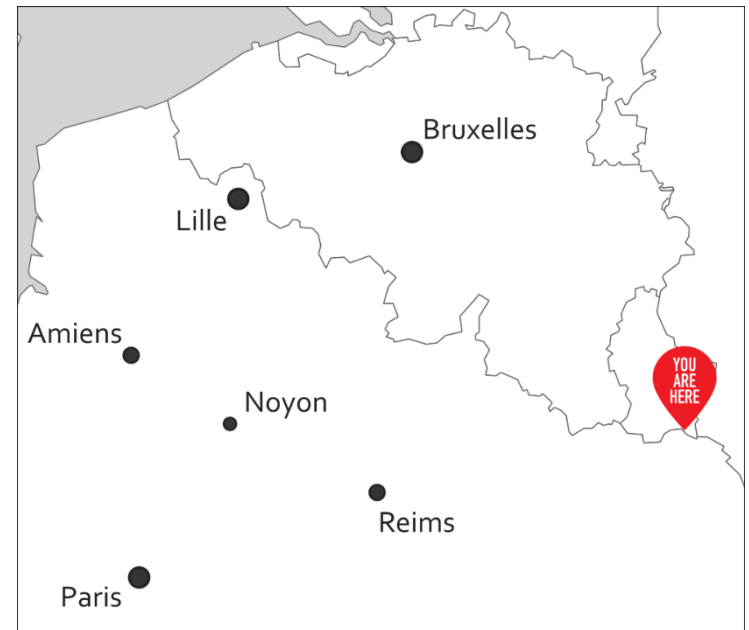


# A city within its systems of cities over two thousand years

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UMR Géographie-cités, CNRS  
Université Paris 1 – Panthéon-Sorbonne



# Three scales of analysis

## System of cities

Theoretical & quantitative geo.

ex: Berry 1964 ; Bourne, Simons 1978 ;  
Sanders 1992 ; Cattani *et al.* 1994 ; Pumain 1997 ;  
Bretagnolle 1999, 2009, etc.

## City

Urban archaeology

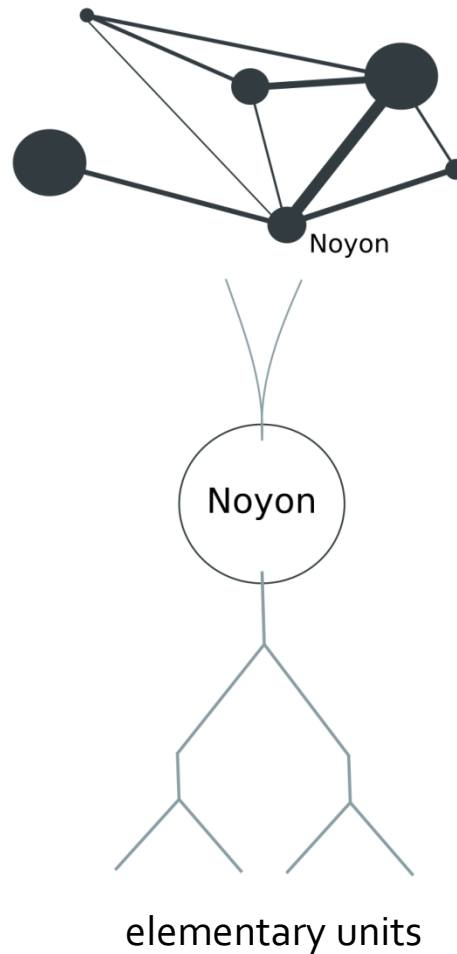
Theoretical & quantitative geo.

ex: Claval, Claval 1981 ; Roncayolo 1990 ;  
Lepetit, Pumain dir. 1993 ; Galinié 1979, 2000 ;  
Boissavit-Camus *et al.* 2005 ; Garmy 2009 ;  
Lorans, Rodier dir. 2014, etc.

## Intra-urban

Urban archaeology

ex: Biddle *et al.* 1973 ; Galinié, Randoin 1979 ;  
coll. *DEPAVF* ; Galinié, Rodier 2002, 2004 etc.



Ø flow data  
Ø population data

Reproduction/  
deepening of existing  
methods and concepts

# A seven-step process

Interactions between **Noyon** & **other cities** over 2000 years

**Step 1** Building elementary units of intra-urban space

**Step 3** Delineating the study zone  
> Territories > Road and rail networks

**Step 2** Studying of the city as an entity defined thanks to the combination of elementary units

**Step 4** Defining the city systems to which Noyon belongs:  
> Which entities of the system ? > Several systems at a time ?  
> Evolutive system(s) ?

