

What social network are we gathering? Some challenges on personal network data collection and analysis (for travel behaviour research)

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**COST Action TUI305, 5MC & WGs meetings
București, România, 18 May 2016**



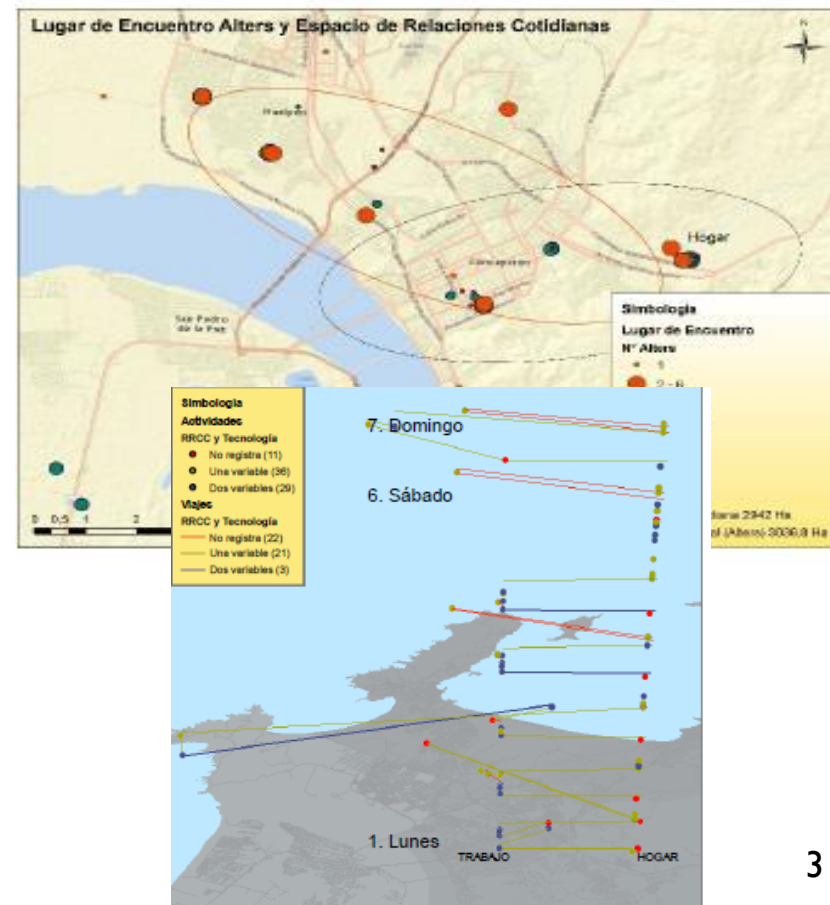
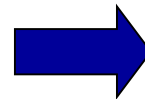
Contents

- **Collecting** personal network data
Background, key components, current challenges, discussion
- **Analyzing** personal network data
Key dimensions, some findings, current challenges
- **Integrating** qualitative and other information

Collecting personal networks

Elicited network (name generator)

Personal networks —————> Travel behaviour that “emerges”

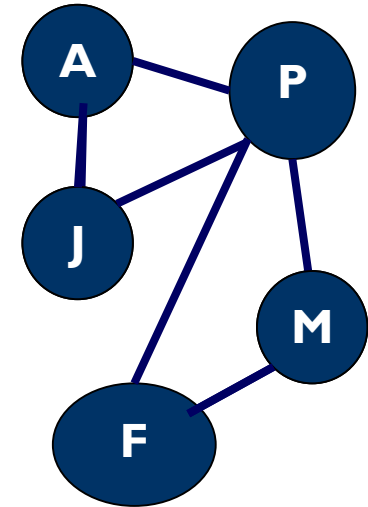
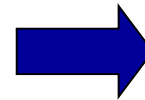


Collecting personal networks

“Revealed” network (name generator)

“With whom” activity and travel is performed \longrightarrow **Personal networks**

| Start Time | Type | With Whom |
|------------|---------------|---|
| 8:00 | Home | Family |
| 9:00 | Soccer play | A lbert, P eter, J oseph |
| 13:00 | Lunch | Friend: P eter |
| 14:00 | Work | Alone |
| 17:00 | Shopping | F rancis |
| 19:00 | Social (host) | F rancis, M ary and P eter |
| 23:00 | Sleep | Family |





Name generators and interpreters

Name generators

- Question(s) used to elicit alter
- Approaches (usually a combination):
 - Role-relation (e.g., friend, family)
 - Interaction (e.g., activity diary)
 - Affective (e.g., emotional relationship)
 - Exchange (e.g., social support, influence)

(Marin and Hampton, 2006)



Name interpreters and network structure

Network structure

Relationships between alters

Name interpreters

Follow up questions that gather information on **socio-demographic** characteristics of each alter and **relationship** between ego and alter



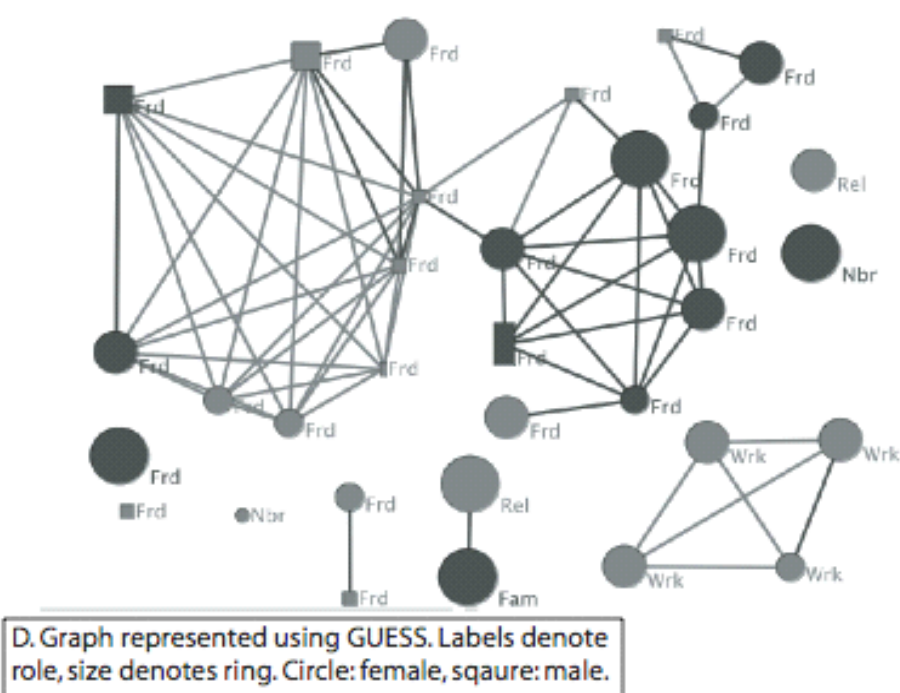
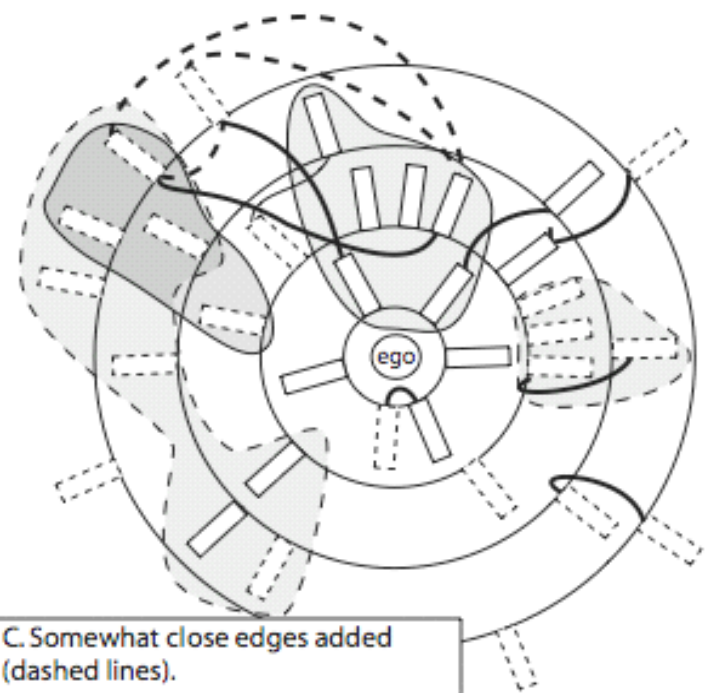
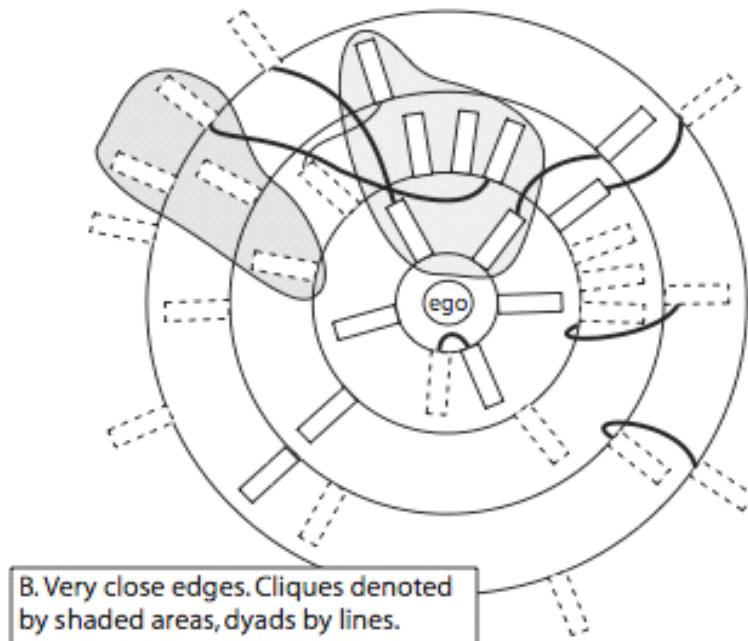
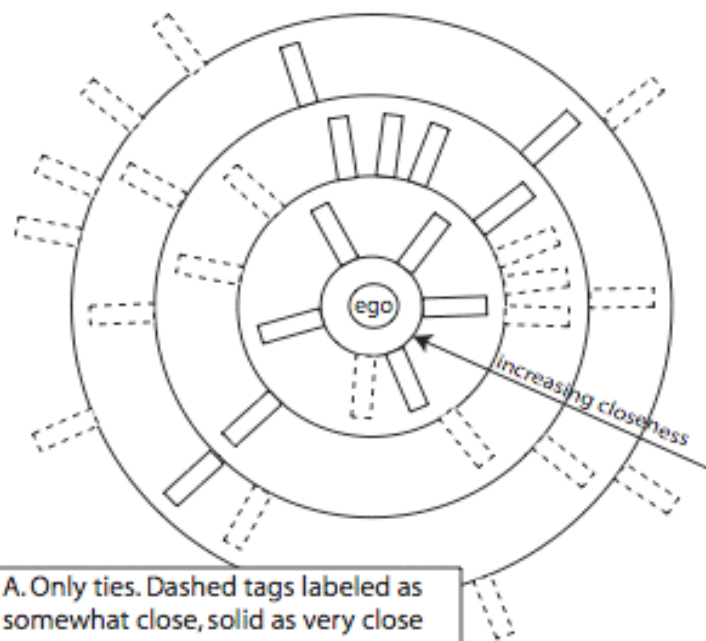
Example

