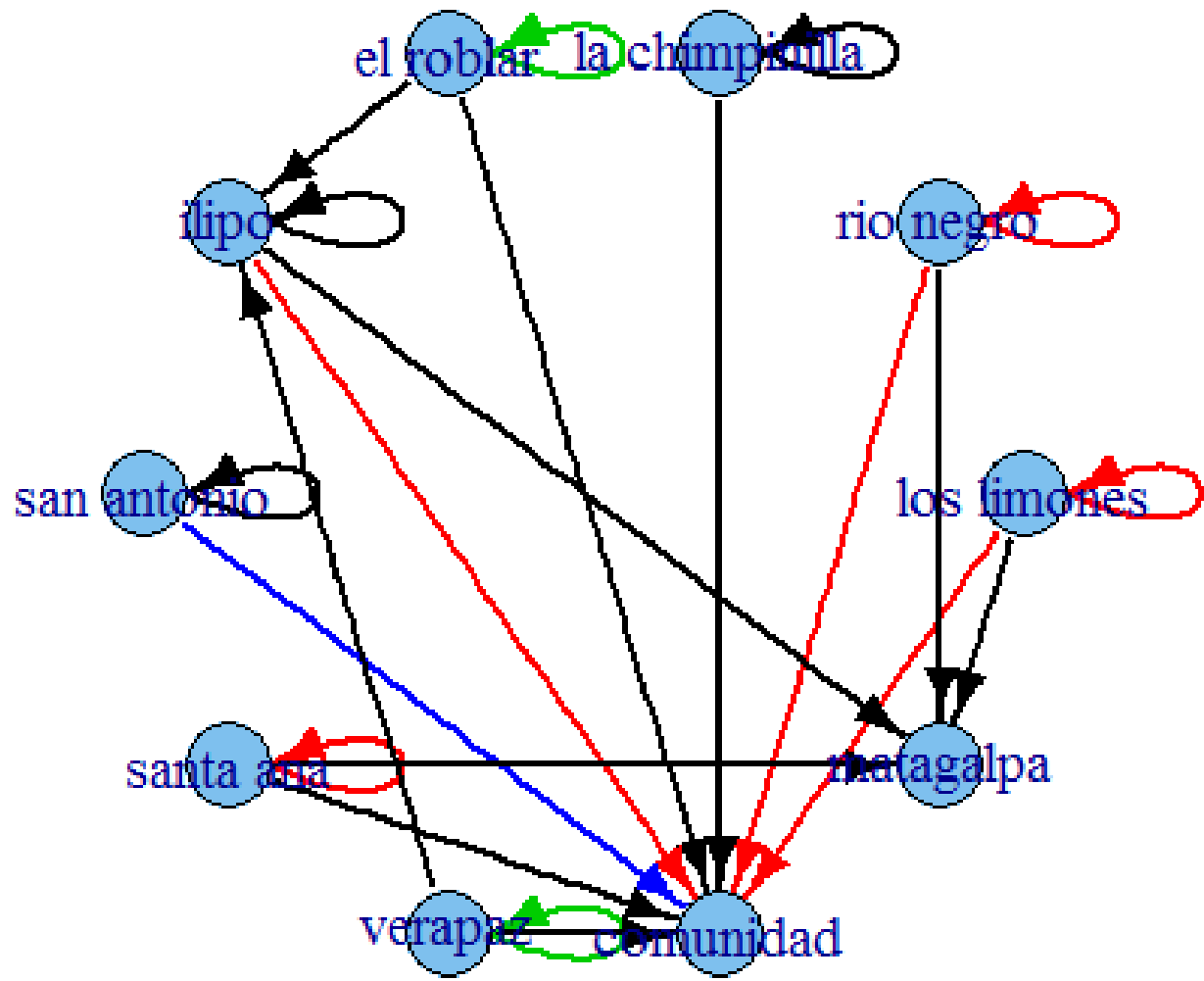


# Early results (based on plan B)





black = 1-10  
red = 10-20  
green = 20-30  
blue = 30-40



Questions?

## Which differences exist between a social network analysis and a non-network explanation?

- in non-network explanations the main focus is on: attributes of autonomous individual units, the associations among these attributes, and the usefulness of one or more attributes for predicting the level of another attribute
- social network analysis:
  - refers to the set of actors and the ties among them
  - views on characteristics of the social units arising out of structural or relational processes or focuses on properties of the relational system themselves
  - inclusion of concepts and information on relationships among units in a study
  - the task is to understand properties of the social (economic or political) structural environment, and
  - how these structural properties influence observed characteristics and associations among characteristics
  - relational ties among actors are primary and attributes of actors are secondary
  - each individual has ties to other individuals, each of whom in turn is tied to a few, some, or many others, and so on

# What is Social Network Analysis?

“(…) is based on an assumption of the importance of relationships among interacting units” (Wasserman/Faust 2008:4)

“(…) the unit of analysis in network analysis is not the individual, but an entity consisting of a collection of individuals and the linkages among them” (Wasserman/Faust 2008:5)