**Step 5** Creating a process to estimate urban population before the 19th century

**Step 6** Retracing urban population for the cities interacting with Noyon


**Step 7** Studying the evolution of Noyon: intra-urban space & relative position

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↳ SHAUN database 

## Step 2 Studying of the city as an entity defined thanks to the combination of elementary units

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## Step 3 Delineating the study zone

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*La guide* of Charles Estienne (road), road post database, IGN/OSM (road and rail networks)

**T** "compiled map" methodology

## Step 4 Defining the city systems to which Noyon belongs:

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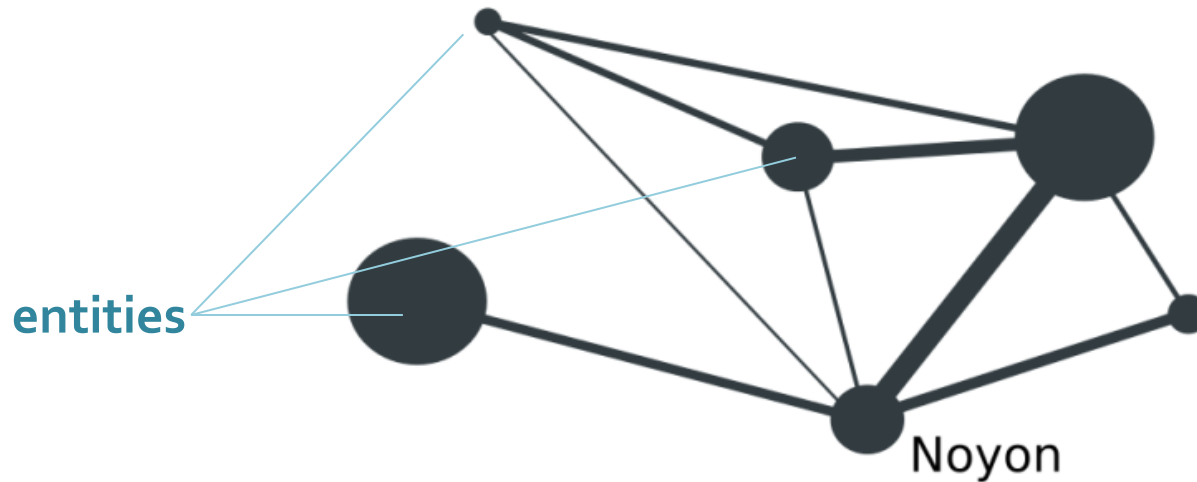
## Step 5 Creating a process to estimate urban population before the 19th century

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**SD** sources & data

**T** data processing



1. Identifying entities potentially interacting with Noyon

Difficulties:

- > characterizing density and diversity of activities for all settlement
- > avoiding an anachronistic point of view

# Identifying entities potentially interacting with Noyon

Etat-major map > « bourgs » (small towns) & « villes » (cities)

	10000°	20000°	40000°	80000°
1 <sup>re</sup> Ordre	VILLE	VILLE	VILLE	VILLE
2 <sup>e</sup> Ordre	VILLE	VILLE	VILLE	VILLE
3 <sup>e</sup> Ordre	VILLE	VILLE	VILLE	VILLE
Grand	BOURG	BOURG	BOURG	BOURG
Ordinaire	Village	Village	Village	Village
	Village	Village	Village	Village
	Hameau	Hameau	Hameau	Hameau

