ARS 2023

Kinship and conflicts between mercenary families and regional states from the 15th to the 16th century in Italy. A multiplex network study

NETWORKS IN ECONOMIC AND FINANCIAL HISTORY. ARS'23 NINTH INTERNATIONAL WORKSHOP ON SOCIAL NETWORK ANALYSIS

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nasp NETWORK FOR THE ADVANCEMENT OF SOCIAL AND POLITICAL STUDIES

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WHY MERCENARISM?

CENTRALISATION OF STATE POWER

Medieval mercenaries were organised in family-based companies. These companies stand at the **inception of a military transformation**, away from the medieval organization of military power, feudalism, to the **emergence of standing armies** (Percy 2006, 91).

MEDIATED MARKET OF FORCE

Military enterprisers changed the business of war, transforming it **from a free to a mediated market for force**. (Tilly 1990, 81; Thomson 1990, 77–96; Kinsey 2006, 40–41).

Why it became a **mediated** market of force?

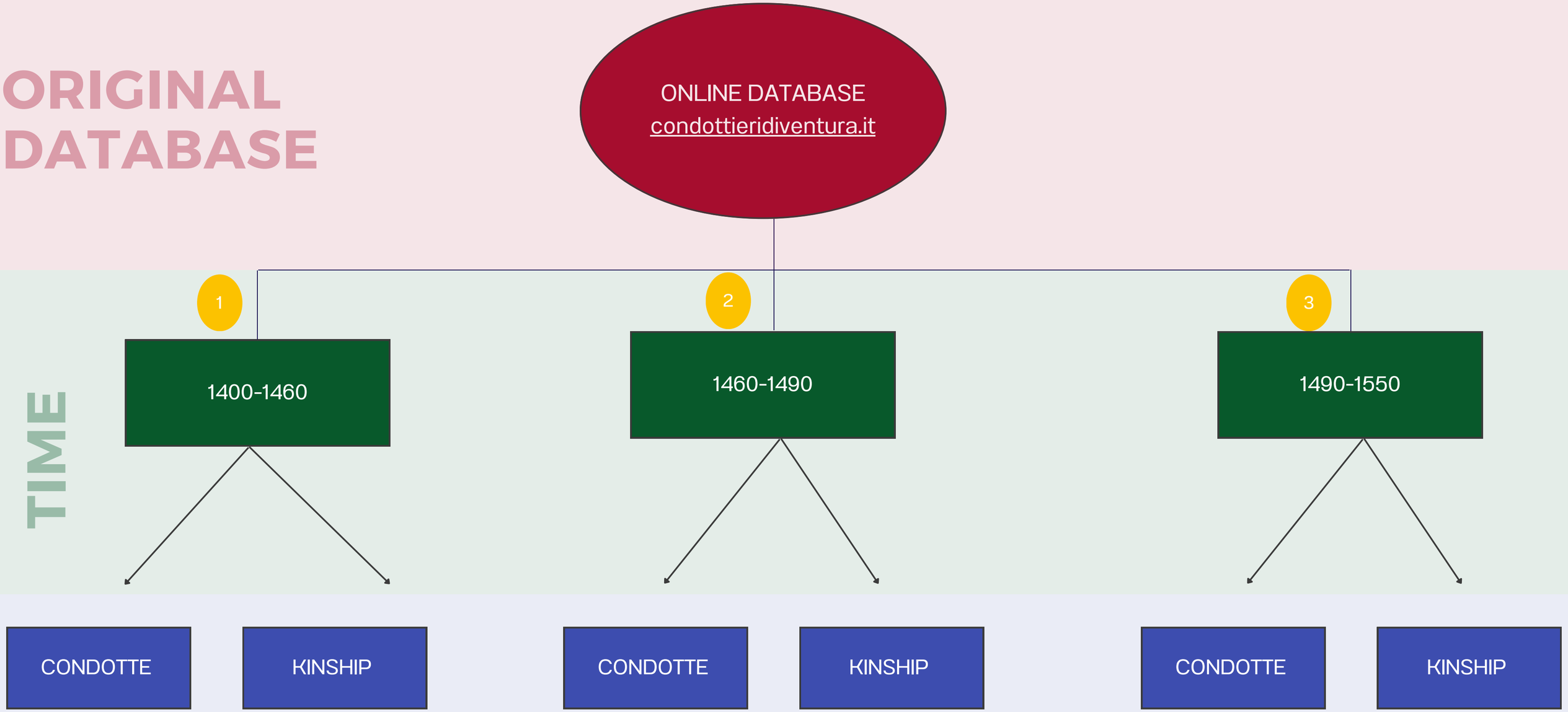
- Kinship ties played an important role in stabilising relationships between family-run mercenary enterprises and states.
- The cost of families' reputational capital was, among others, a driving factor for the establishment of stable armies.