- Name generators
 - Very close people consisted of “people with whom you discuss important matters with, **or** regularly keep in touch with, **or** they are for you if you need help”
 - Somewhat people consisted of “more than just casual acquaintances, but not very close”



Example (cont'd)

- Network structure
 - From the ego's perspective
 - Beyond groups: link by link (feasible)
 - Key dimensions: size, composition, structure
- Name interpreters
 - Frequency of interaction: face to face, telephone, ICTs
 - Spatial location, place of frequent interaction
 - Role / Social support





Name generators: Challenges

Challenges with name generators

- What are they supposed to construct?
- For what research question?

Some key aspects

- Interpretation of questions
- Recalling
- Context of questions
- Ordering of eliciting questions
- Learning
- Guided versus self-guided
- Offline versus online methods



Name generators: Challenges

- Interpretation of questions
 - What is an “important matter”?
 - Who is a “friend”?
 - Who is emotionally “close” (tie strength)?
- Recalling
 - Recall and observation do not match up -- “people do not know, with any acceptable accuracy, to whom they talk over any given period of time”
 - Evidence that people are good at recalling *typical interactions*, bad at answering about specific time scales

(McCarty and other authors)



Name generators: Challenges (cont'd)

- Context
 - Daily mobility
 - Evidence that people are good at recalling typical interactions, but bad at answering about specific time scales
 - Ordering of eliciting questions
 - We may want to capture **multiplexity**
 - Known effects: Fatigue, satisficing, non-redundancy, cognitive priming, question scope redefinition
- (Pustejovsky and Spillane, 2009)



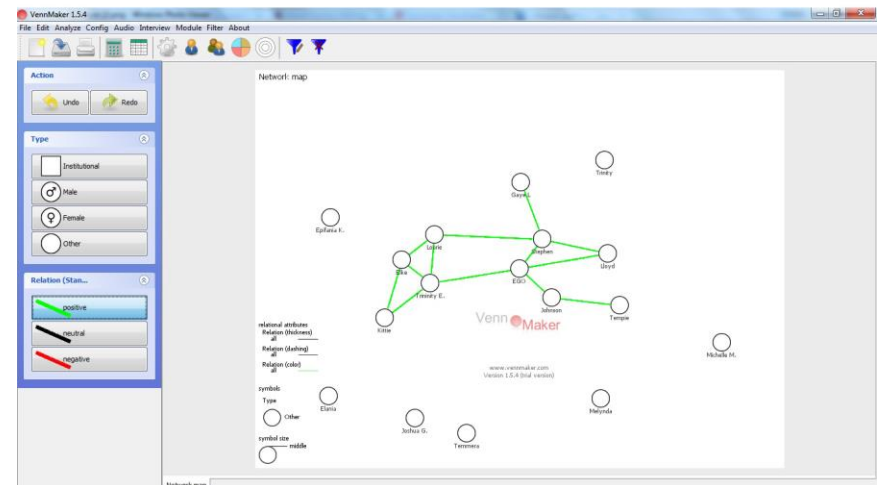
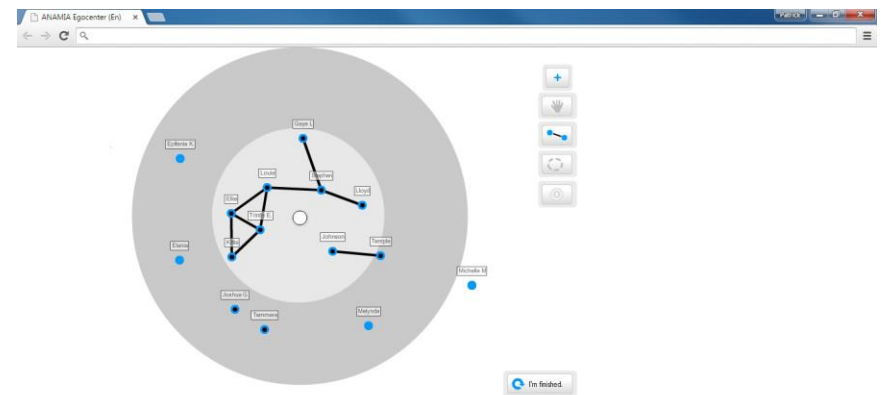
Name generators: Challenges (cont'd)

- Learning
 - Previous knowledge of the instrument
 - Repeated observation
 - People
- Guided versus self-guided
 - Cognitive, cultural capital differences
 - Self guided: Toronto and Ljubljana

Name generators: Challenges (cont'd)

Offline versus online methods

Hogan et al. 2016



Interviewer effects?



Name interpreters: Challenges

Challenges with name interpreters

- Recalling
- Accuracy (temporal and spatial)
- Burden
- Privacy
- Self-learning



Network structure: Challenges

Challenges on studying network structure

- Name generator DOES matter
- Network composition as a key
Income, gender, age
- Structural characteristics: How relevant?
Overall network: Size, density, subgrouping...
Node: degree, transitivity, structural equivalence...



Another example (name numerator)

| | | VERY close | SOMEWHAT close |
|---------|---|---------------|-------------------|
| 9.7,8 | Members of your immediate family who don't live with you (such as parents, siblings, children) | / # _____ | / # _____ |
| 9.9,10 | Other relatives | # _____ | # _____ |
| 9.11-2 | Neighbours | # _____ | # _____ |
| 9.13-4 | People you currently work with, or go to school with | # _____ | # _____ |
| 9.15-6 | People you know only online | # _____ | # _____ |
| 9.17-8 | People from organizations (such as church, sports leagues, business associations) | # _____ | # _____ |
| 9.19-20 | Friends not included above | # _____ | # _____ |
| 9.21-2 | Other people not included above Relationship to you: [_____] (9.22a) | # _____ | # _____ |

| | | | |
|--------|--|------------|----------------|
| ? | About how many of these two types of people are... | VERY close | SOMEWHAT close |
| 9.23-4 | Women | / # _____ | / # _____ |
| 9.25-6 | Men | / # _____ | / # _____ |

| | | | |
|---------|--|------------|----------------|
| ? | About how many of these two types of people... | VERY close | SOMEWHAT close |
| 9.27-8 | Live in Canada and more than an hour's travel away | / # _____ | / # _____ |
| 9.29-30 | Live outside of Canada | / # _____ | / # _____ |

| | | | |
|--------|---|---------------|-------------------|
| ? | About how many of these two types of people... | VERY close | SOMEWHAT close |
| 9.31-2 | Do you call by cell phone , typically at least once a week | / # _____ | / # _____ |
| 9.33-4 | Do you call by cell phone , typically between once a week and once a month | # _____ | # _____ |



