# Mixed approaches to personal networks dynamics

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# Research questions

- How can we explain the observed changes in the personal networks of migrants?
- Is there variation among “communities” (migrants from the same country of origin)? If so, why?

# Qualitative & Quantitative approaches

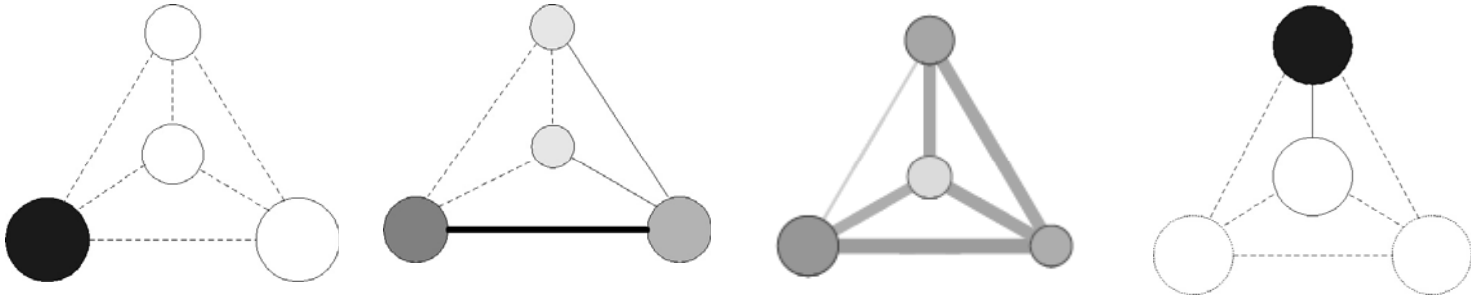
- **Qualitative**
  - Codification of reasons given by informants interviewed about the changes observed (1,5-2 years between).
  - Visual comparisons of personal networks at individual and community levels.
- **Quantitative**
  - Multilevel analysis and regression analysis.
  - SIENA application.

# Qualitative Analysis

# Data for the second wave

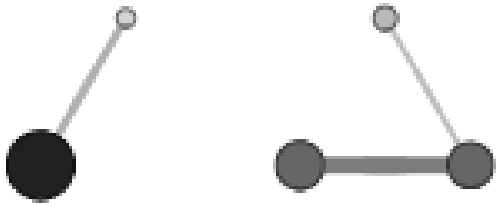
| Collective | N | Age (on average) | Years of residence (on average) | Sex |
|---|---|---|---|---|
| Argentineans | 25 | 32 | 5 | 15 women, 10 men |
| Senegal and Gambia | 16 | 27 | 4 | Men |
| Dominican Republic | 13 | 36,2 | 6,5 | 3 women, 10 men |
| Morocco | 13 | 32,7 | 12 | 6 women, 7 men |
| **Total** | **67** | **32** | **6,4** | **24 women, 43 men** |

# In the long term the model of change would be …

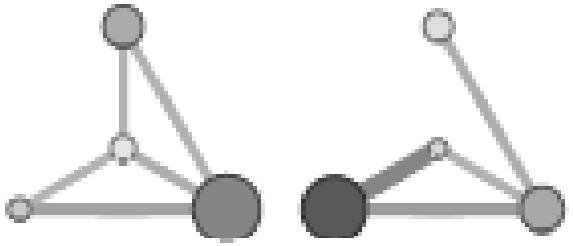


# Evolution - Involution

- **Evolution**
  - Changes that follow the expected trend of change.



- **Involution**
  - Changes that follow the opposite trend of change.



# In the short term the variation is very high …

- 25 Argentineans interviewed (1,5-2 years between).

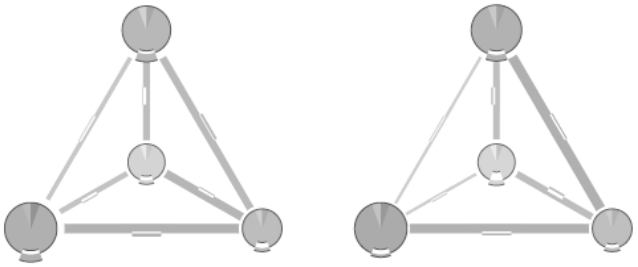
# Reasons given for explaining change …

| | Evolution | Involution |
|---|---|---|
| ***Material life*** | | |
| Job | *** | |
| Housing | | ** |
| ***Spaces of public interaction*** | | |
| Courses | ** | |
| Associations | | ** |
| Discos | * | |
| Cult | | * |
| “Ethnic” sport teams | | ** |
| Sports | * | |

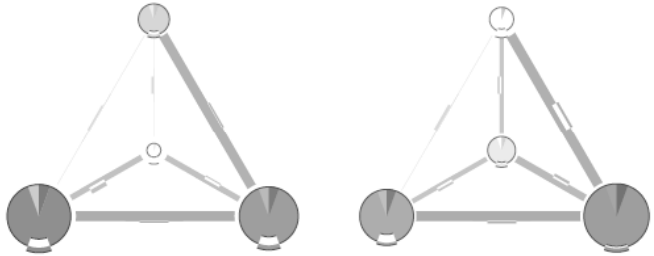
# Reasons given for explaining change … (cont.)

| | Evolution | Involution |
|---|---|---|
| ***Lifecycle*** | | |
| Homophilus marriage | | *** |
| Heterophilus marriage | ** | |
| Divorce | | ** |
| Newborn | | ** |
| Death of a relative | * | |
| ***Travelling*** | | |
| Travels | | ** |
| Visits | | * |
| ***Communications*** | | * |