BUILDING THE DATASETS

The **online database** "Condottieridiventura" included more than **4000 biographical** notes and contractual specifications of condottieri.

From this database we built a dataset consisting of a network of **1594 condottieri**.
We analysed a total of **15,682 contracts** signed between condottieri and the **238 states**.

ORIGINAL DATABASE



TYPE OF TIE

BUILDING THE DATASETS

The dataset is **time-stamped**: for each mercenary, data included the dates of the contract and any defection.

CONDOTTIERO	STATE	DATE OF CONTRACT CONCLUSION	DEFECTION OF CONTRACT
SFORZA, Francesco	Venice	1449	Yes

Distribution of contracts over the historical period 1330-1600

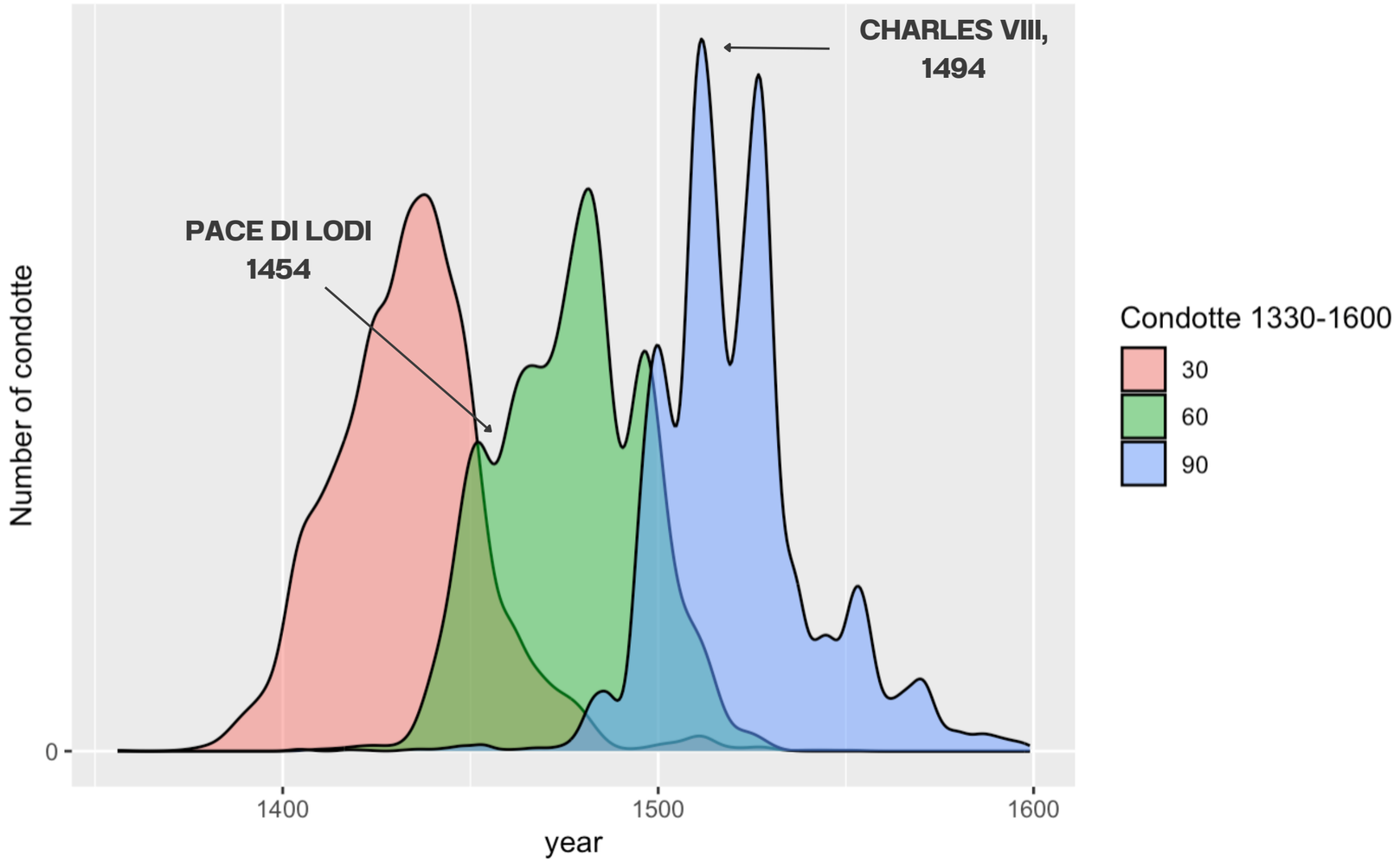


