



Intersectional approach of everyday geography

Julie Vallée, Maxime Lenormand

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UrbanSys 2021, Lyon

INTERSECTIONAL APPROACH OF EVERYDAY GEOGRAPHY

Julie Vallée & Maxime Lenormand

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TETIS, INRAE, Montpellier, France



MOTIVATIONS

Only few studies about everyday segregation... and they usually explore single axe of difference (ie. social class) with a single-city focus

Measuring segregation using patterns of daily travel behavior: A social interaction based model of exposure

Steven Farber ^{a,*}, Morton O'Kelly ^b, Harvey J. Miller ^b, Tijs Neutens ^c

Social segregation around the clock in the Paris region (France)

Guillaume Le Roux ^{*}, Julie Vallée, Hadrien Commenges

Beyond residential segregation: A spatiotemporal approach to examining multi-contextual segregation

Yoo Min Park ^{*}, Mei-Po Kwan

The temporal variation of ethnic segregation in a city: Evidence from a mobile phone use dataset

Siiri Silm ^{a,*}, Rein Ahas ^{a,b}

**From residence to movement:
The nature of racial segregation
in everyday urban mobility**

Jennifer Candipan 


Brown University and Harvard University, USA

Nolan Edward Phillips

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Here we explore how local population concentration change throughout the day

- ✓ crossing three axes of differences (gender, age and education) from an intersectional lens
- ✓ in 49 French city regions to make comparisons across and within city regions possible

DATA

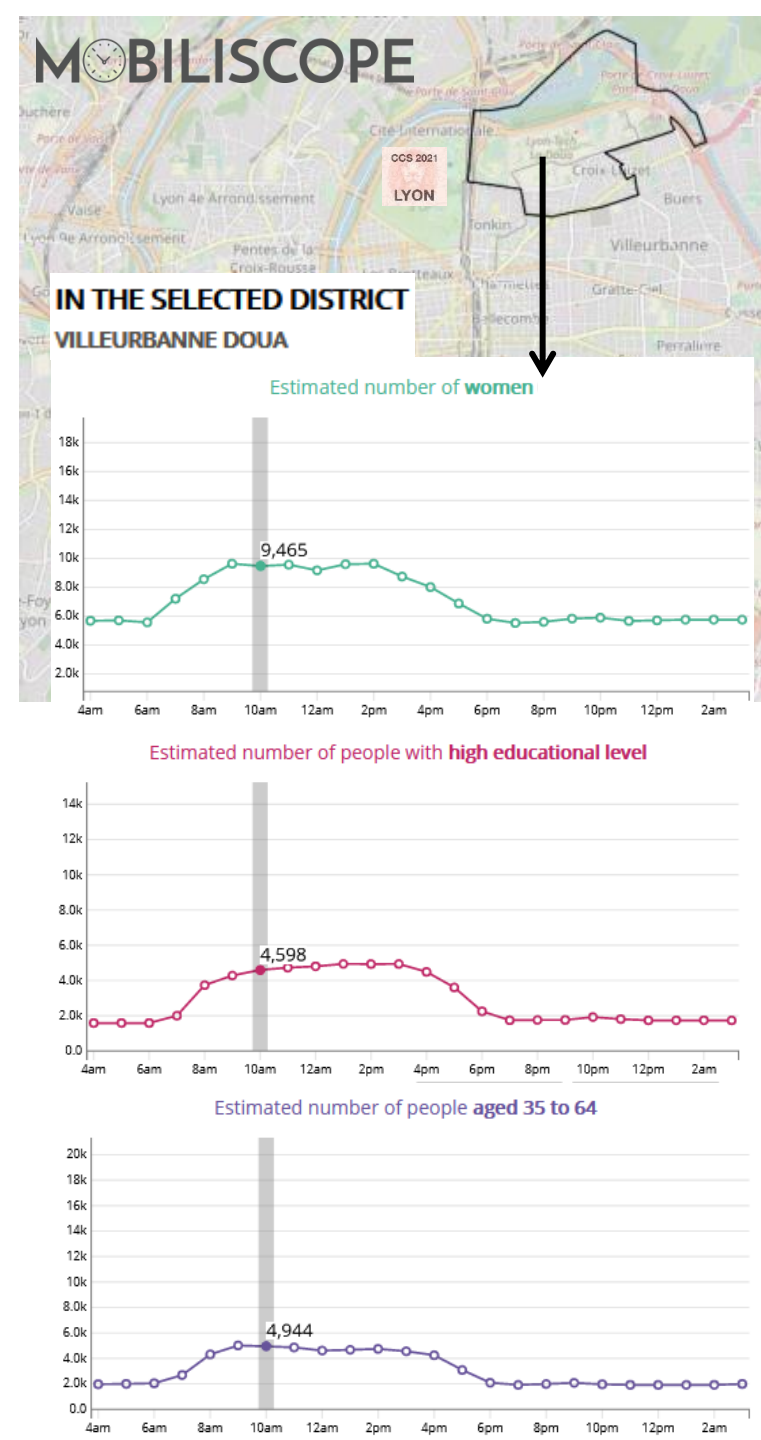
- From public transportation surveys in 49 French city regions
 - 385,000 respondents
 - 1.7 millions of trips
- Trips dataset to hourly location dataset
→ displayed in **MOBILISCOPE** platform
- Present population
 - space (district scale – 2572 French districts)
 - hour (24 hours – a weekday)
 - social group
 - ✓ gender (women; men)
 - ✓ age (4 age groups)
 - ✓ education (4 educational groups)