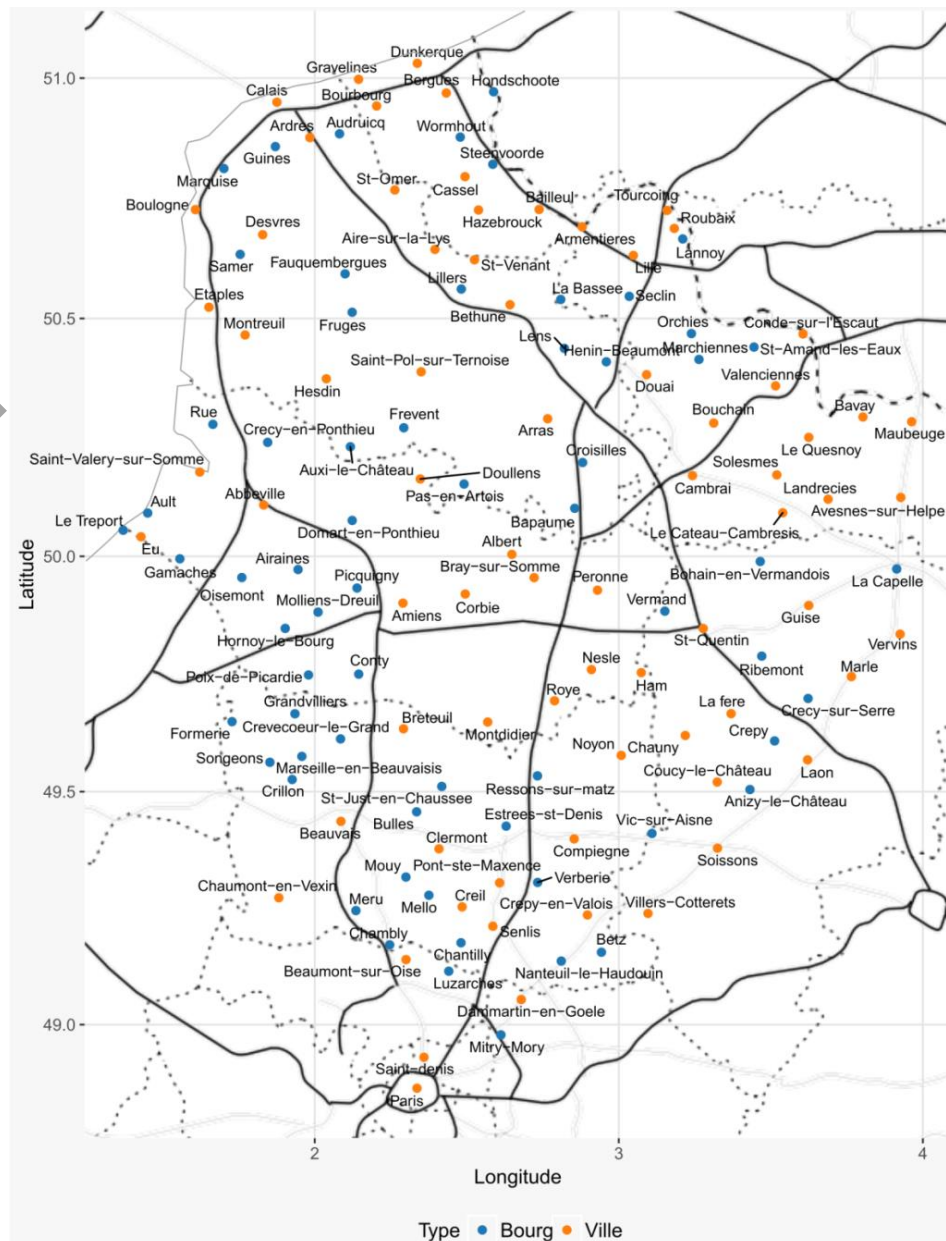


Categorization of the settlements on the map through the use of different police breaks  
(Plumejeaud 2013: 15)