Fig. 1 Density curve distribution of 15,682 contracts

Contract betrayals over the historical period 1330-1600

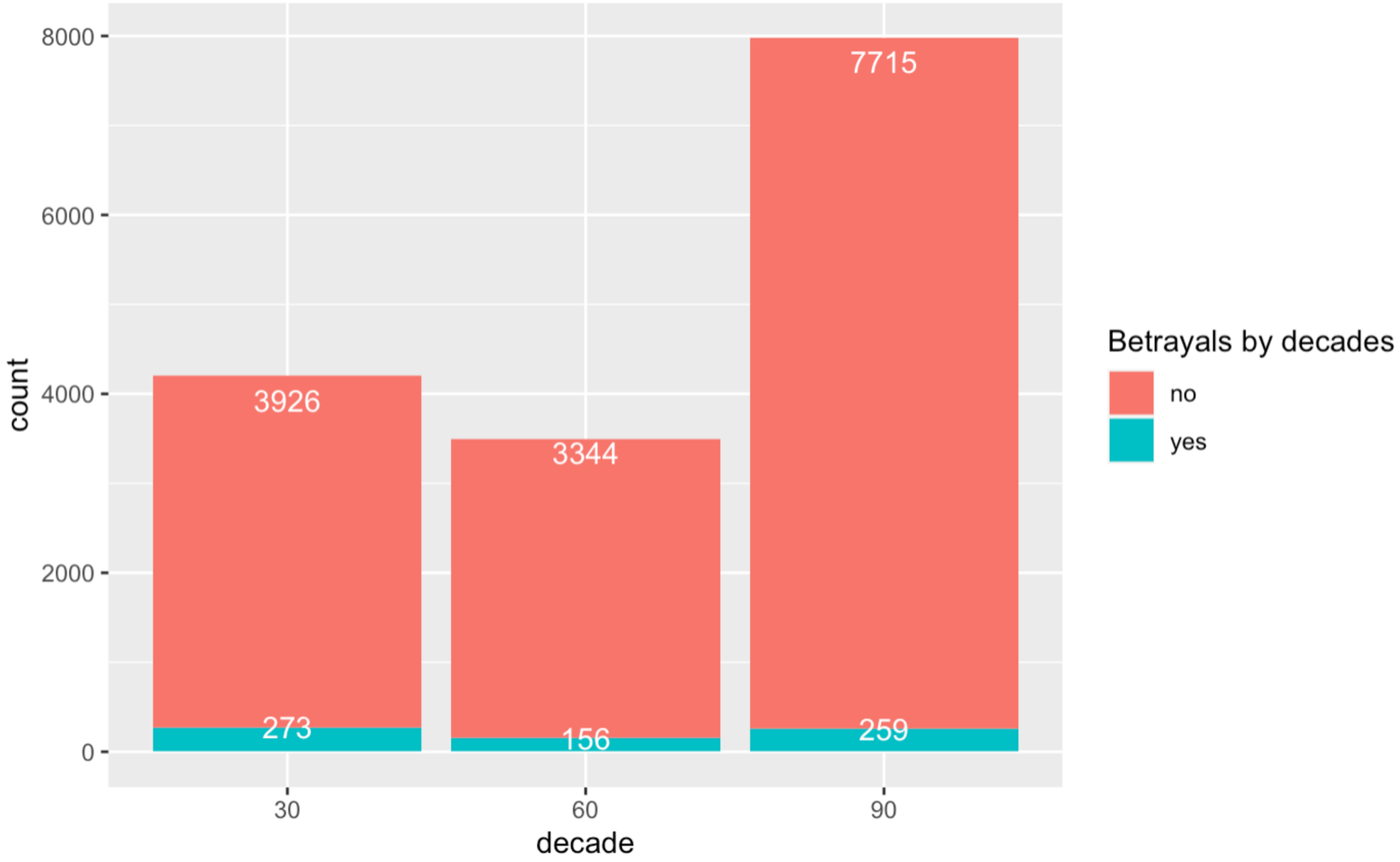


Fig. 2 Total number of contracts' betrayals by decade

BUILDING THE DATASETS

We reconstructed and defined **kinship ties** between mercenaries, along with more detailed information on family roles.

CONDOTTIERO	RELATIVE	ATTRIBUTE
SFORZA, Francesco	ATTENDOLO SFORZA, Muzio	Uncle

MULTIPLEX NETWORK

We are working on building a **multiplex network composed by two layers**:

1. The first one consists of a **two-mode network** representing **employment contracts** between regional states and condottieri.
2. The second layer consists of a **one-mode network** representing **kinship ties** among condottieri.