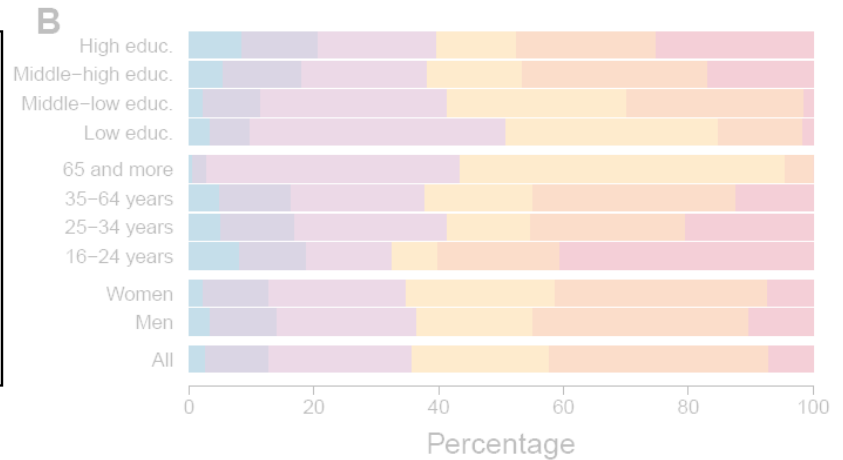
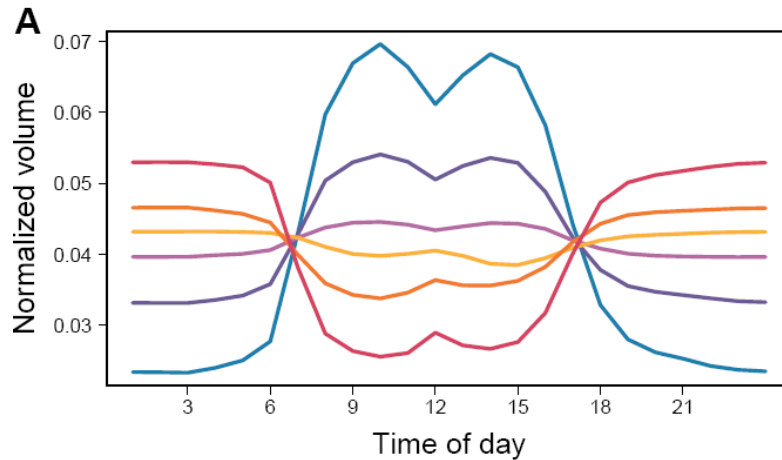
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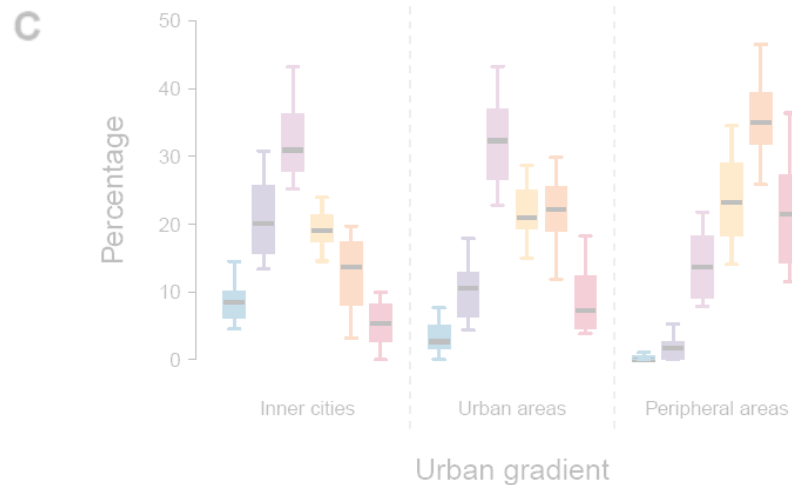
→ 28 281 socio-districts after cleaning



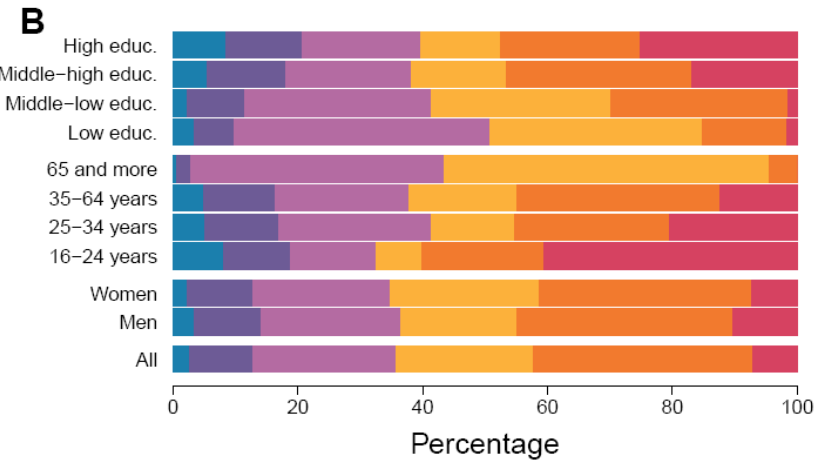
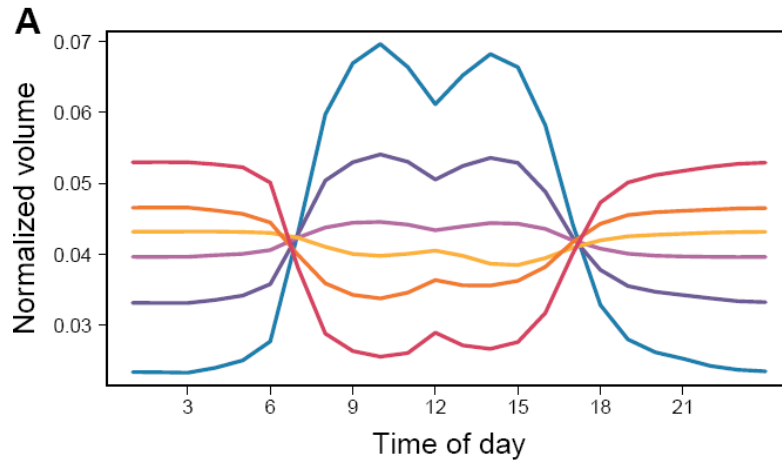
CLUSTERING OF HOURLY PROFILES