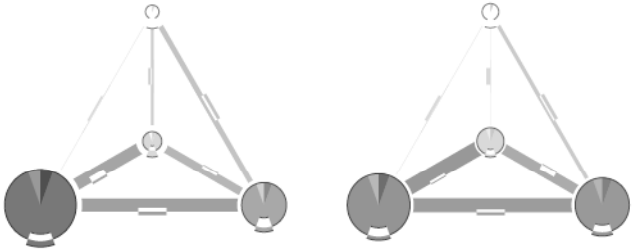
# At the community level we also observe variation …



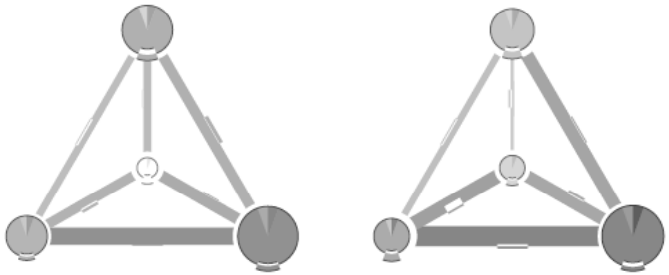
Argentina (n = 25)



República Dominicana (n=13)



Senegal y Gambia (n=16)



Marruecos (n=13)

# Quantitative Analysis

# Types of dynamic personal network research

- Feld et. al, 2007:

| **Level of analysis** | **Focus of analysis** | |
|---|---|---|
| | *Persistence* | *Change in content* |
| *Tie* ***ego-alter*** | Type 1 | Type 2 |
| *Tie* ***alter-alter*** | **Type 5** | - |
| *Entire network* | Type 3 (size) | Type 4 |

# Types 1, 2, and 4…

- … were applied to the 25 Argentineans, using multilevel and regression analyses
- Summary of results (presented earlier in Paris…):
  - Although the turnover of network members was high (about 50% of the alters nominated at *t*1 was replaced), **the composition of networks *hardly changed* over time** [Type 4];
  - **Strong ties**, ties that were more central in the personal networks, and ties with Argentineans **were more likely to persist over time** [1];
  - **Yet ties with Argentineans (apart from family members) were also more likely to decrease in strength over time** [2];
  - **Alters who were new at *t*2 were most frequently known via third persons (transitivity) or at work** (especially Spanish members).

# Type 5 analysis

- How do the relations *among network members* change over time?
- When the set of alters per network is sufficiently large (say $n \geq 20$, but this also depends on the average density and the amount of change in composition), we suggest using SIENA
- A two-stage procedure is necessary to analyze multiple networks simultaneously (Snijders & Baerveldt, 2003).

# The case of Argentineans

- **Data**
  - We applied SIENA to the personal networks of 25 Argentinean migrants.
  - Each network consists of the relations among 45 network members (ego excluded), observed in two waves.
  - Relations are **non-directed**.
- **Stability of ties *among alters***
  - 87% of the ties that were observed among the alters at *t*1 was persistent, but this stability varied considerably among networks (from 50% to 100%).

# The case of Argentineans: Hypotheses

- How do relations *among network members* change over time? Hypotheses:
  - **[Transitive triplets].** A greater number of shared associates for two alters increases the likelihood of a relation among them.
  - **[Closeness alter 1 × closeness alter 2].** The stronger the ties that two alters have with ego, the more likely it is that they are related as well.
  - **[Same group membership].** If two alters have a similar group membership with ego (e.g., kin, colleague, neighbor), this increases the likelihood of a relation among them.
  - **[Same class of origin/residence].** Pairs of alters who share the same country of residence and country of origin will be more likely to be related.

# The case of Argentineans: Hypotheses

- Moreover, degree and rate were included.
- The model had a good convergence for 21 networks

# The case of Argentineans: Results

Table 7. Multilevel SIENA results ($N_{networks} = 21$; $N_{alters} = 1{,}708$)

| Parameter | $\beta_{w2.s}$ | (*s.e.*) | *t* | $\hat{\sigma}$ | *Q* |
|---|---|---|---|---|---|
| Rate | 9.617 | (1.705) | 5.64* | 6.088 | 156.84* |
| Degree | -4.211 | (0.627) | 6.72* | 2.244 | 152.91* |
| Transitivity | 0.736 | (0.156) | 4.72* | 0.545 | 506.72* |
| Closeness alter 1× alter 2 | 0.074 | (0.055) | 1.35 | 0.145 | 47.23* |
| Same group membership | 1.952 | (0.302) | 6.46* | 0.250 | 50.84* |
| Same country of origin/residence | 1.217 | (0.374) | 3.25* | 0.438 | 117.08* |

# The case of Argentineans: Results

- As hypothesized, **alters** who knew **multiple other network members in common**, alters who belonged to the **same groups** (kin, neighbors,…), and alters who belonged to the **same country** of origin and residence had a higher probability to become related.
  - Tendency toward **transitivity** was significant in all but two networks
  - Both **similarity in group membership and same country of origin and residence** had a significant effect in two-thirds of the networks.

# The case of Argentineans: Results

- This indicates that relations among alters are primarily formed within **already established clusters** in the personal networks

# Intentions for future analyses with SIENA

- To apply SIENA to all 67 networks (not only Argentinean community).
- Possibly, to add other structural effects which are interesting for non-directed relations.
- To add ego characteristics in the meta-analysis to explain variation in observed tendencies (e.g., to which community ego belongs).
- …

# Thanks!