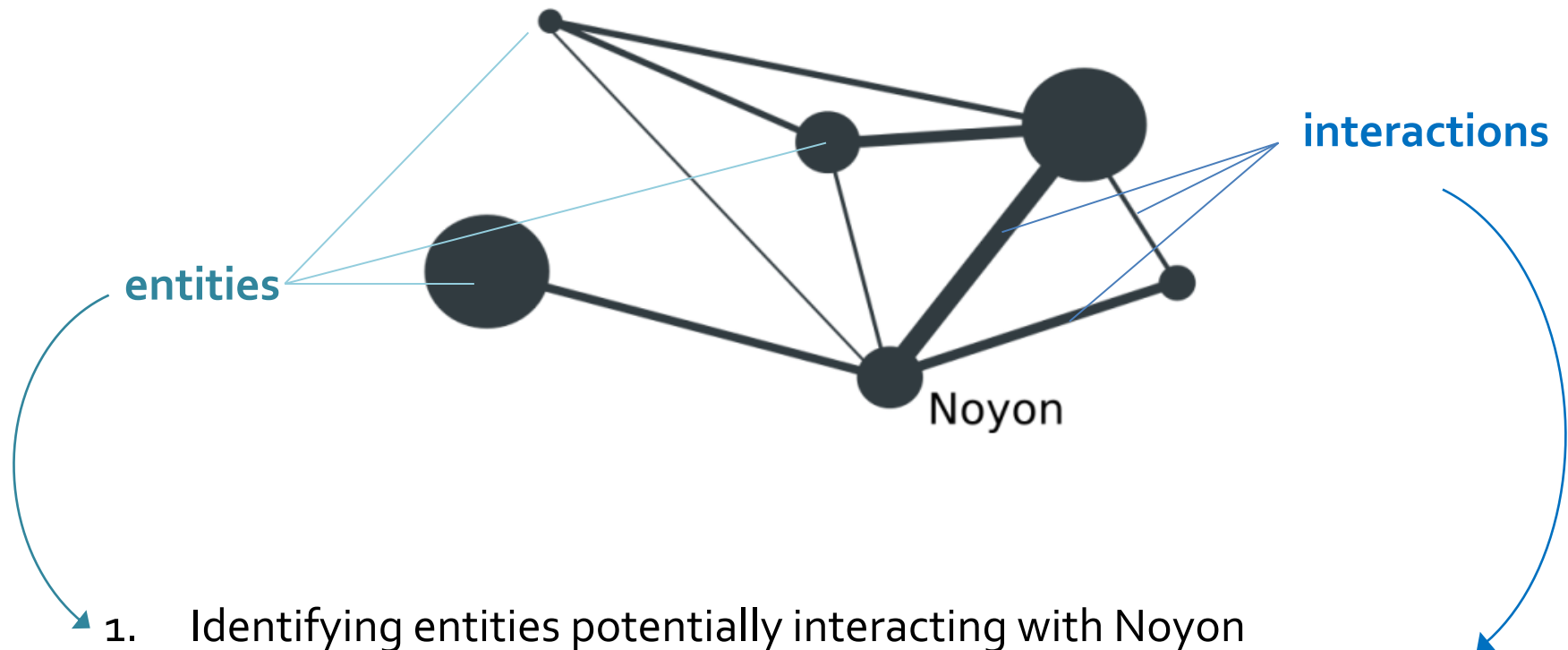


Archaeological  
synthesis  
documentation

(Petit, Mangin 1994; Desachy, Gemehl 2005; Pichon 2009)



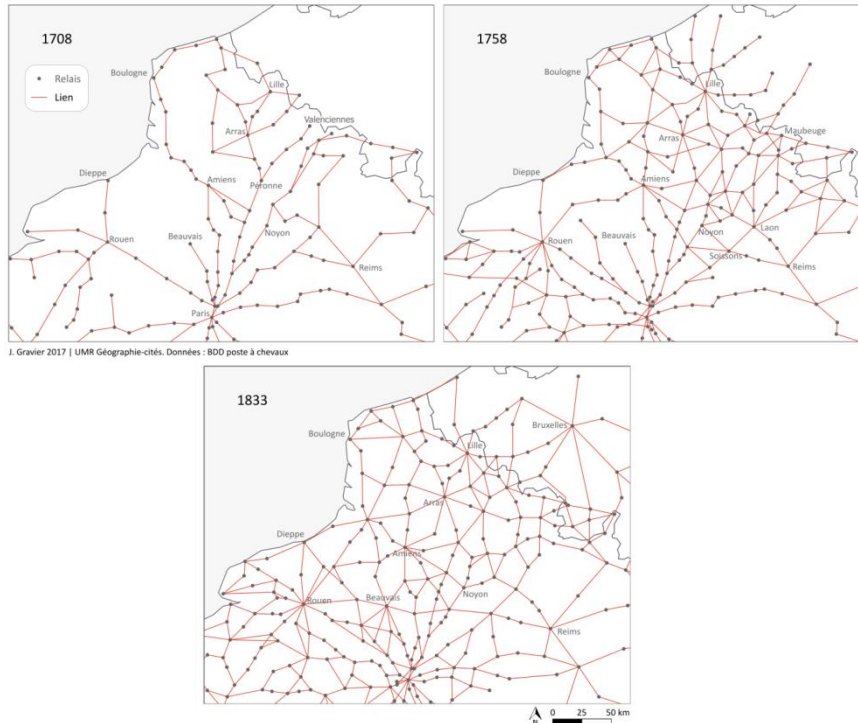
# Identifying the cities interacting with Noyon over time



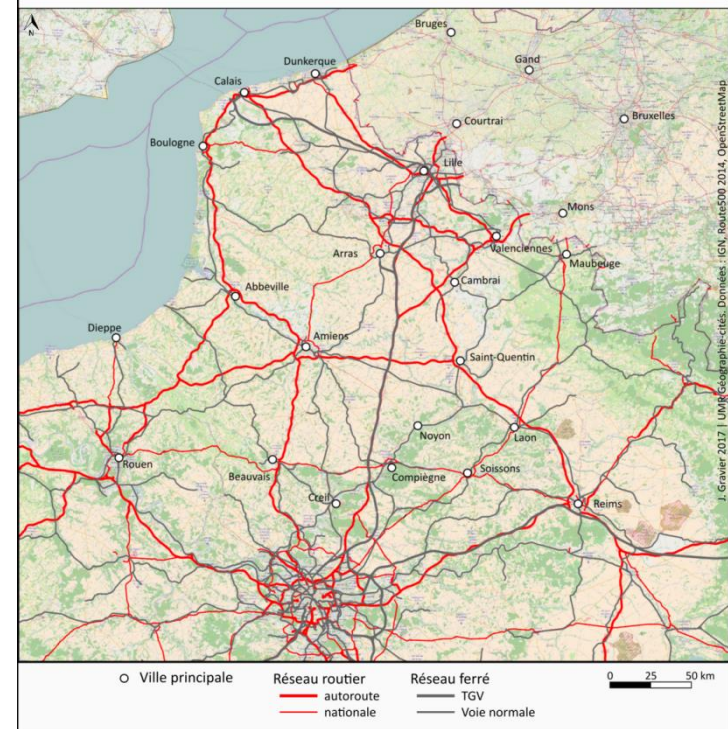


## ➤ Transport infrastructures

Le nord du réseau des routes de poste à chevaux

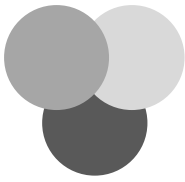


Réseaux routier principal et réseau ferré en 2014



- ## ➤ Threshold:
- > distance-time
  - > distance calculations based on the testimonies of contemporaries