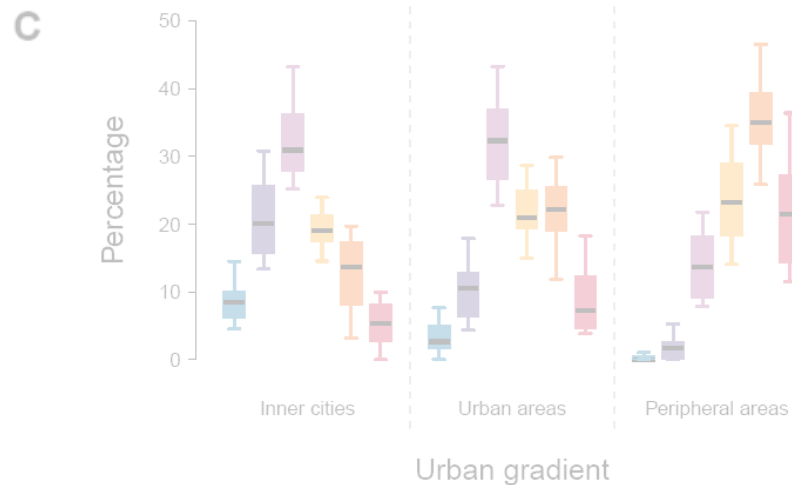
Profile 1 Profile 2 Profile 3 Profile 4 Profile 5 Profile 6



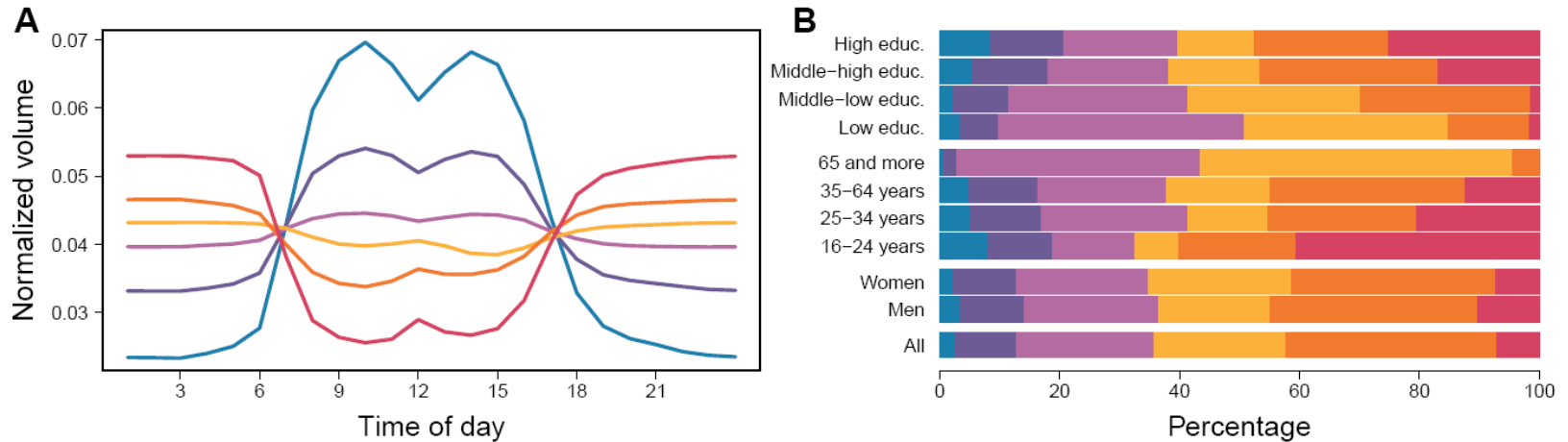
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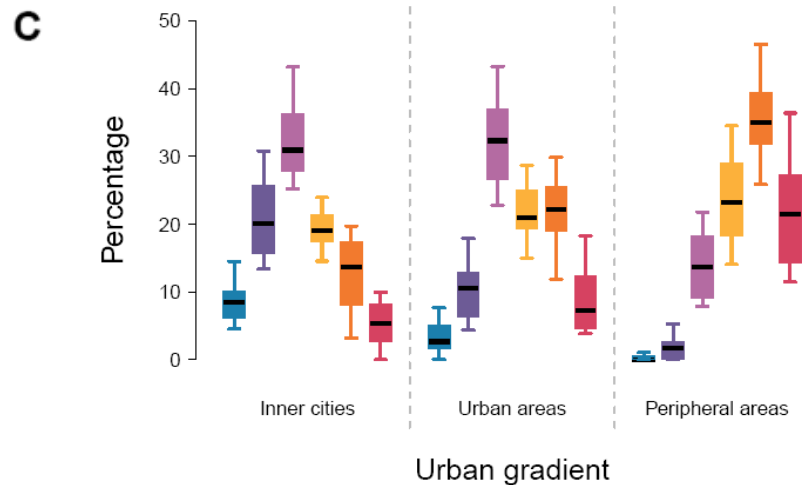
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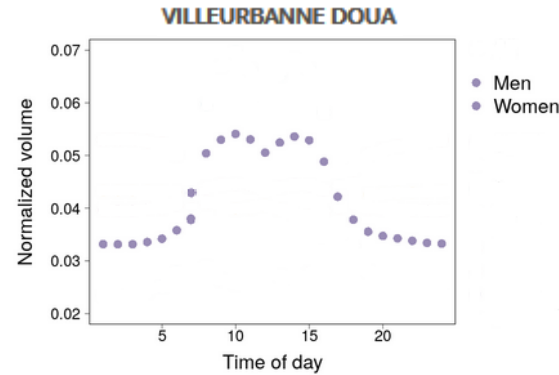
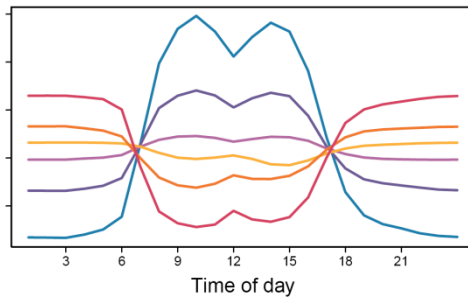
CLUSTERING OF HOURLY PROFILES