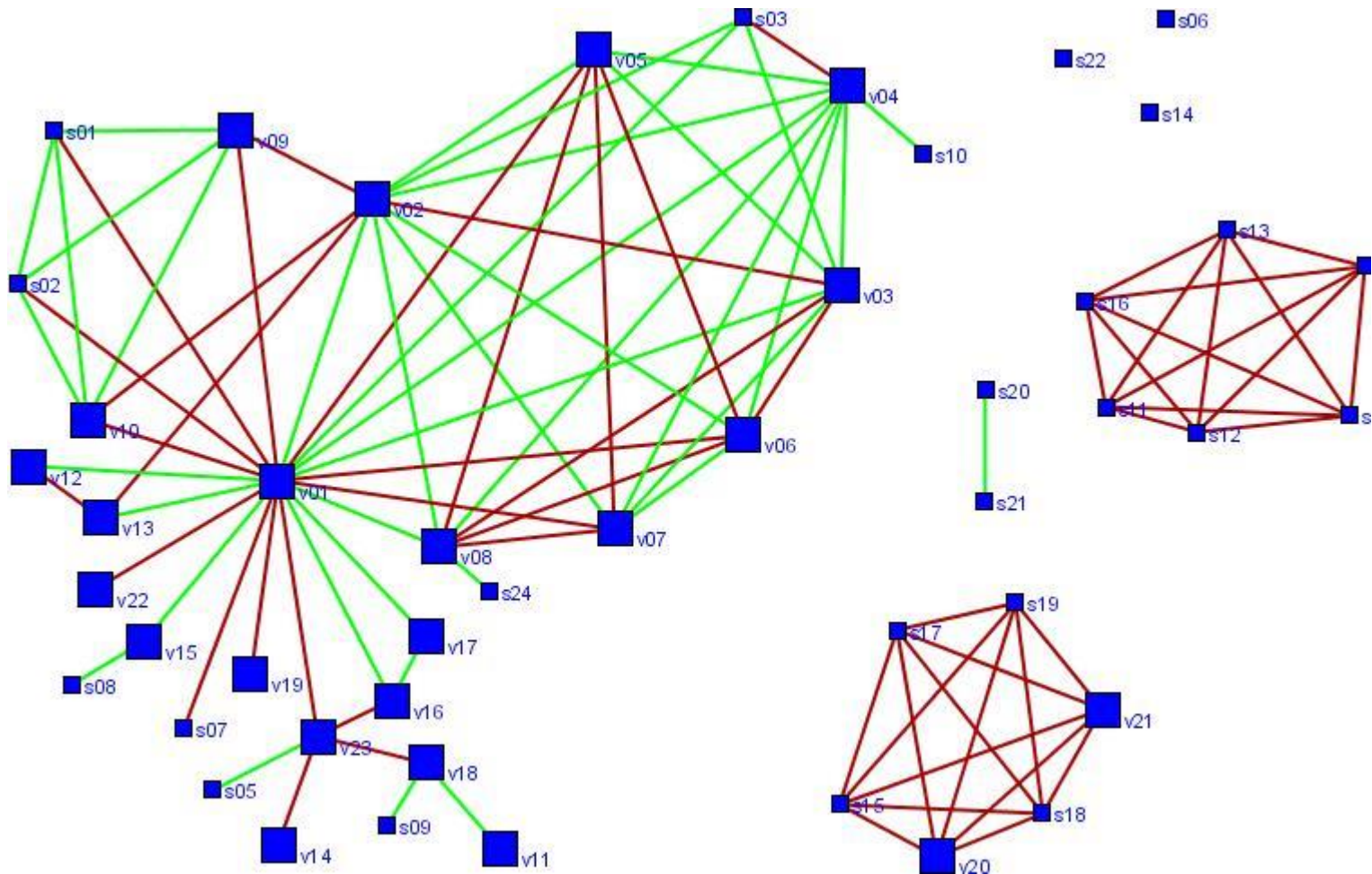
Personal network analysis

Broad range of research questions in recent transport literature

- Frequency of interaction, spatial distribution
- Social support (capital), network dynamics, social influence,
- Network simulation and synthetic approaches
- Comparative research