**Creating an analytical grid** to formalize the knowledge —   
→ **compare**  
→ **process**

Relations characterized by:

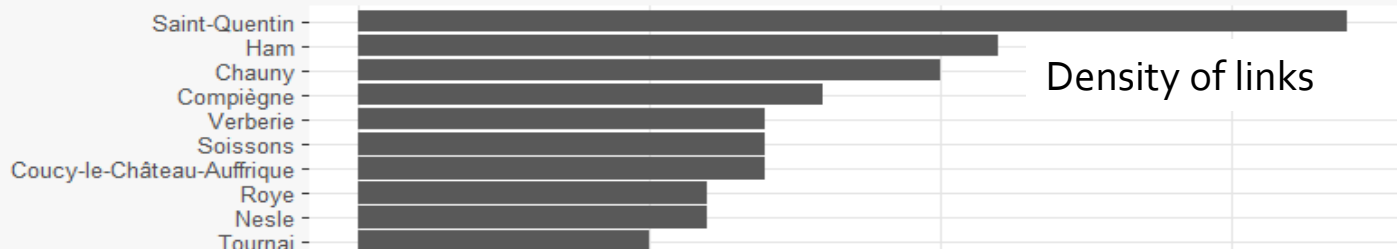
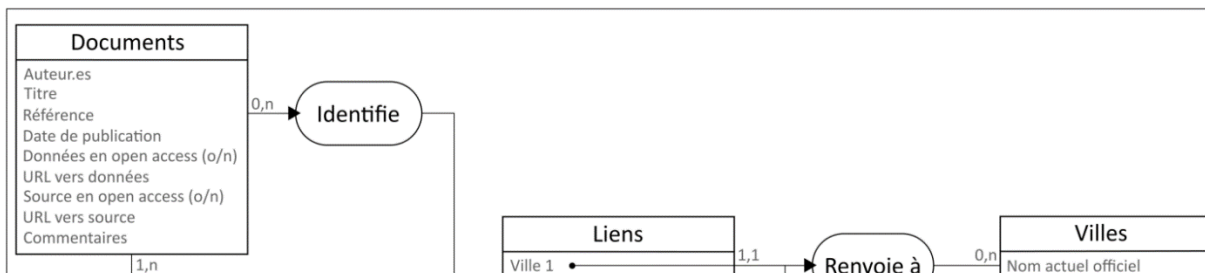
- **Timing and duration** (start/end date)
- **Form** (hierarchical/non-hierarchical)
- **Orientation** (pole/subordinate city; exporting city/importer city)
- **Function** (political-administrative / economic / religious)
- **Social group at stake** (institutional group / urban group / interpersonal group)

# Potential and functional relationships: NERVille database

42 case study:

> 129 relations between Noyon

> and 38 different cities

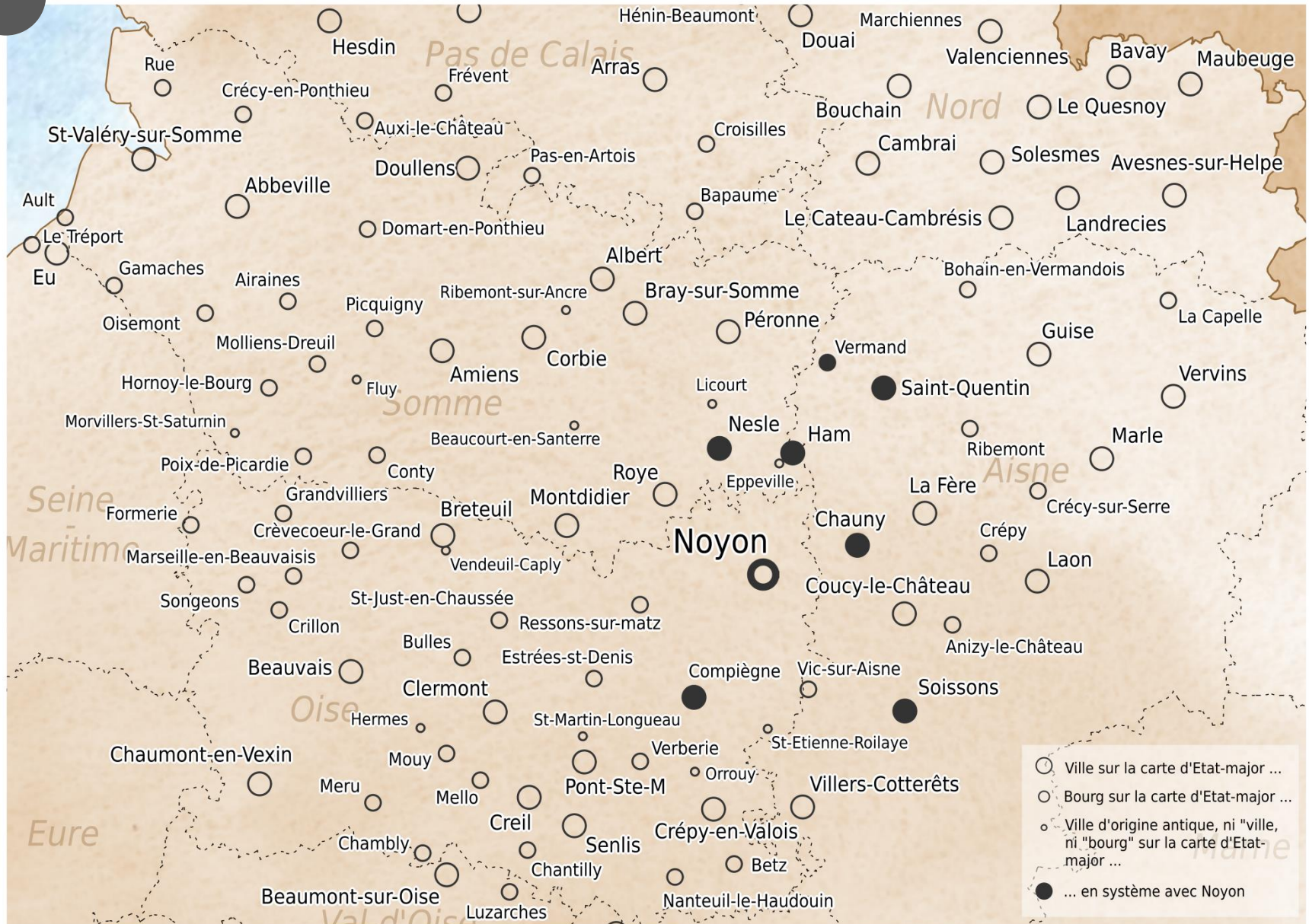


Density of links > synthetic description

Ville	Fonctions	Groupe majoritaire	Lien le + ancien	Lien le + récent	Période
Chauny	4	institutionnel	1076	2010	934
Compiègne	3	-	1692	2010	318
Coucy	2	interpersonnel	1045	1254	209
Ham	4	institutionnel	932	1914	984
Laon	1	-	1000	1300	300
Nesle	4	institutionnel	1146	1914	768
Paris	2	institutionnel	877	1914	1037
Roye	3	interpersonnel	1150	1833	683
Saint-Quentin	5	institutionnel	1	2010	2009
Soissons	3	institutionnel	1	1789	1788
Tournai	2	institutionnel	627	1398	771
Verberie	2	non identifié	1552	1914	362
Vermand	2	institutionnel	364	1789	1425

Nombre de liens

# The cities interacting with Noyon (at least at a given moment in time)



# A seven-step process


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historical investigation by case study: road post database, *livret Chaix*, atlas, *Pouillés*, etc.

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## Step 5 Creating a process to estimate urban population before the 19th century