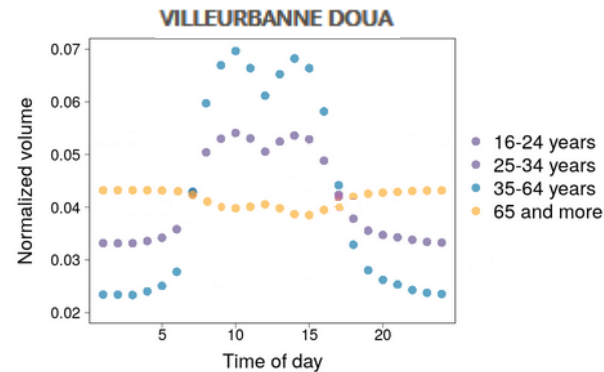
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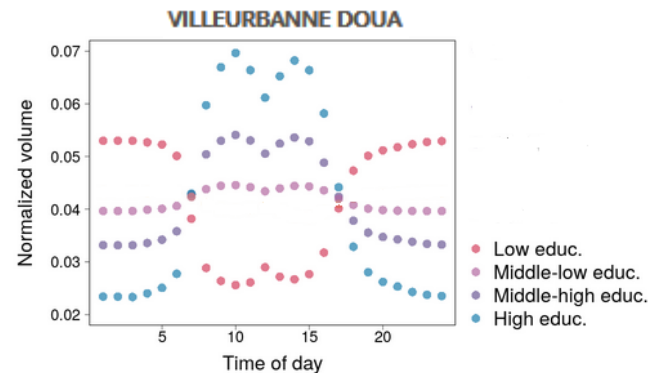
MISMATCH IN HOURLY PROFILES - Methods



Gender mismatch

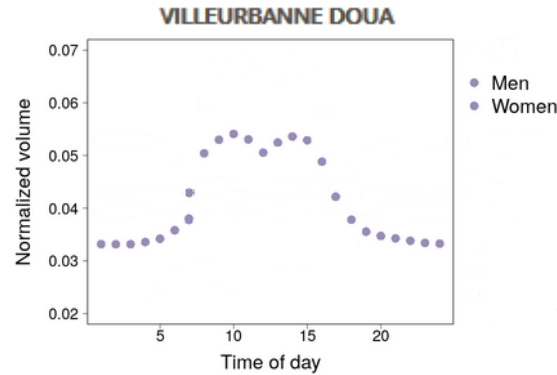
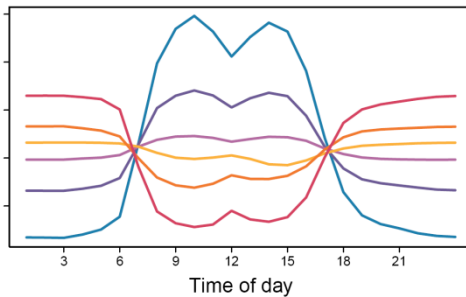


Age mismatch



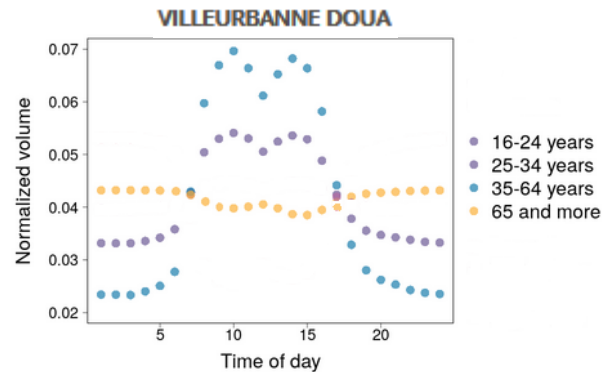
Education mismatch

MISMATCH IN HOURLY PROFILES - Methods

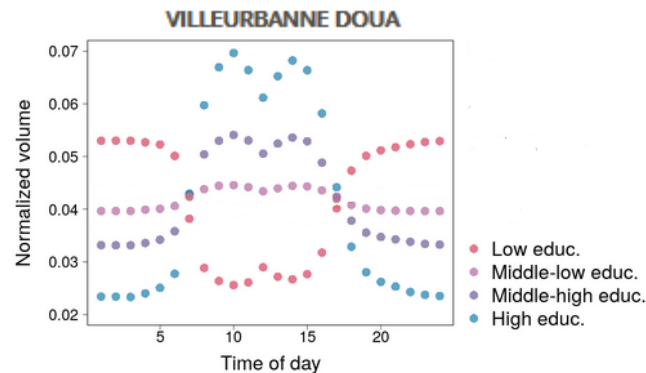


Gender mismatch

Mismatch men/women = 0

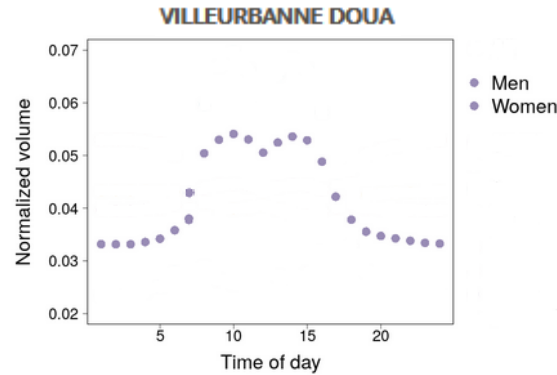
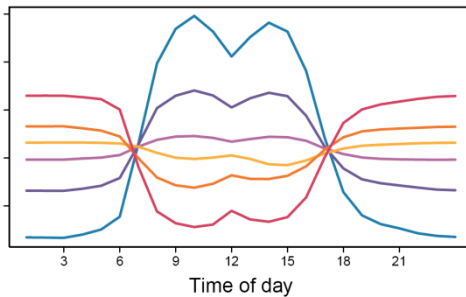