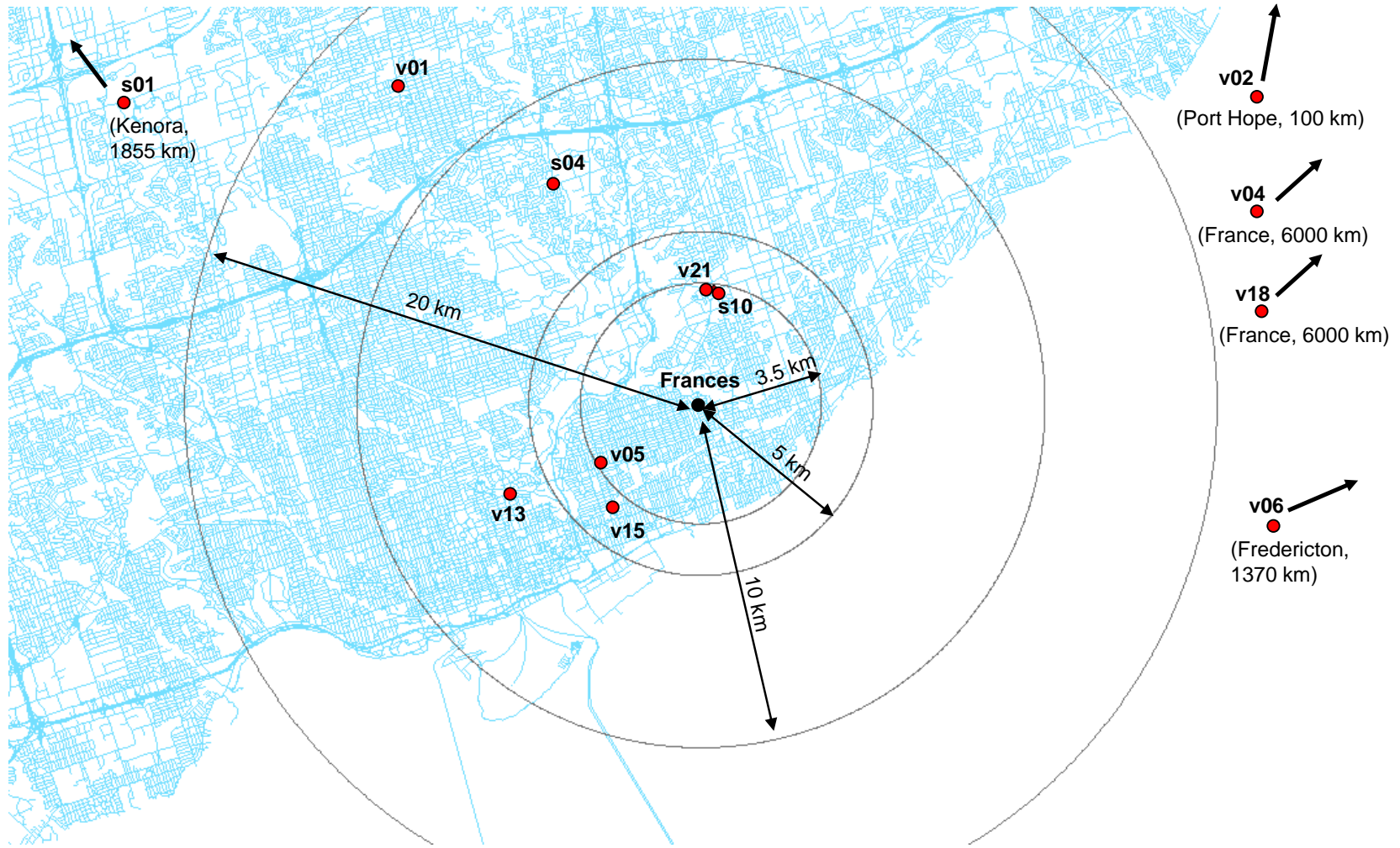
Personal network analysis



Social space: ties



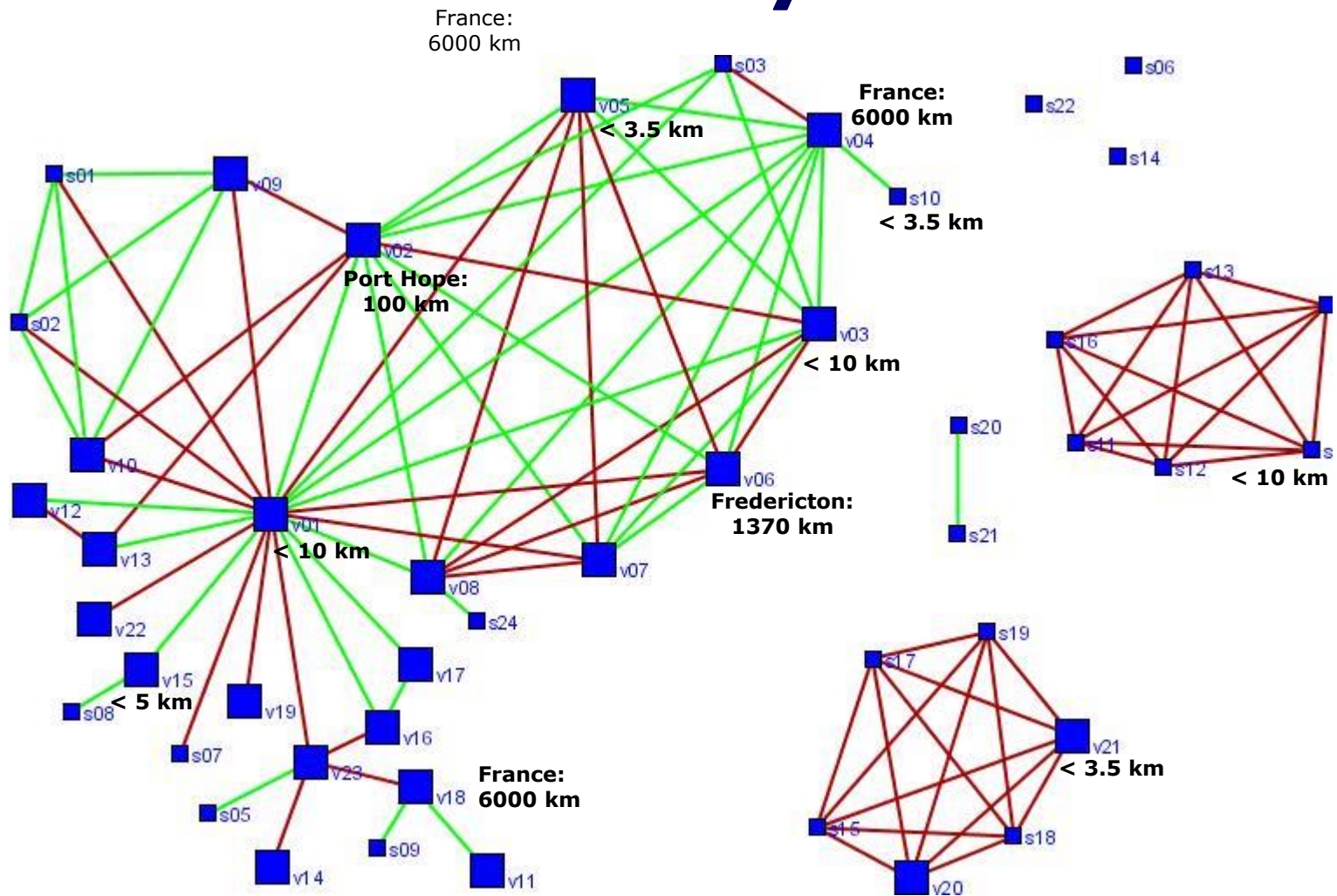
Personal network analysis



Physical space: distance



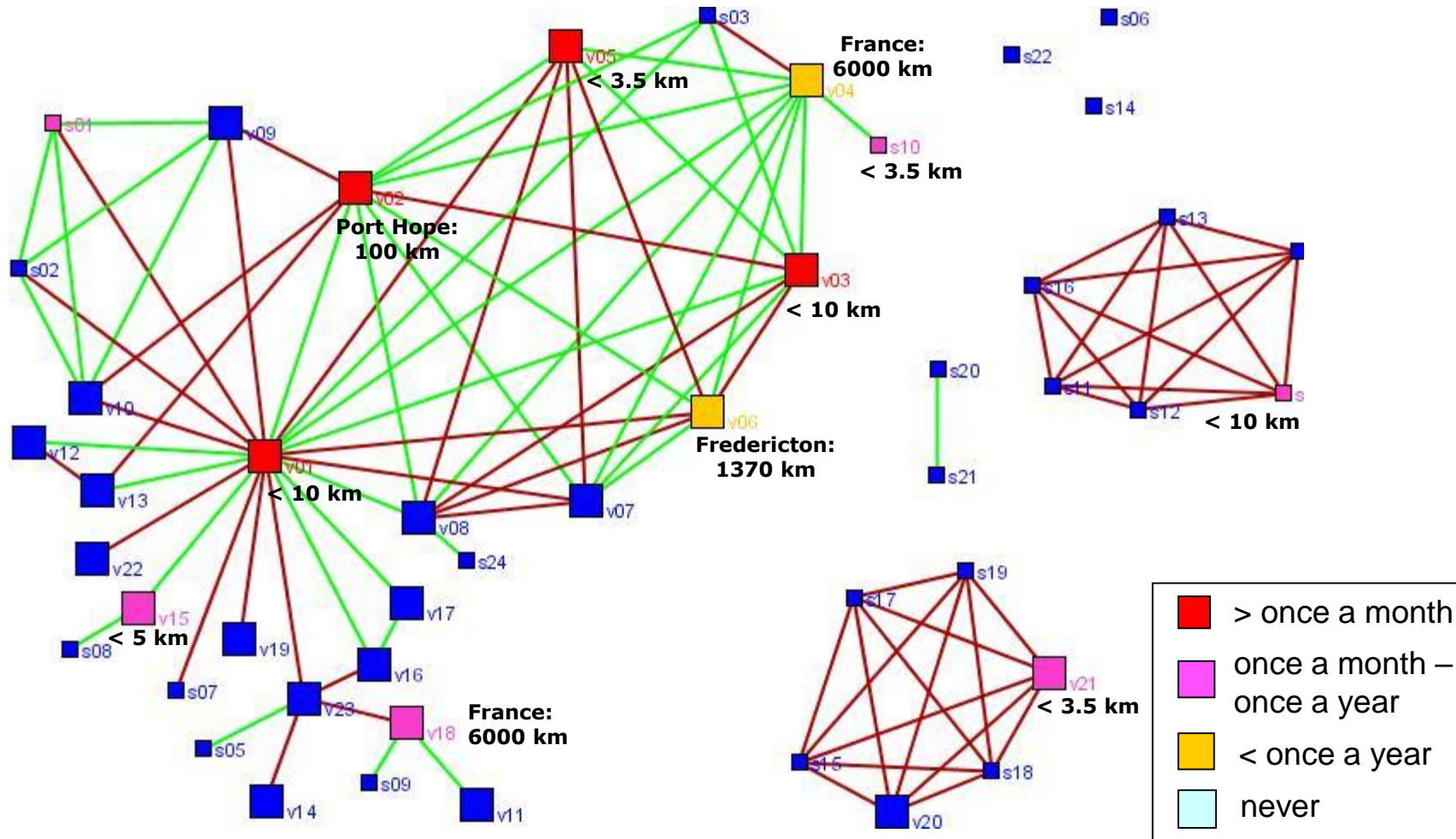
Personal network analysis



Social and physical space



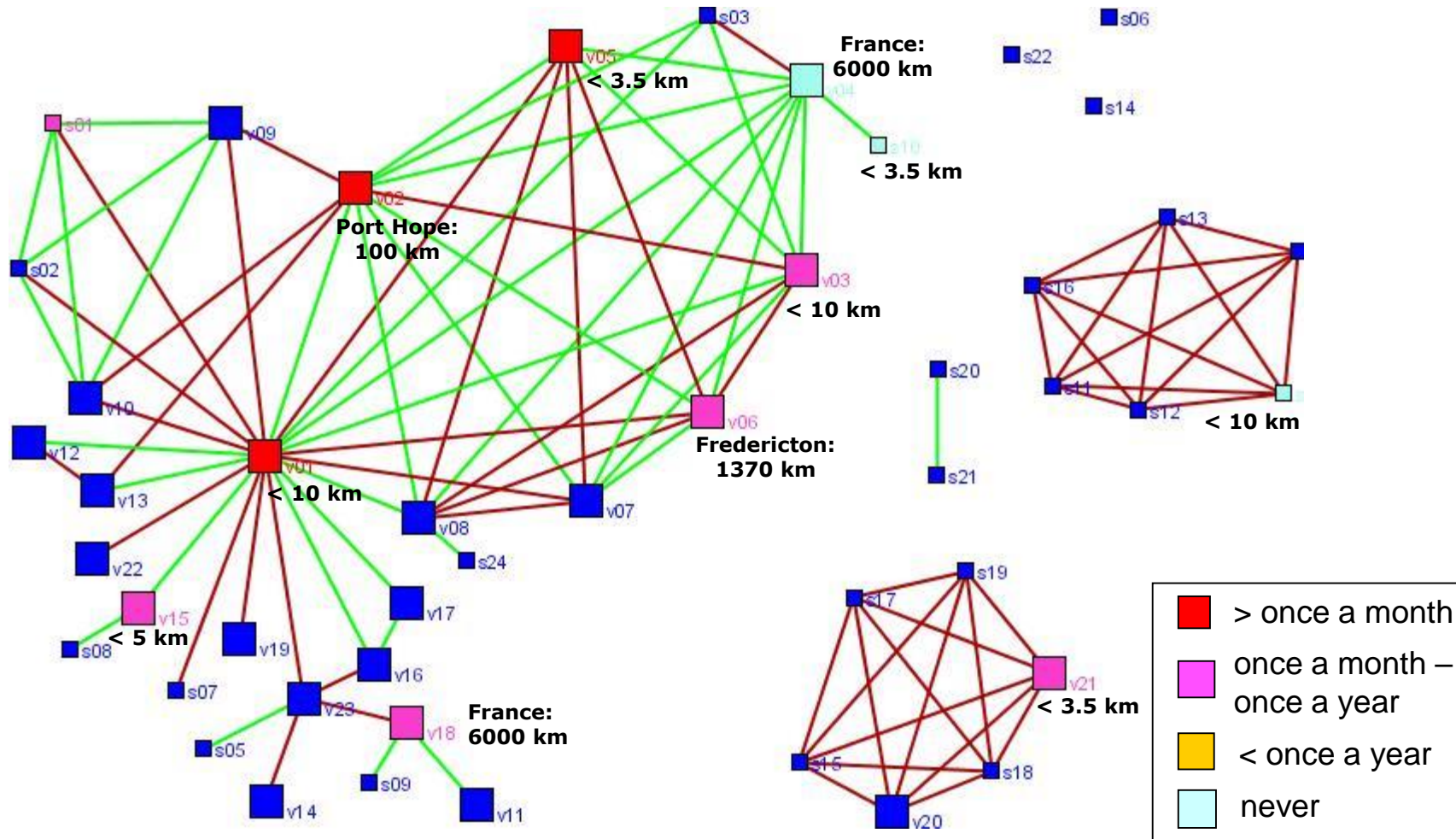
Personal network analysis