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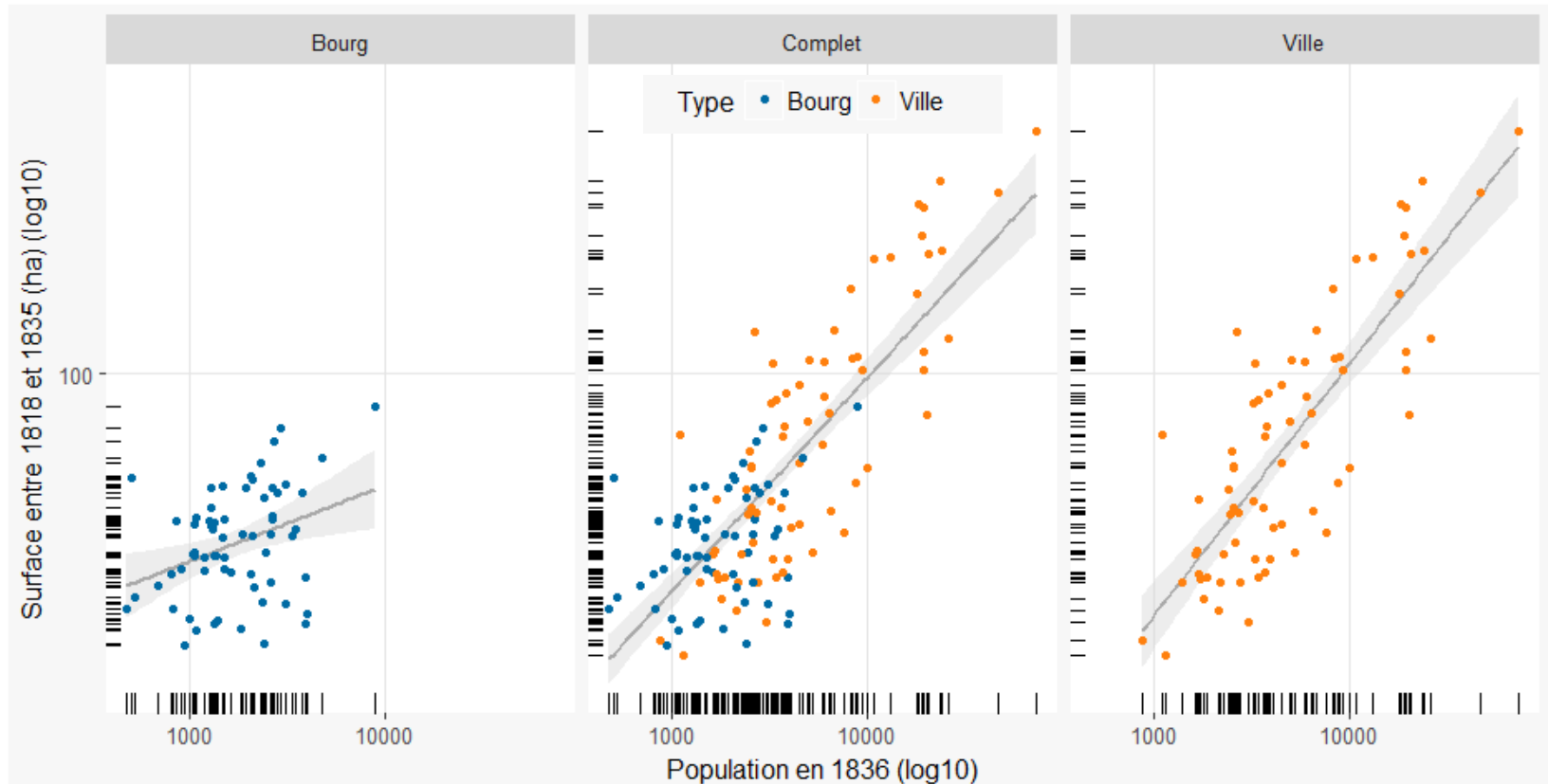
## Step 7 Studying the evolution of Noyon: intra-urban space & relative position

**SD** sources & data

**T** data processing

# A seven-step process

## Step 5 Creating a process to estimate urban population before the 19th century



Urban system (without Paris)	n	r	p	r <sup>2</sup>	a	β
All cities and small towns ("complet")	137	0.792	o	0.627	0.323	0.62
Cities ("villes")	72	0.822	o	0.676	0.125	0.733
Small towns ("bourgs")	65	0.342	0.005	0.117	6.2	0.221

### Step 6 Retracing urban population for the cities interacting with Noyon

**SD** archaeological and historical doc., the Etat-major map, old city maps, population census

**T** statistical modelisation

**SD** sources & data

**T** data processing

### Evolutionary definition of the city over time

*Area of the dense urbanized space (transformed into pop.)*   *Municipality*   *Urban Unit*   *Urban Area*

Identification of states of densely urbanized space according to the evolution of the city studied

1821   1836   1866   1901   1936   1968   1990   1999   2010

Origin of the studying city



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**SD** the Etat-major map, population census