Age mismatch



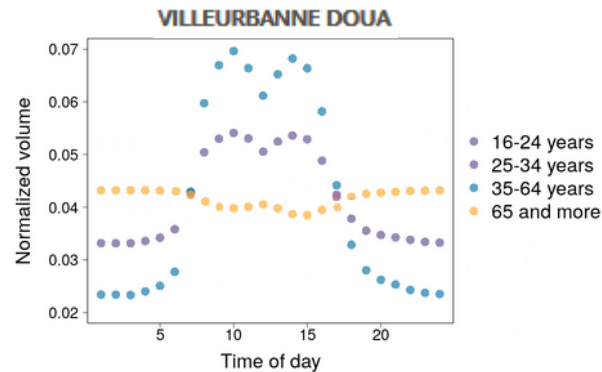
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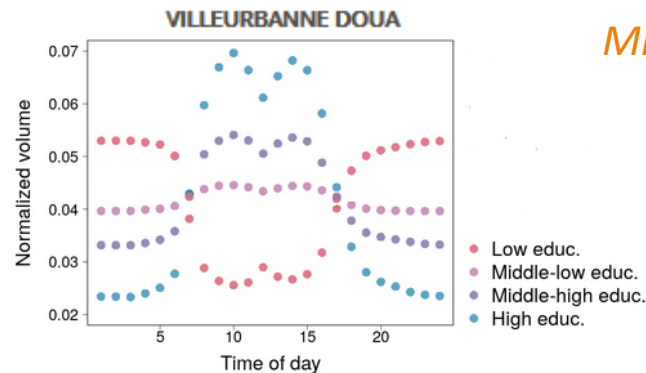


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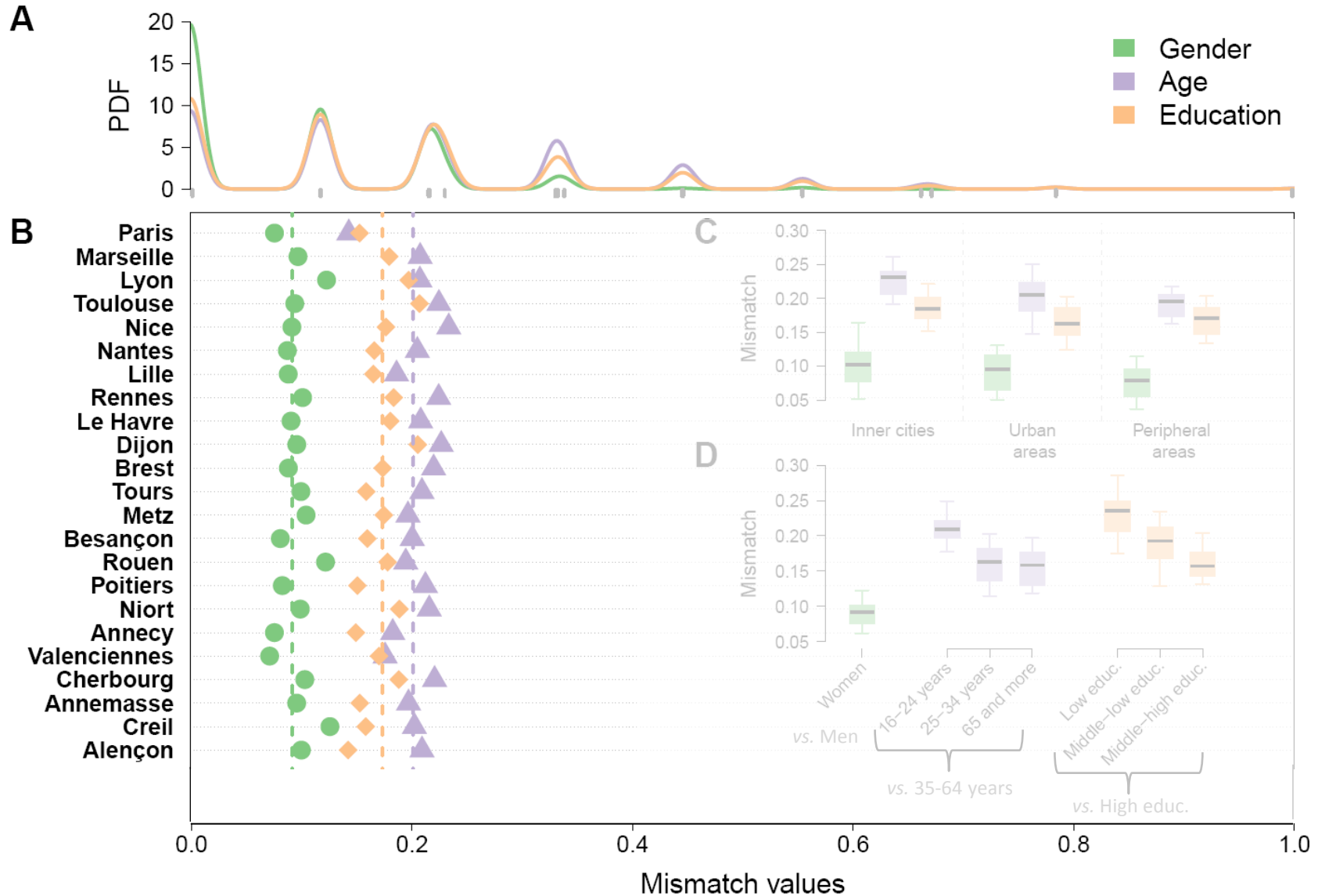
Age mismatch