Frequency of face-to-face contact



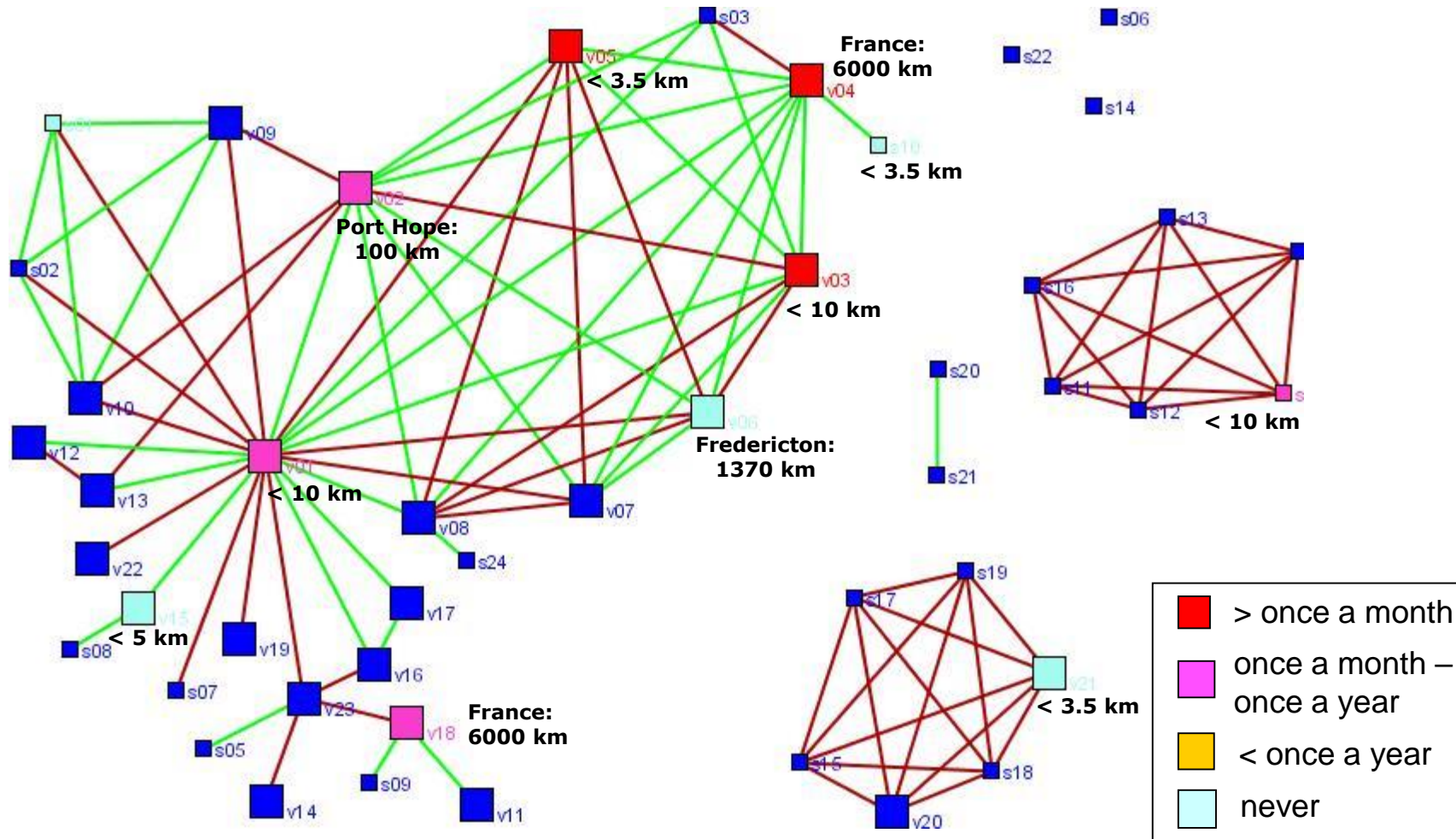
Personal network analysis



Frequency of contact by telephone



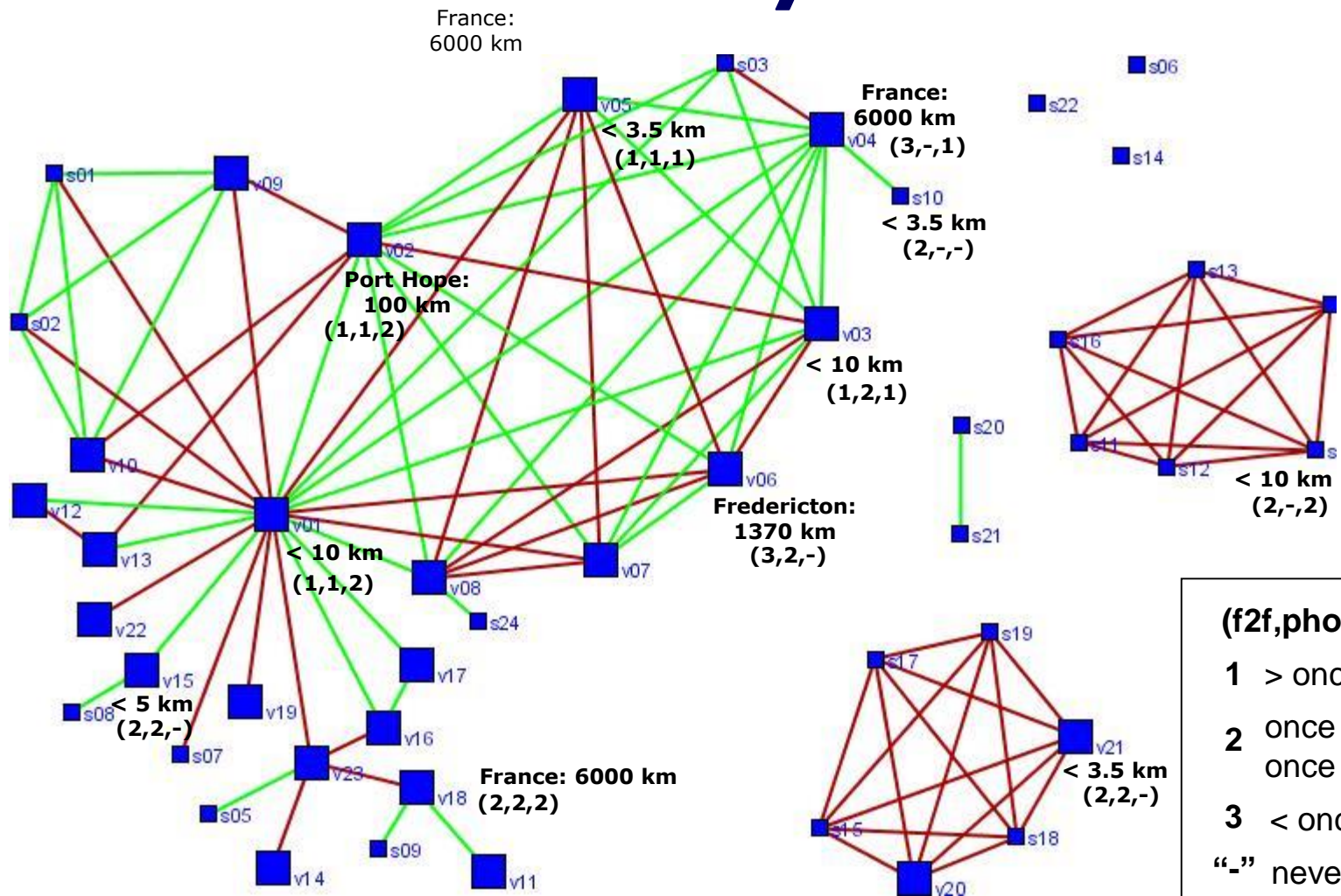
Personal network analysis



Frequency of contact by email



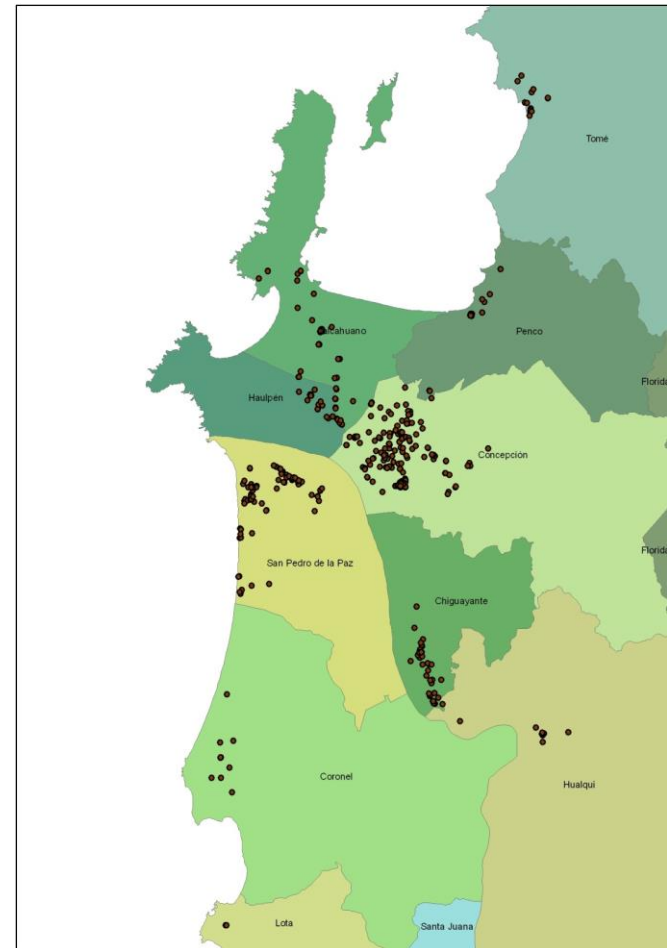
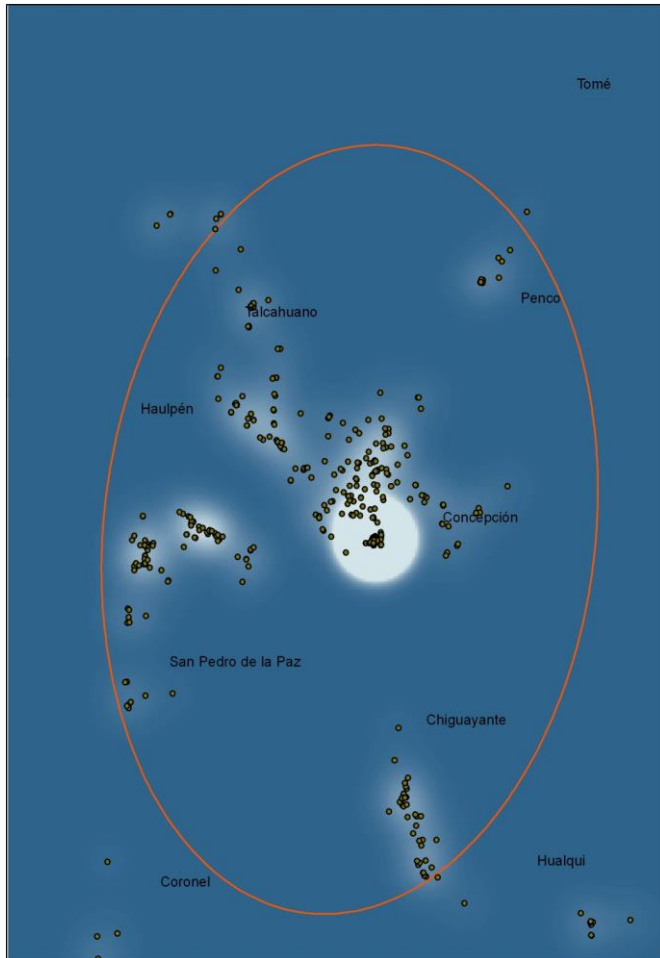
Personal network analysis