Whole kinship network

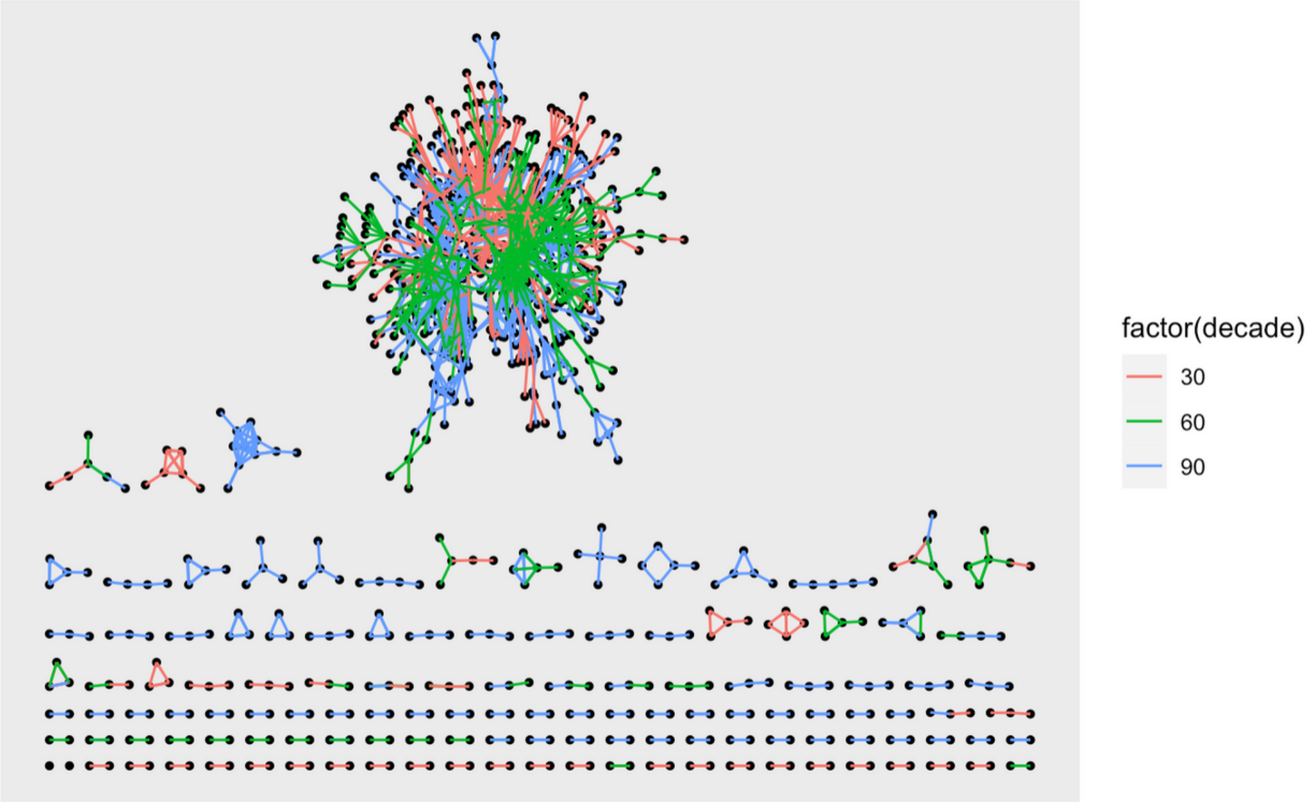
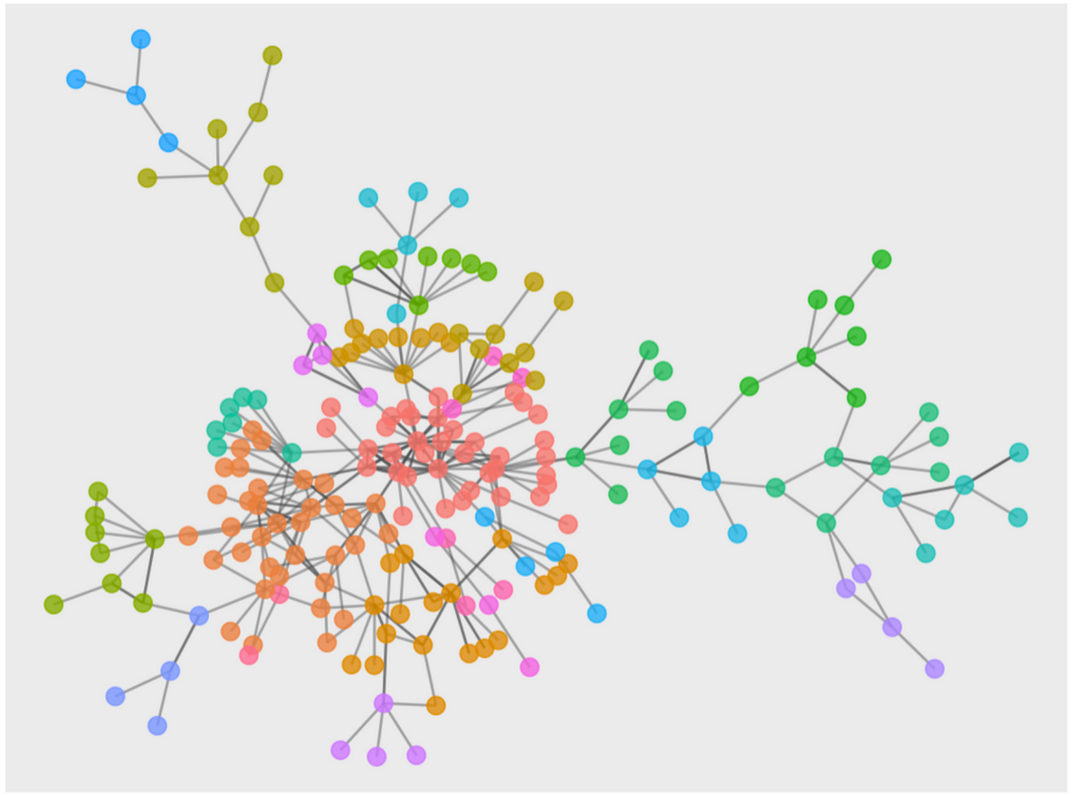