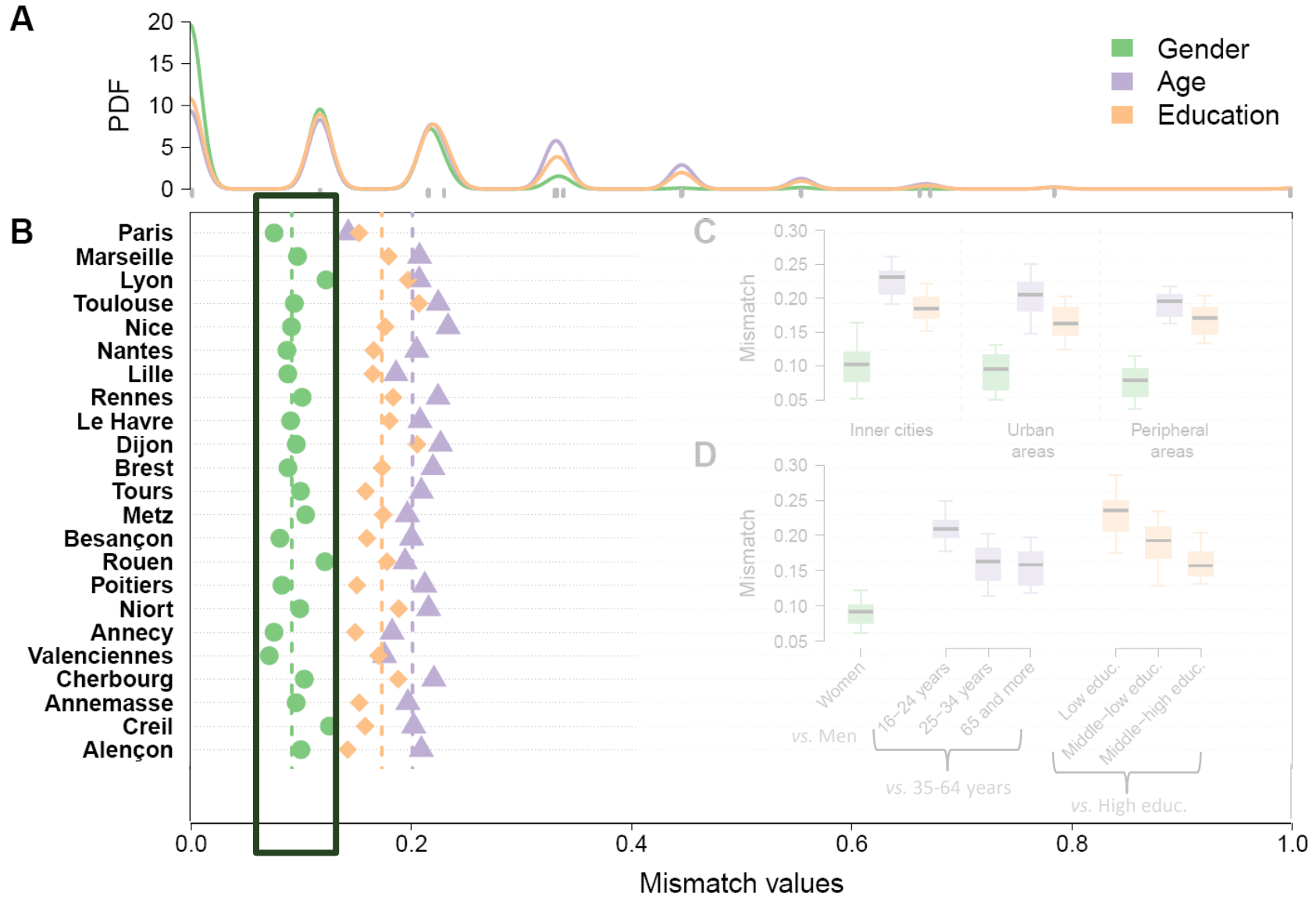
Mismatch low/high educ. = 1

Education mismatch

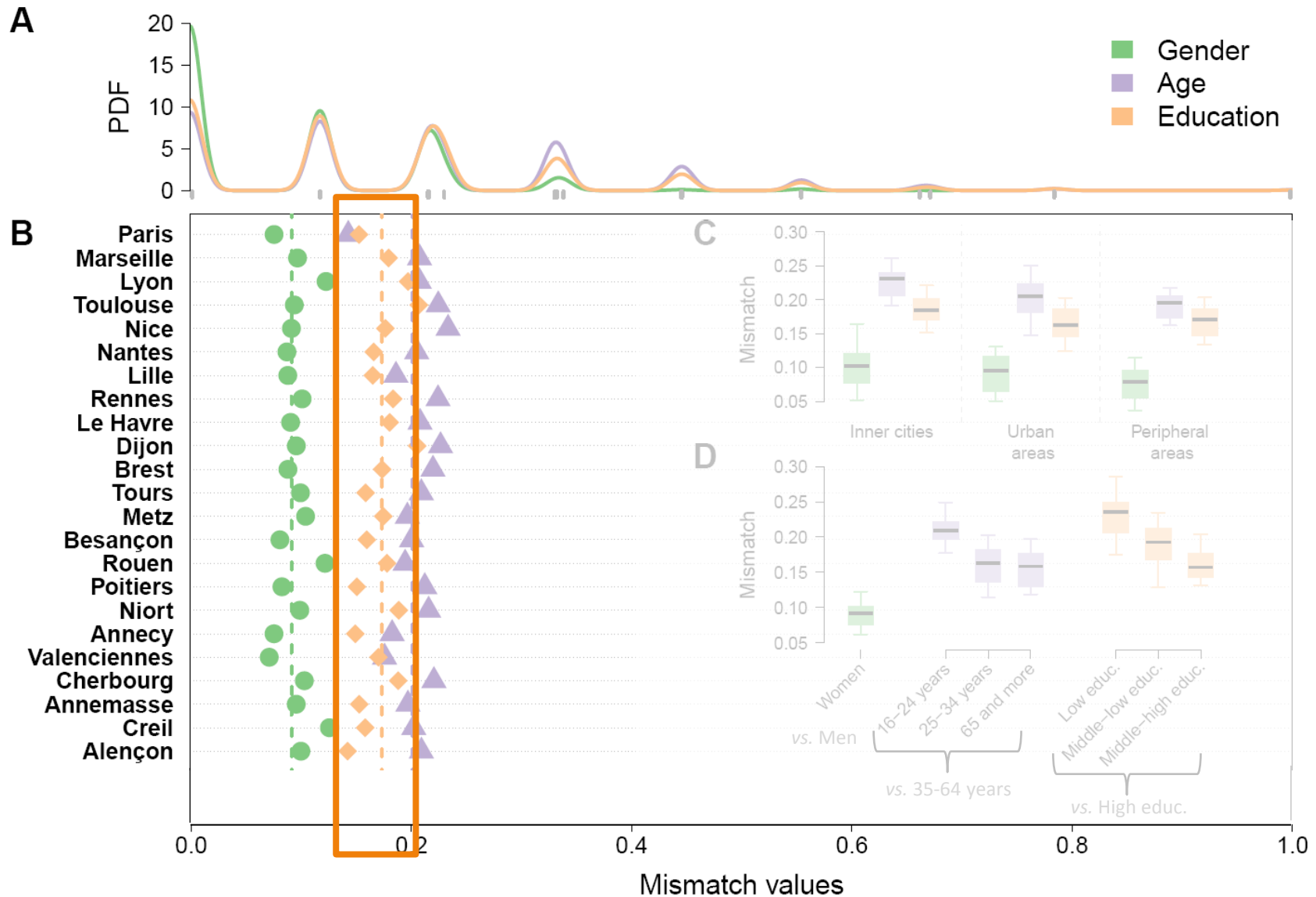