Social, physical, and cyber space

Personal network analysis

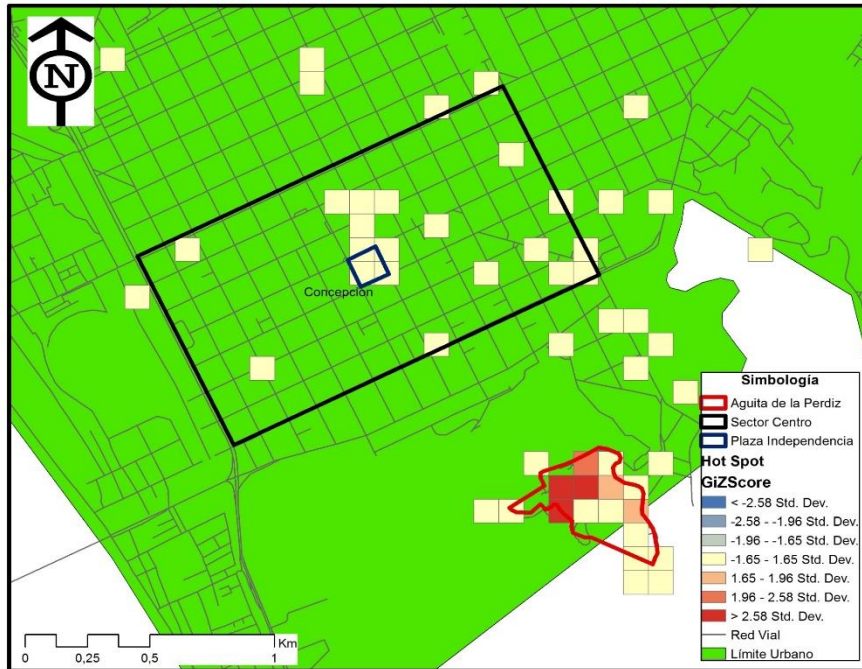
Spatial distribution and distances



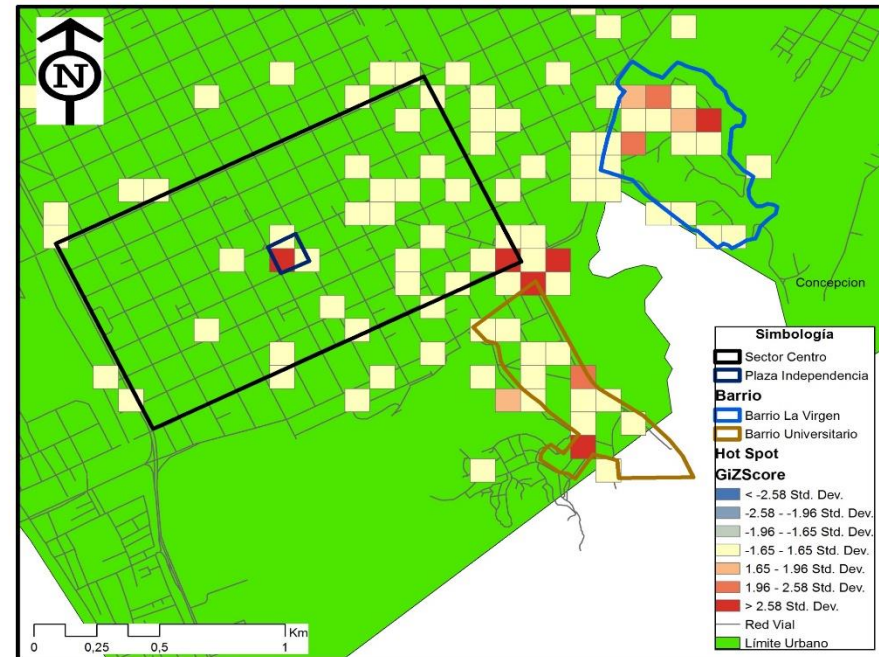
Personal network analysis

Spatial distribution and distances

Hot Spot de Lugar de Interacción Más Frecuente: Barrio Aguita de la perdiz

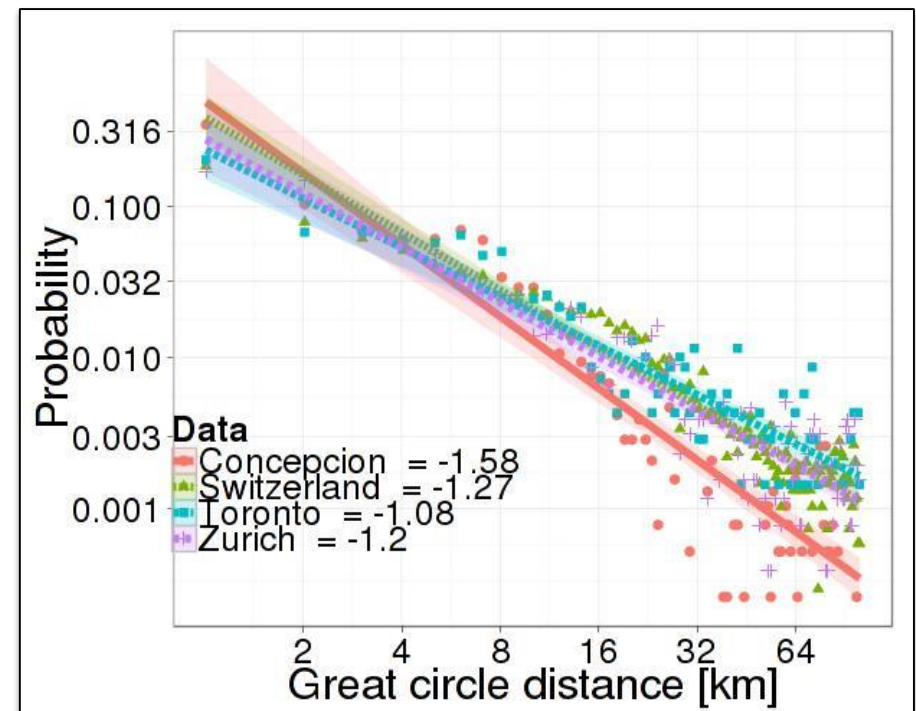
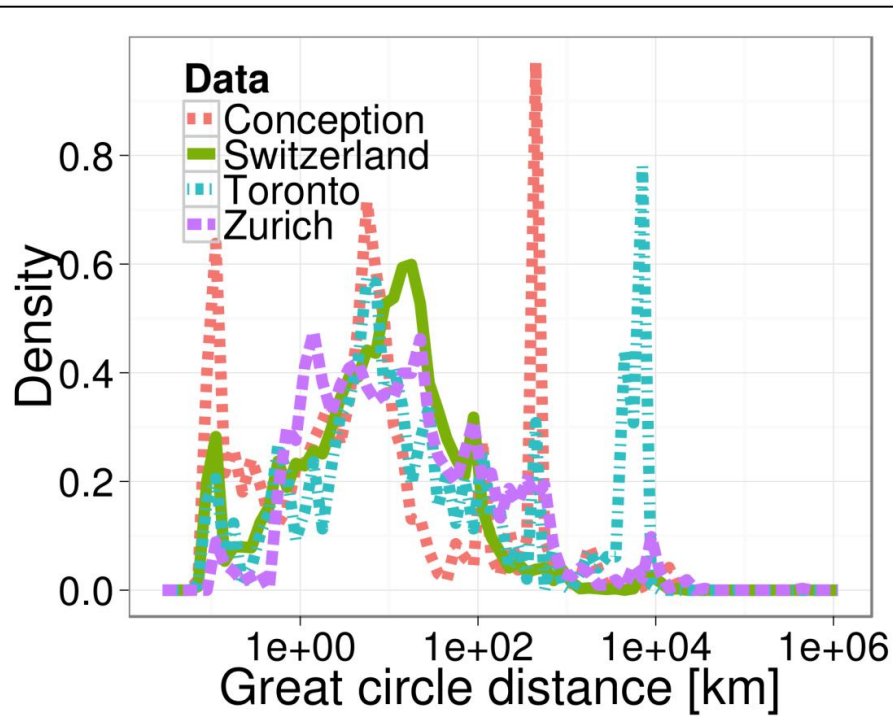