**T** GIS vectorization from old map, statistics

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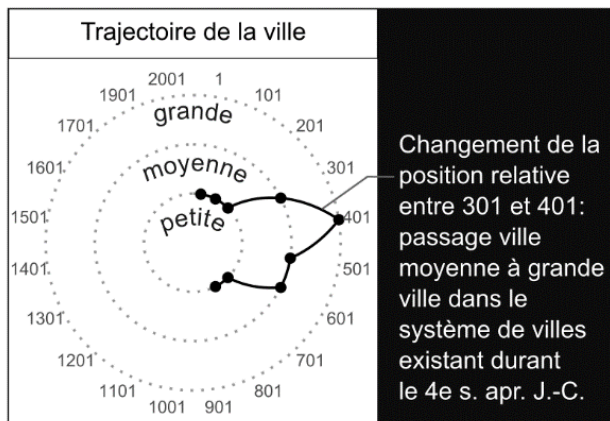
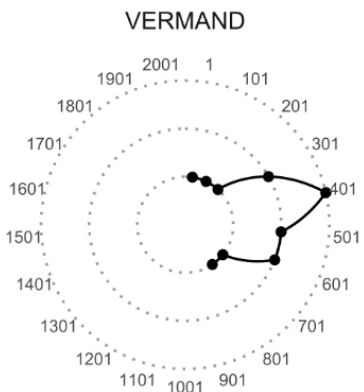
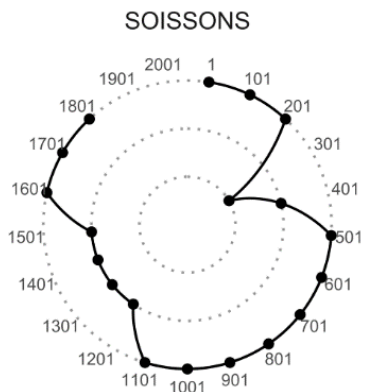
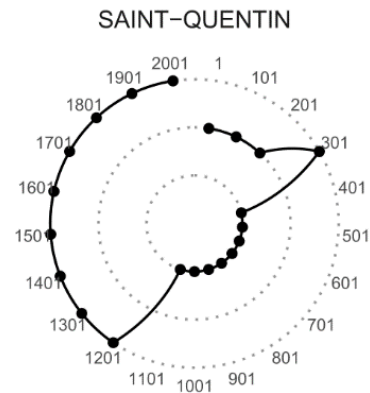
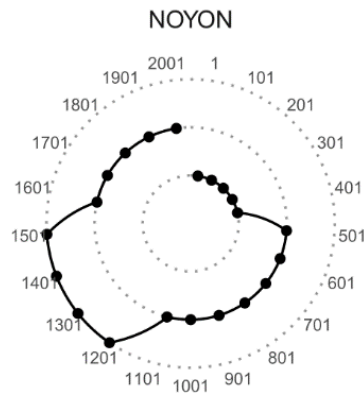
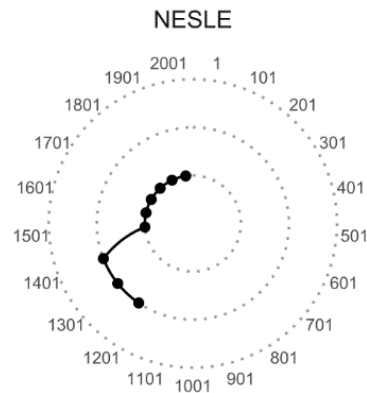
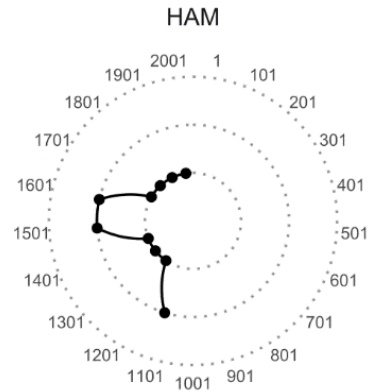
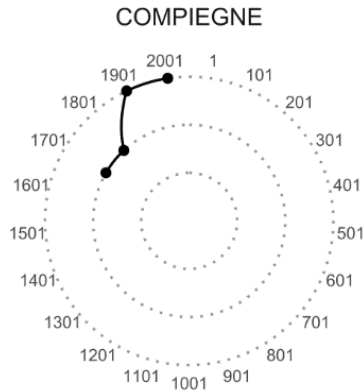
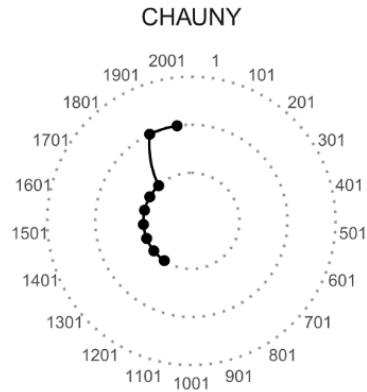
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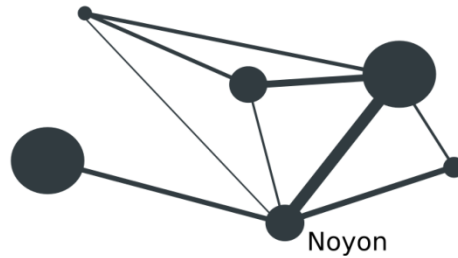


# Trajectories of the relative positions of the cities interacting with Noyon

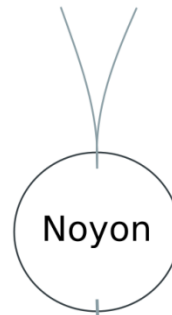


# Conclusion

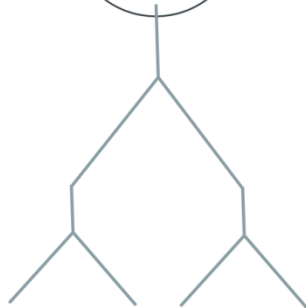
System of cities



City



Intra-urban



elementary units

Ø flow data  
Ø population data



Potential relationships  
Functional relationships  
Population estimation

Reproduction/  
deepening of existing  
methods and concepts



# Thank you for your attention