MISMATCH IN HOURLY PROFILES- Results



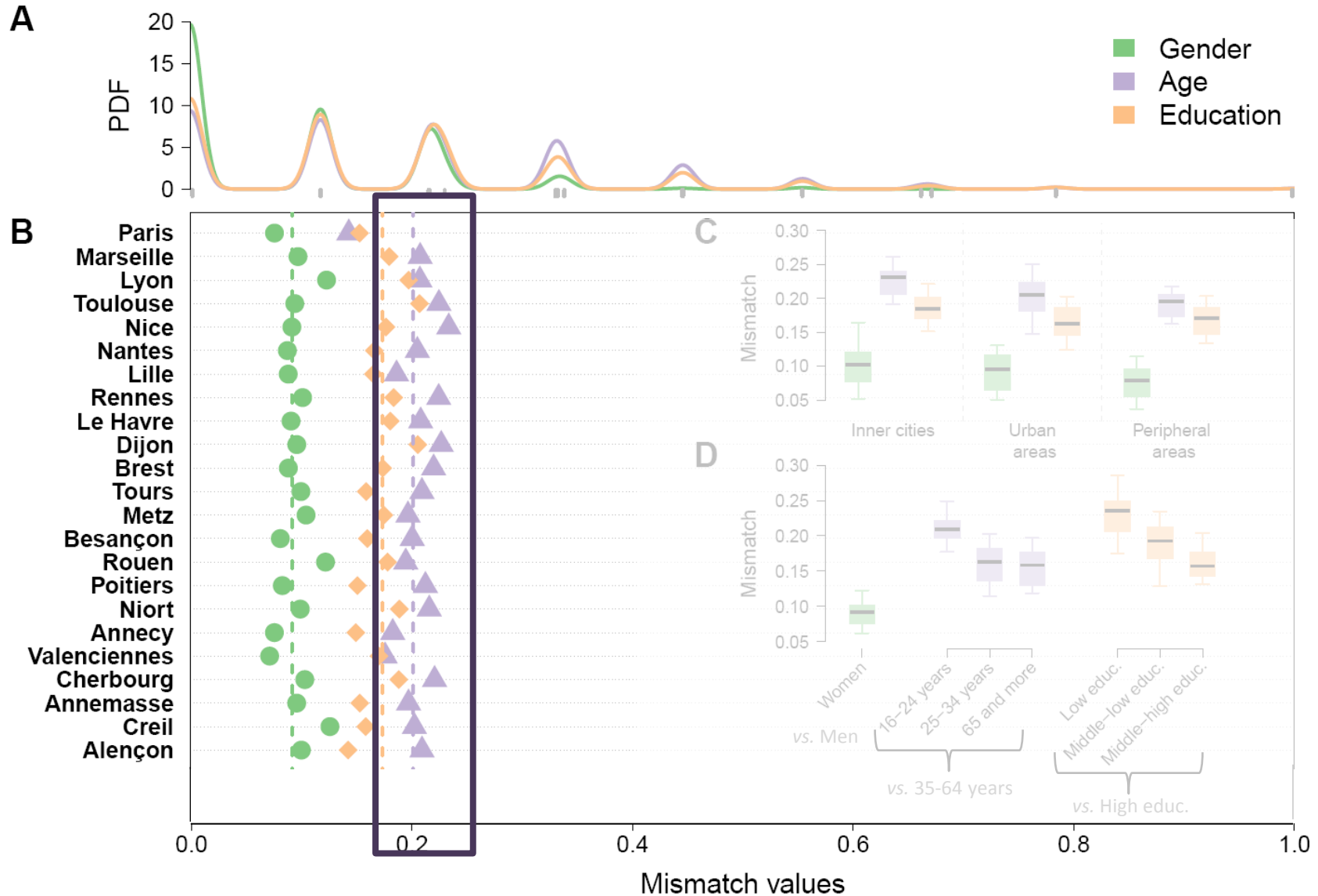
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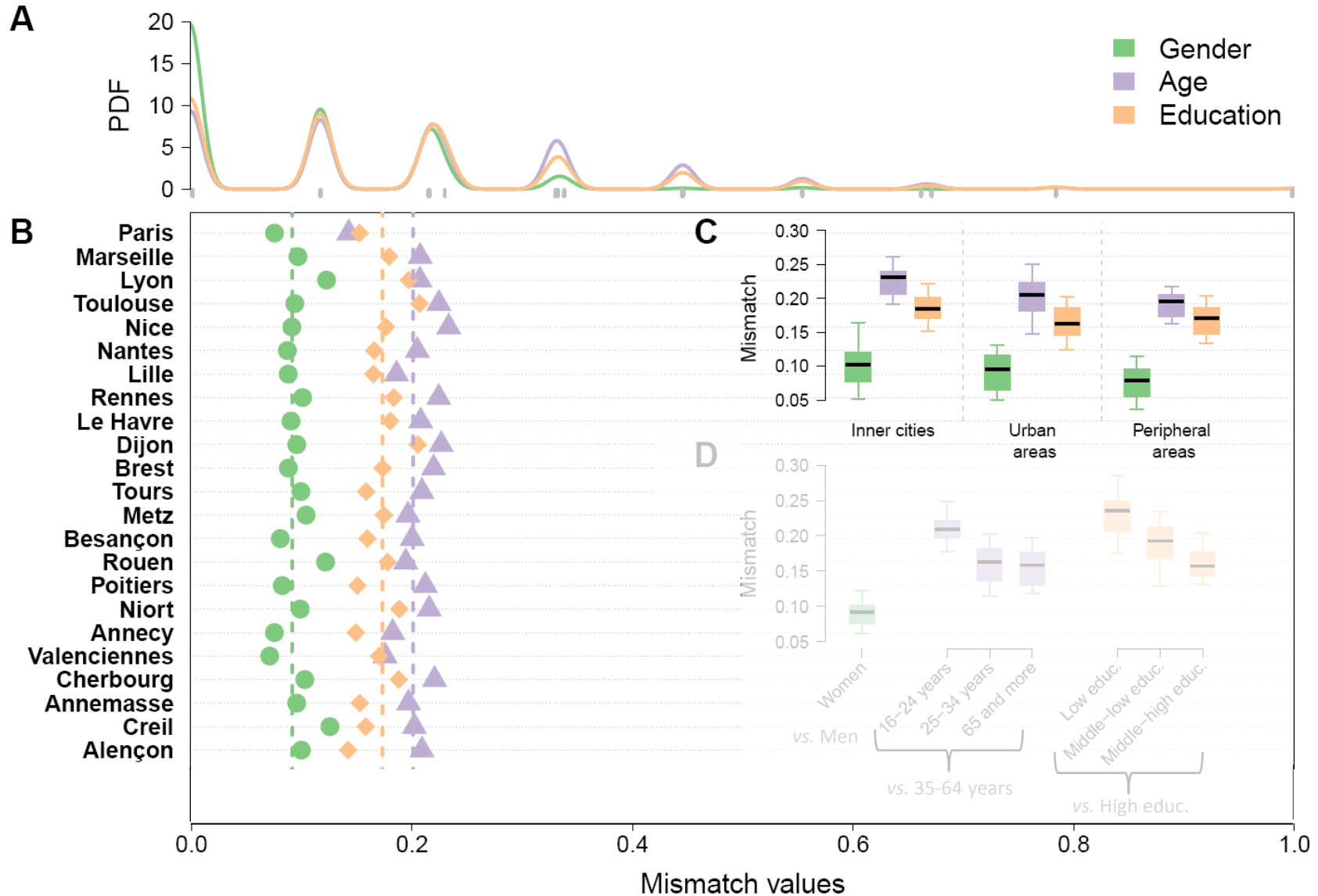