Hot Spot de Lugar de Interacción Más Frecuente: Barrio La Virgen



Personal network analysis

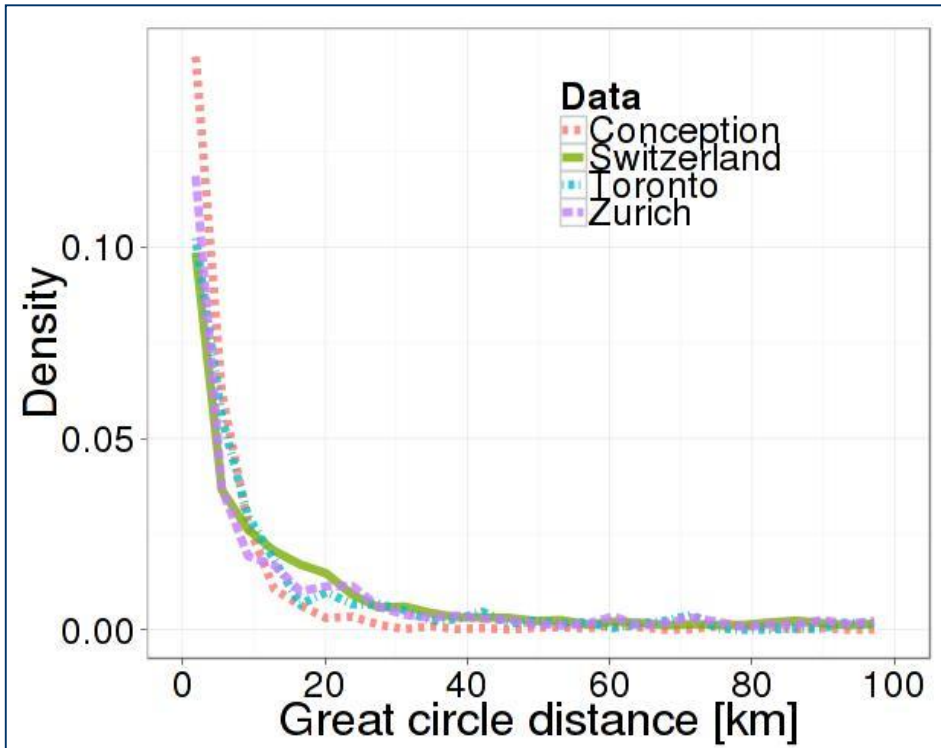
Comparative research: Distances



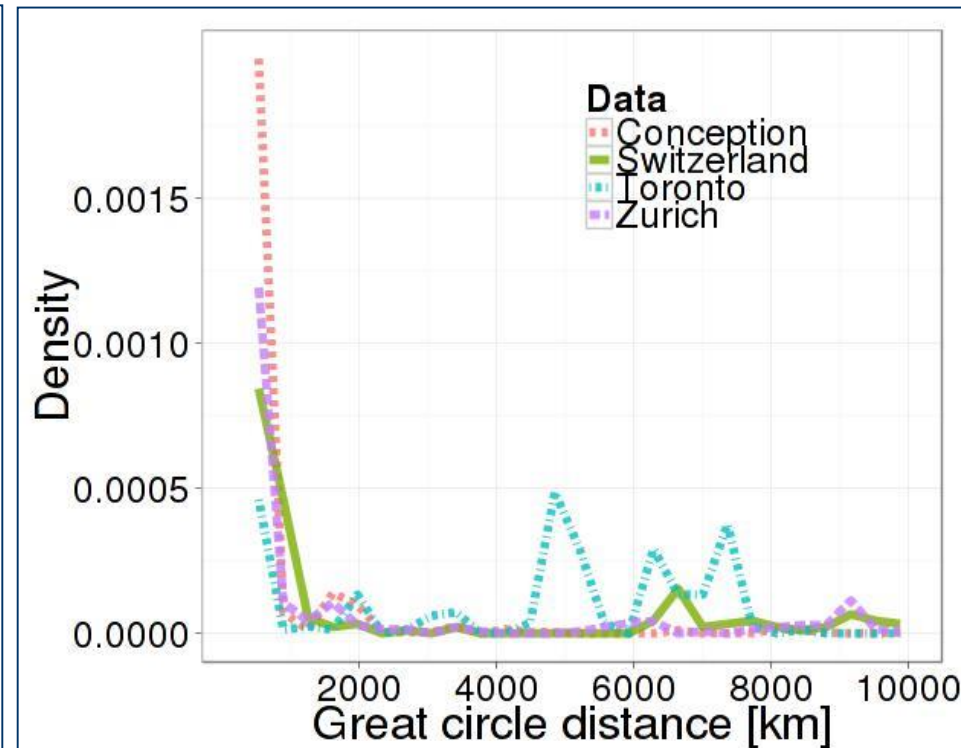
Personal network analysis

Comparative research: Distances

≤ 100 km



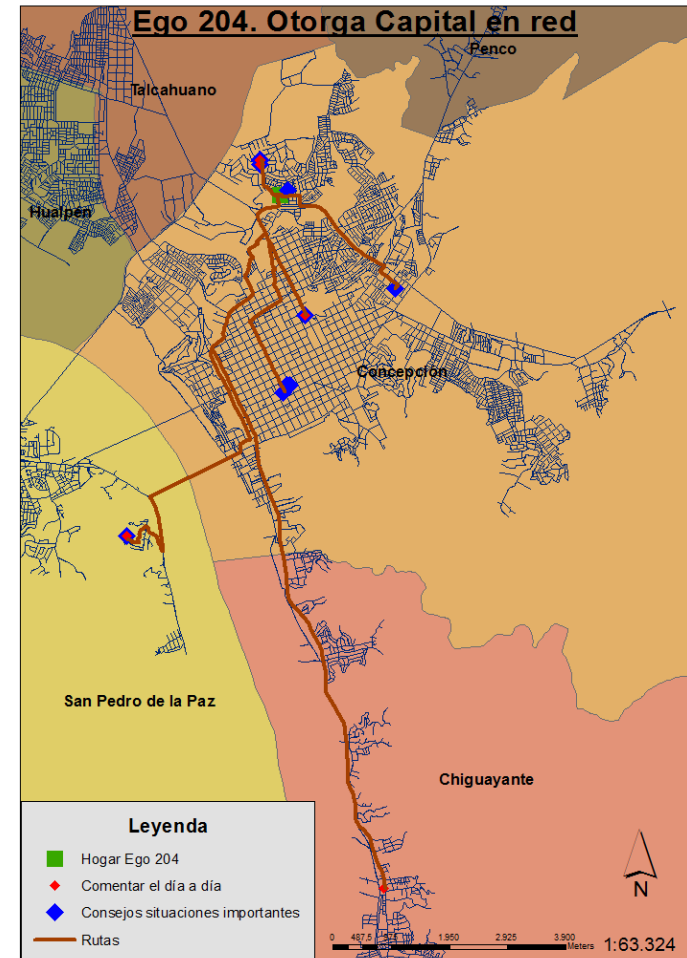
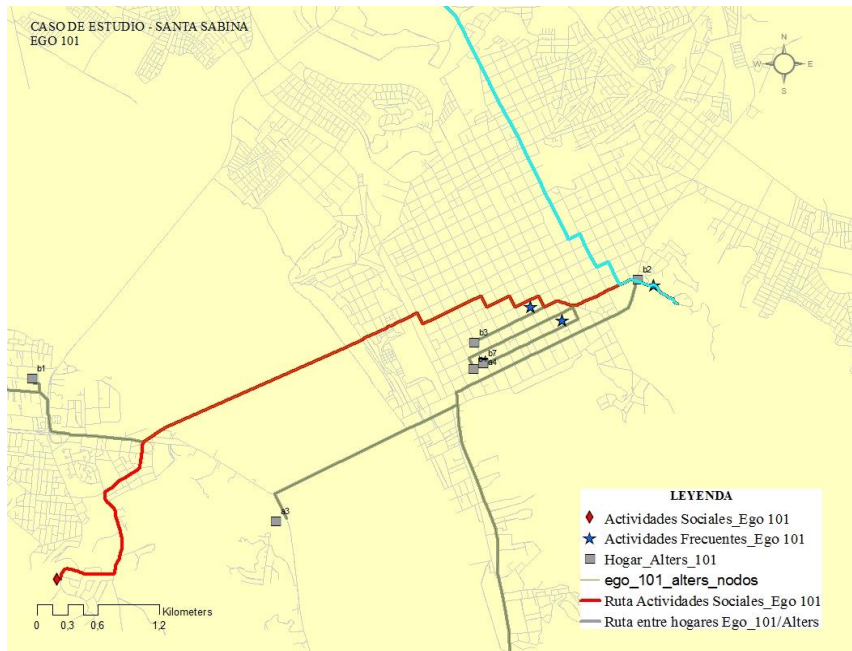
> 100 km



Personal network analysis

Network capital (social support)

- Emotional
 - Monetary
 - Transport
 - Instrumental
- Reciprocity
- Role of car



Personal network analysis

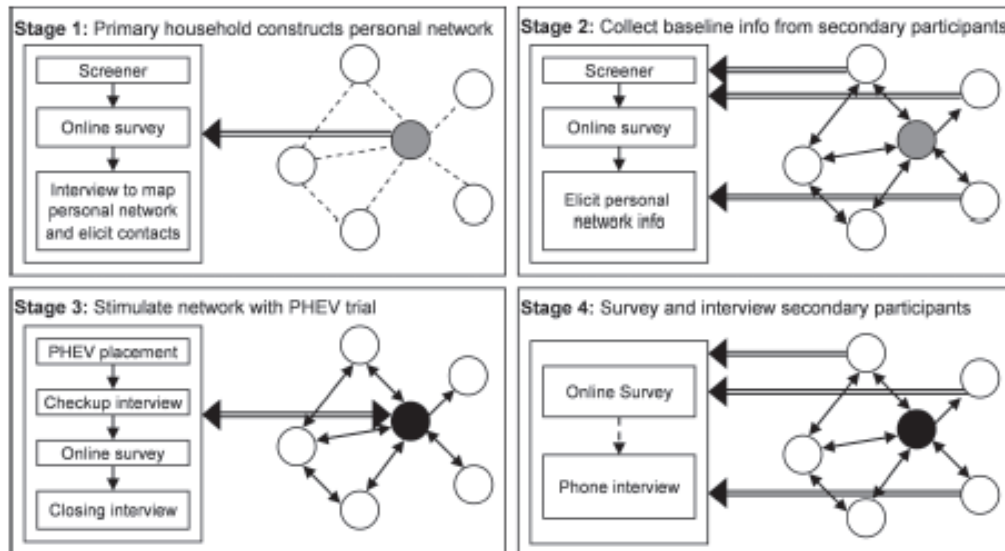
Differences between name generators

| Network Size | Neighbourhood | | | |
|---------------------|-------------------------|--------------------------|------------------------|-------------------------|
| Name generator | Low income, high Access | High income, high access | Low income, low access | High income, low access |
| Emotional Closeness | 18.5 | 19.9 | 15.6 | 19.6 |
| Network Capital | 9.6 | 14.0 | 9.8 | 16.0 |
| Social Activities | 6.6 | 6.3 | 5.5 | 5.3 |
| Time Use | 3.6 | 4.5 | 2.3 | 3.0 |