Fig.3 Whole kinshio network of condottieri during the period 1330-1600

Undirected network:

- 127 components;
- 983 nodes;
- 2161 edges;
- Main component: 635 nodes

Main component of kinship network 1430



Undirected network:

- 25 clusters;
- 212 nodes;
- 379 edges.

Density: 0.016

Fig. 4 Network of the main component for the decade 1430.
Clustering algorithm: cluster_walktrap

Clusters of main component of the kinship network 1430

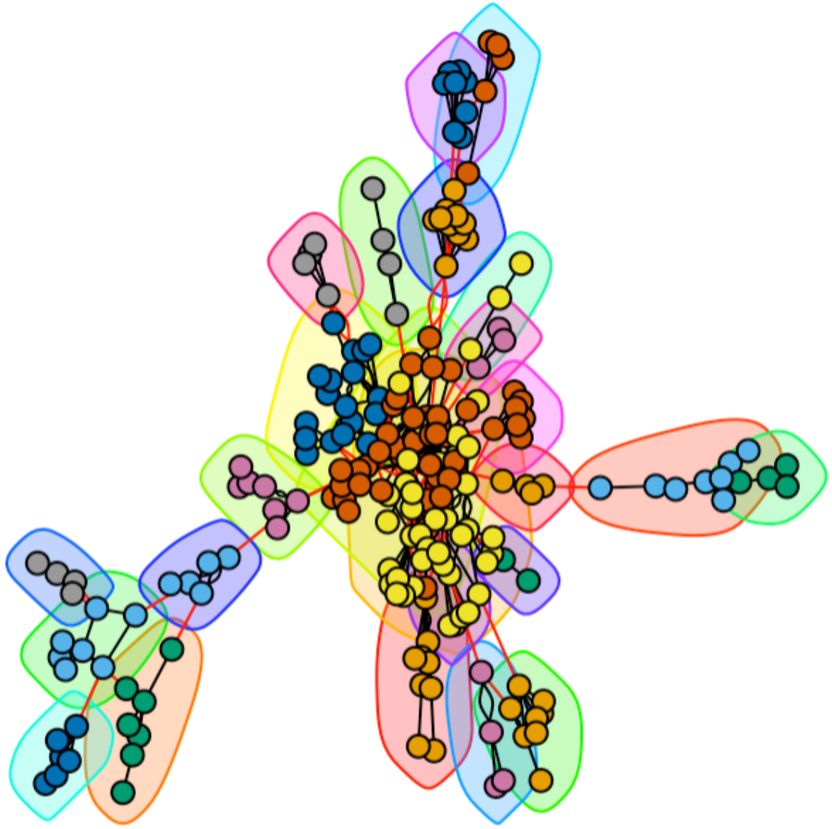
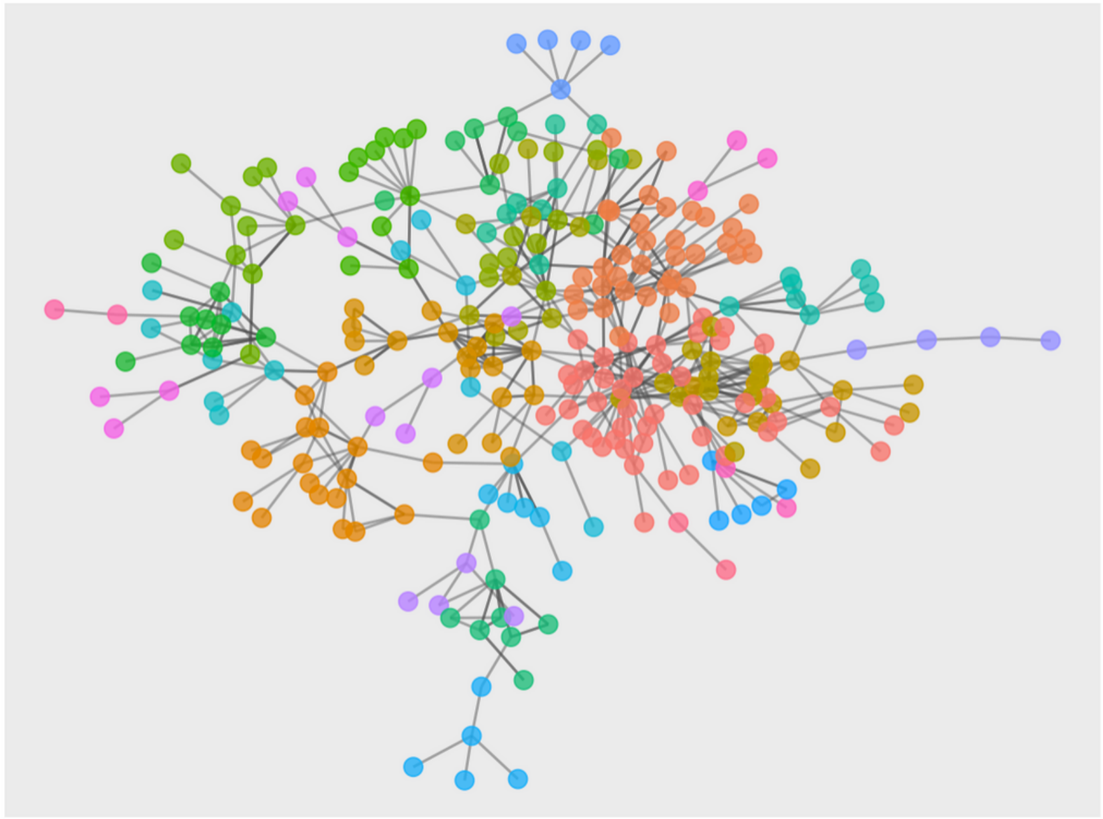


Fig.5 Clusters of the main componente for the decade 1430.
Communities are plotted using the Fruchterman-Reingold layout algorithm.

The **largest clique** is composed by 7 nodes:

1. Sforza, Bosio
2. Da fogliano, Corrado
3. Sforza, Alessandro
4. Sforza, Giovanni
5. Sforza, Leone
6. Attendolo Sforza, Muzio
7. Sforza, Francesco

Main component of kinship network 1460



Undirected network

- 30 clusters;
- 282 nodes;
- 576 edges.

Density: 0.014

Fig. 6 Network of the main component for the decade 1460.
Clustering algorithm: cluster_walktrap

Clusters of main component of the kinship network 1460

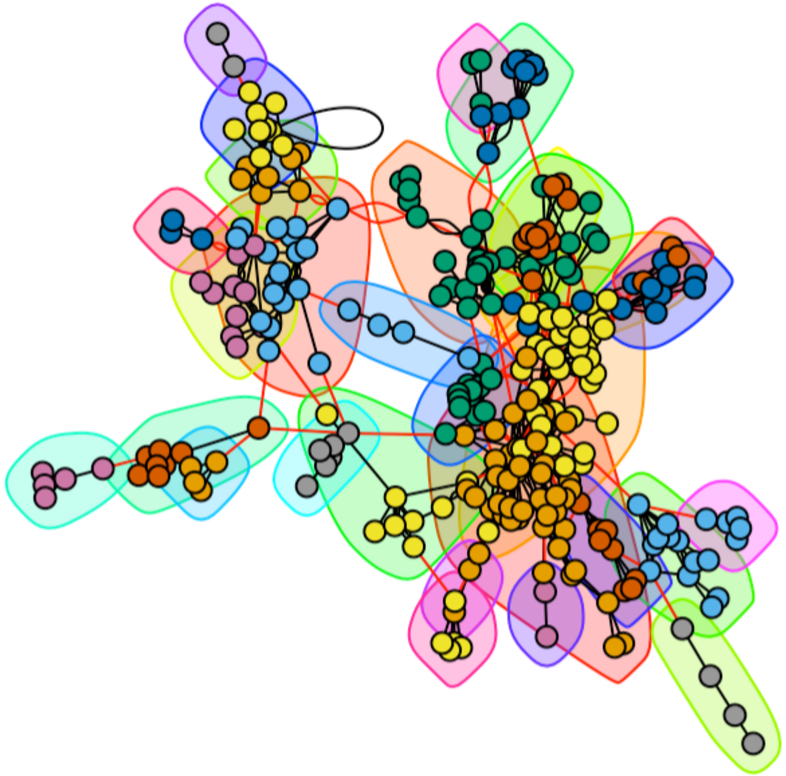
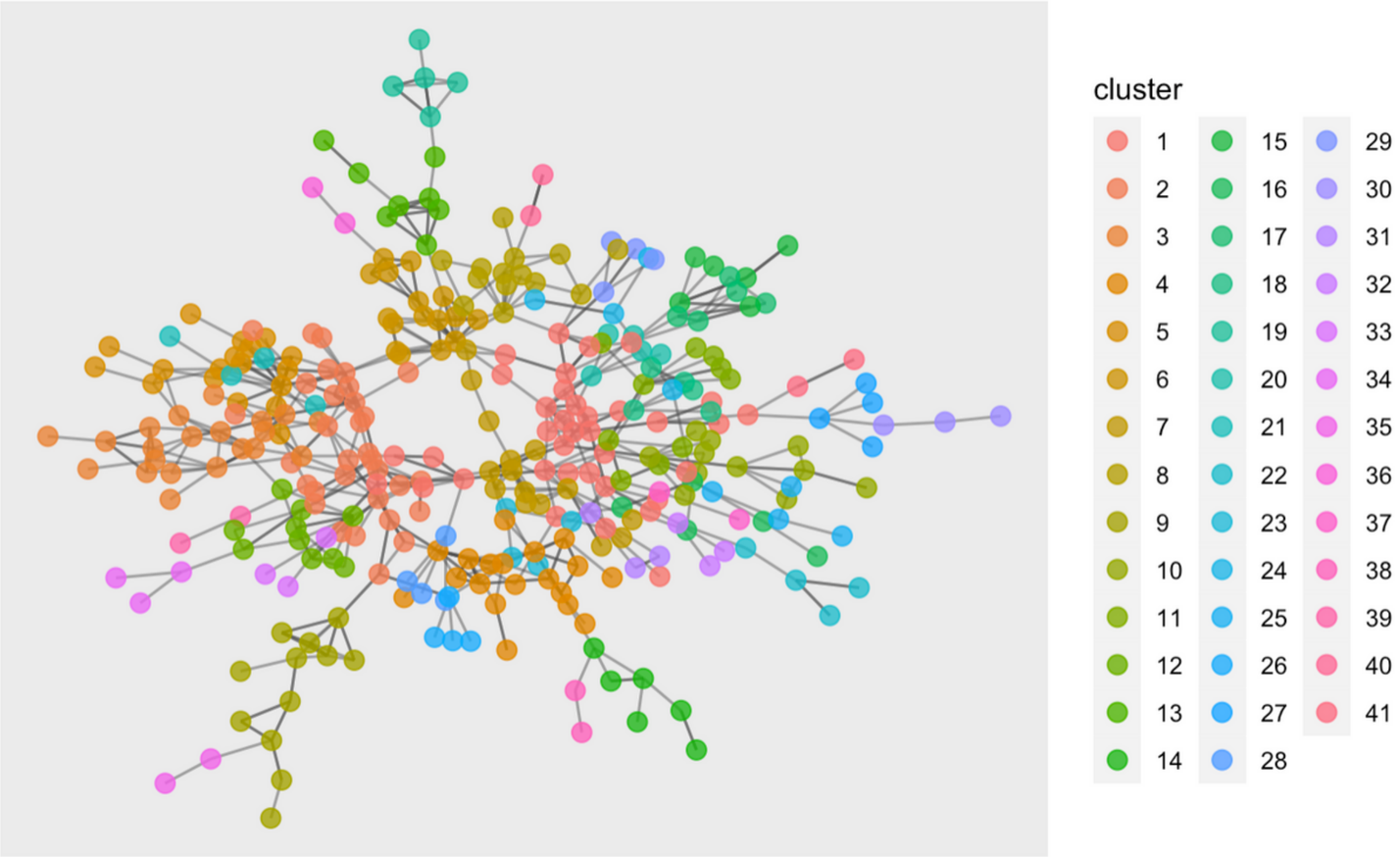


Fig.7 Clusters of the main componente for the decade 1460.
Communities are plotted using the Fruchterman-Reingold layout algorithm.