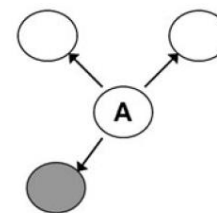
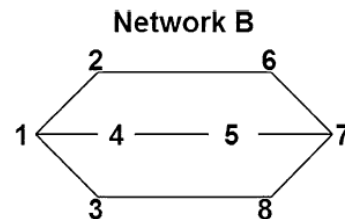
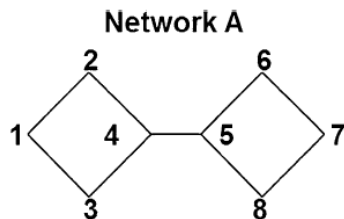
Also: frequency of interaction, distance, social support exchange

Integrating qualitative methods

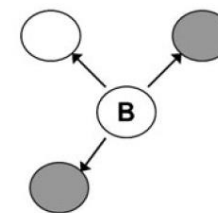
Social influence in new technology adoption (Axsen and Kurani)



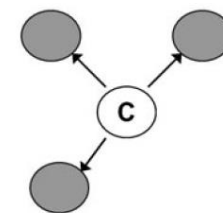
○ = Nonadopter ● = Adopter



Personal network exposure = 33%



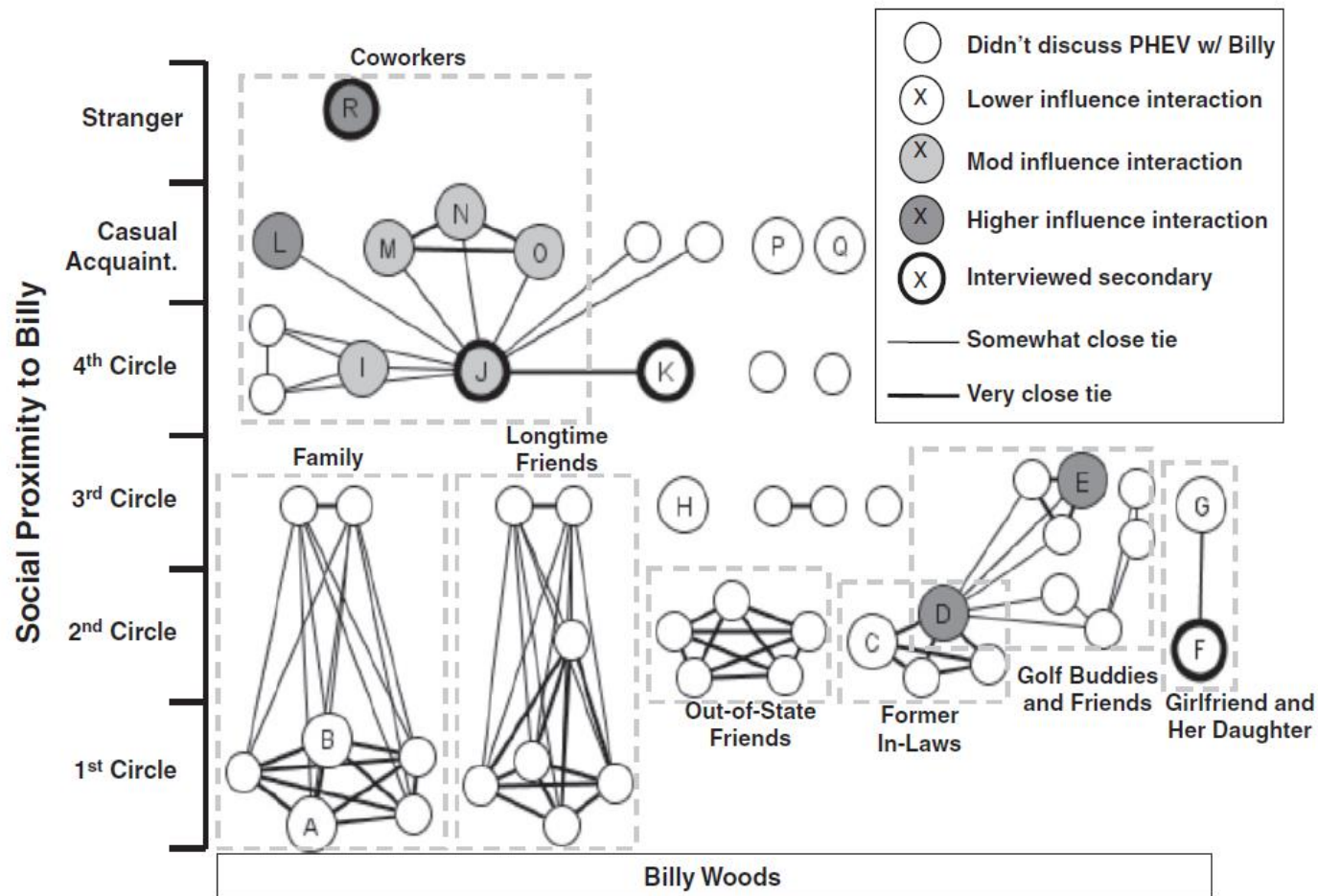
Personal network exposure = 66%



Personal network exposure = 100%

Integrating qualitative methods

Social influence in new technology adoption (Axsen and Kurani)





Integrating qualitative methods

Ethnographies, travel experience, and interdependence

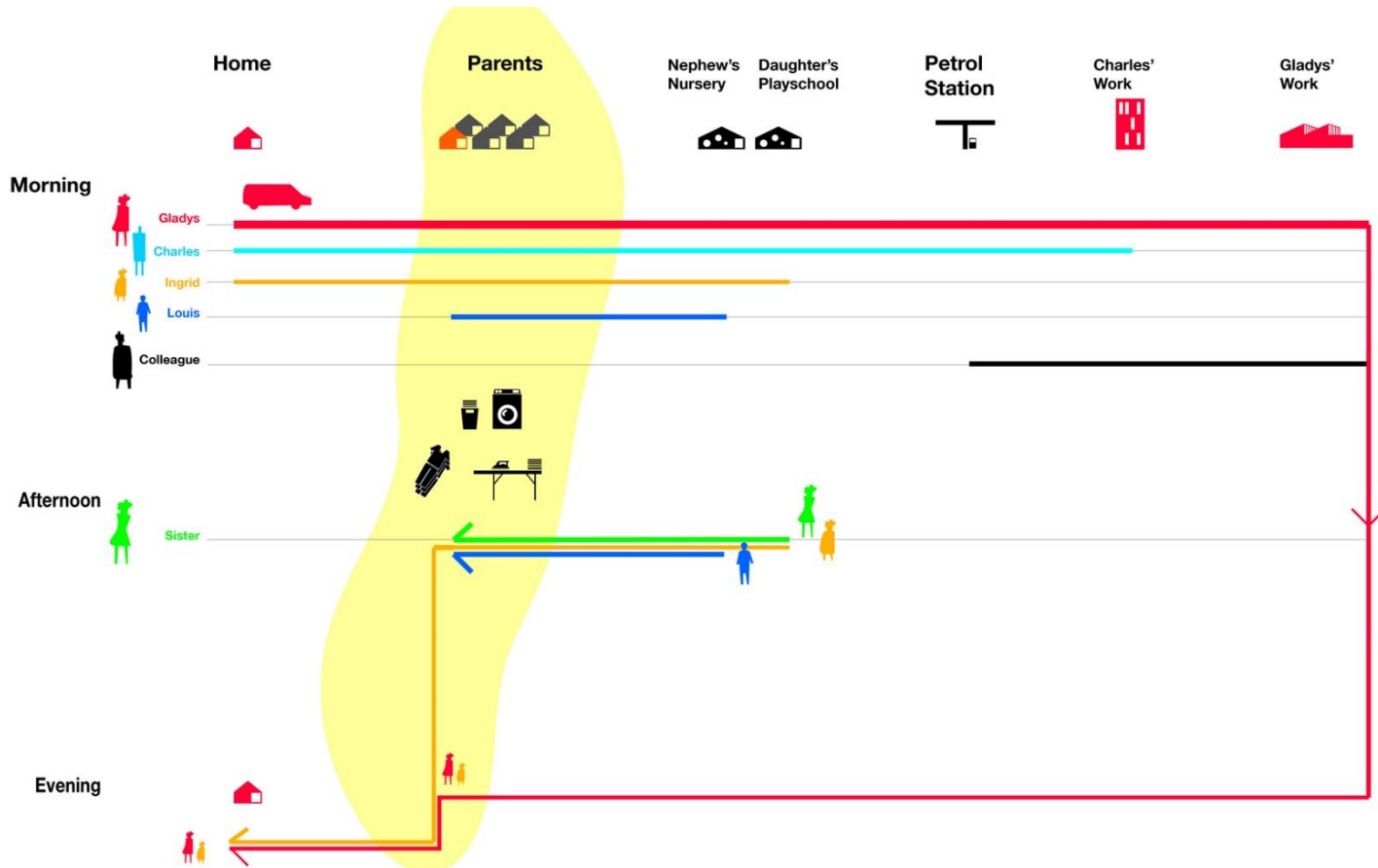
Example: Gladys

- The case of Gladys clearly shows **interdependency**, specifically that experienced by an adult women, mother and wife, with a paid job on the other side of the city
- She lives in a peripheral area of Santiago, where she has lived all her life, just like the rest of the family. Gladys' residential location **is not contingent**: her interdependence network has a **strong anchorage in the physical proximity of other family members**, including her parents, sister and nephew, thus the life she lives cannot be conceived outside this area.

Integrating qualitative methods

Ethnographies, travel experience, and interdependence

Example: Gladys





Summary

- **Collecting** personal network data
 - Feasible!
 - Aware of intrinsic challenges / biases of the process
 - We **always** gather only **a part** of the social network
- **Analyzing** personal network data
 - Travel behavior as truly **emerging** from social relations
 - Several dimensions to be explored: Richness comes with **integration**
- **Integrating** qualitative and other information
 - Serve to understand embedded contexts and decision-making processes

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