The **largest clique** is composed by 7 nodes:

1. Torelli, Cristoforo
2. Torelli, Guido
3. Torelli, Amoratto
4. Torelli, Francesco
5. Torelli, Giacomo
6. Torelli, Marcantonio
7. Torelli, Marsilio

Main component of kinship network 1490



Undirected multigraph with

- 41 clusters;
- 324 nodes;
- 689 edges.

Density: 0.013

Fig. 8 Network of the main component for the decade 1490.
Clustering algorithm: cluster_walktrap

Clusters of main component of the kinship network 1490

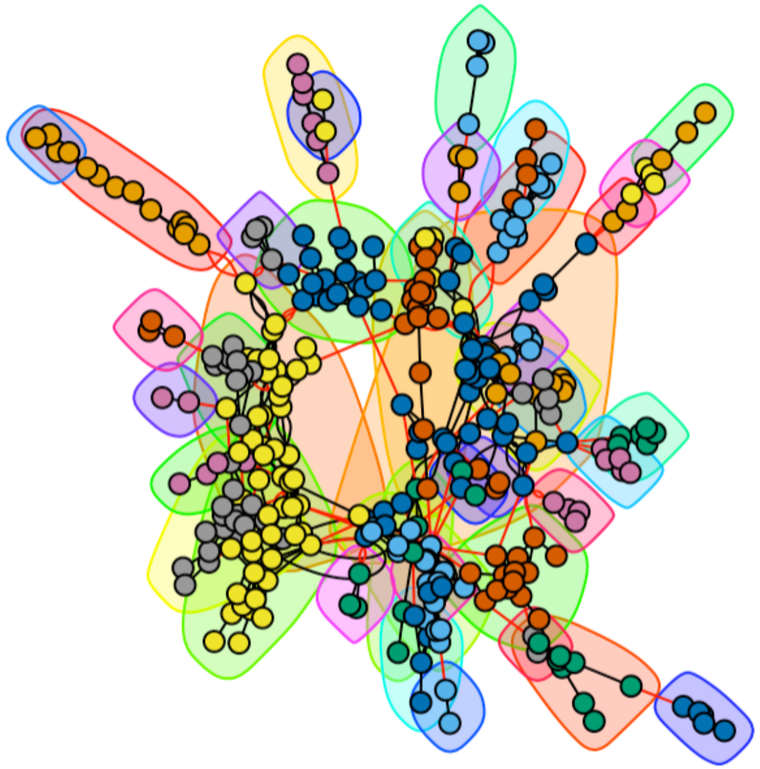


Fig.9 Clusters of the main componente for the decade 1490.
Communities are plotted using the Fruchterman-Reingold layout algorithm.

The 4 **largest clique** are composed by 5 members of the same family, that are:

1. Gonzaga;
2. Rangoni;
3. Colonna;
4. Rasponi.

NEXT STEPS

- Investigate whether the brokers of one cluster will then be found in the core of the next decade network structure.
- Develop statistical models to analyse contracts' longitudinal data.
- Investigate whether the most distant families (highest centrality) correspond to clusters of mercenaries who served states rarely allied with each other.

Thank you all for your attention.

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KINSHIP AND CONFLICTS BETWEEN MERCENARY FAMILIES AND REGIONAL STATES FROM THE 15TH TO THE 16TH CENTURY IN ITALY. A MULTIPLEX NETWORK STUDY

ARS'23 NINTH INTERNATIONAL WORKSHOP ON SOCIAL NETWORK ANALYSIS

In-depth information

BUILDING THE DATASETS

We devided the data into three separate datasets, accordingly with the main exogenous political events which consequences on the system we want to observe:

1430-1460

1460-1490

PACE DI LODI, 1454

1490-1550

DESCENT OF THE FRENCH KING CHARLES VIII, 1494

DESCRIPTIVE ANALYSIS OF 'CONDOTTE' SUB-DATASET

In total, the database consists of **1594 condottieri**:

1. 1430: **381** condottieri
2. 1460: **340** condottieri
3. 1490: **943** condottieri

The **mean duration of a contract** was: 2.7 years

The **top ten regional states** and mercenary families in rank order of contracts signed are:

1. Repubblica di Venezia, 4544 contracts
2. Stato della Chiesa, 2030 contracts
3. Ducato di Milano, 1984 contracts
4. Repubblica di Firenze, 1256 contracts
5. France Kingdom, 1112 contracts
6. Holy Roman Empire, 789 contracts
7. Aragonese crown, 632 contracts
8. Angevin crown, 412 contracts
9. Sforza's family, 351 contracts
10. Ducato di Ferrara, 259 contracts

DESCRIPTIVE ANALYSIS OF 'KINSHIP' SUB-DATASET

In total, the kinship ties for 838 condottieri are collected in the three datasets.
The datasets collect 1,141 kinship ties, distributed as follows:

- 1430: 293
- 1460: 371
- 1490: 477