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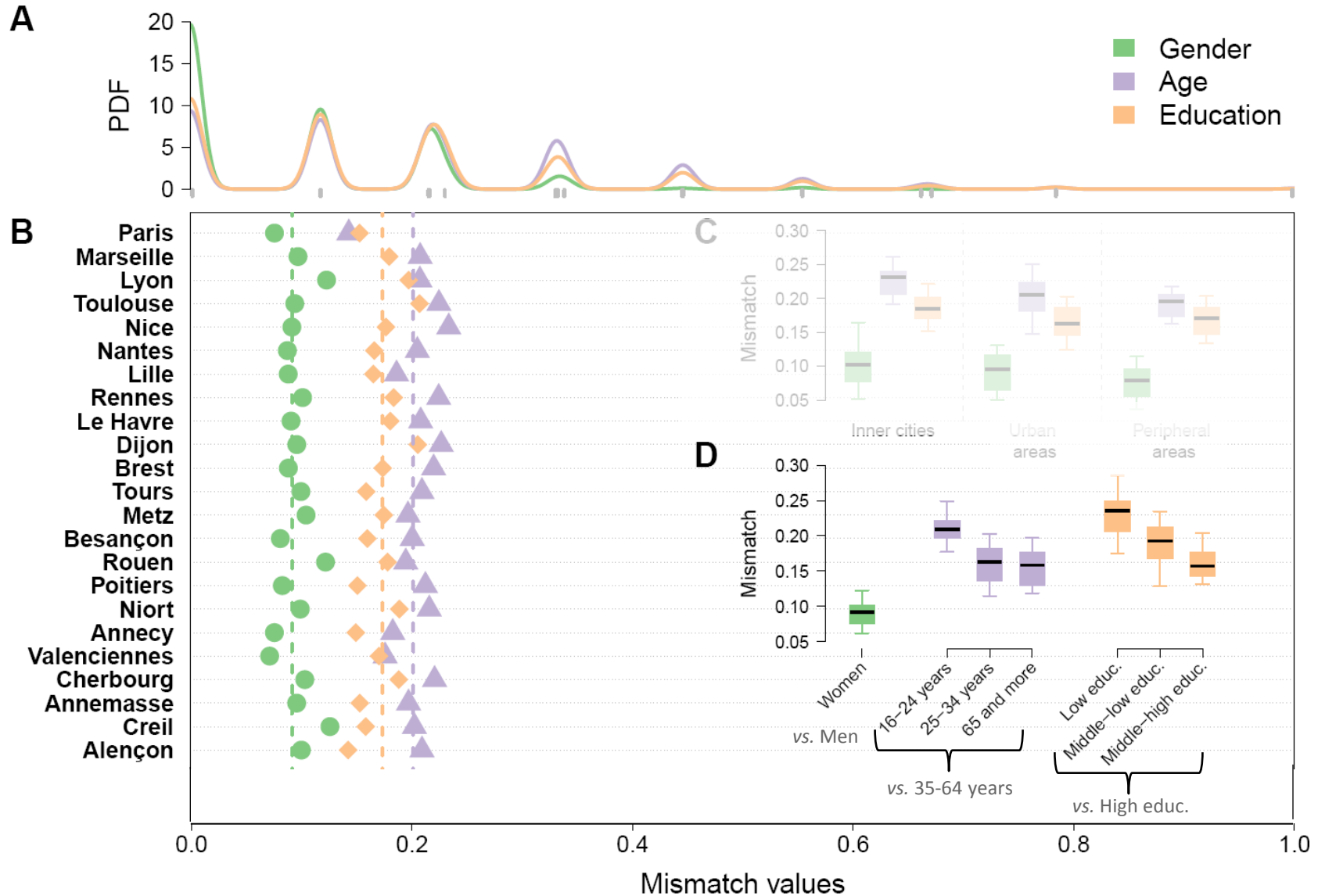
MISMATCH IN HOURLY PROFILES- Results



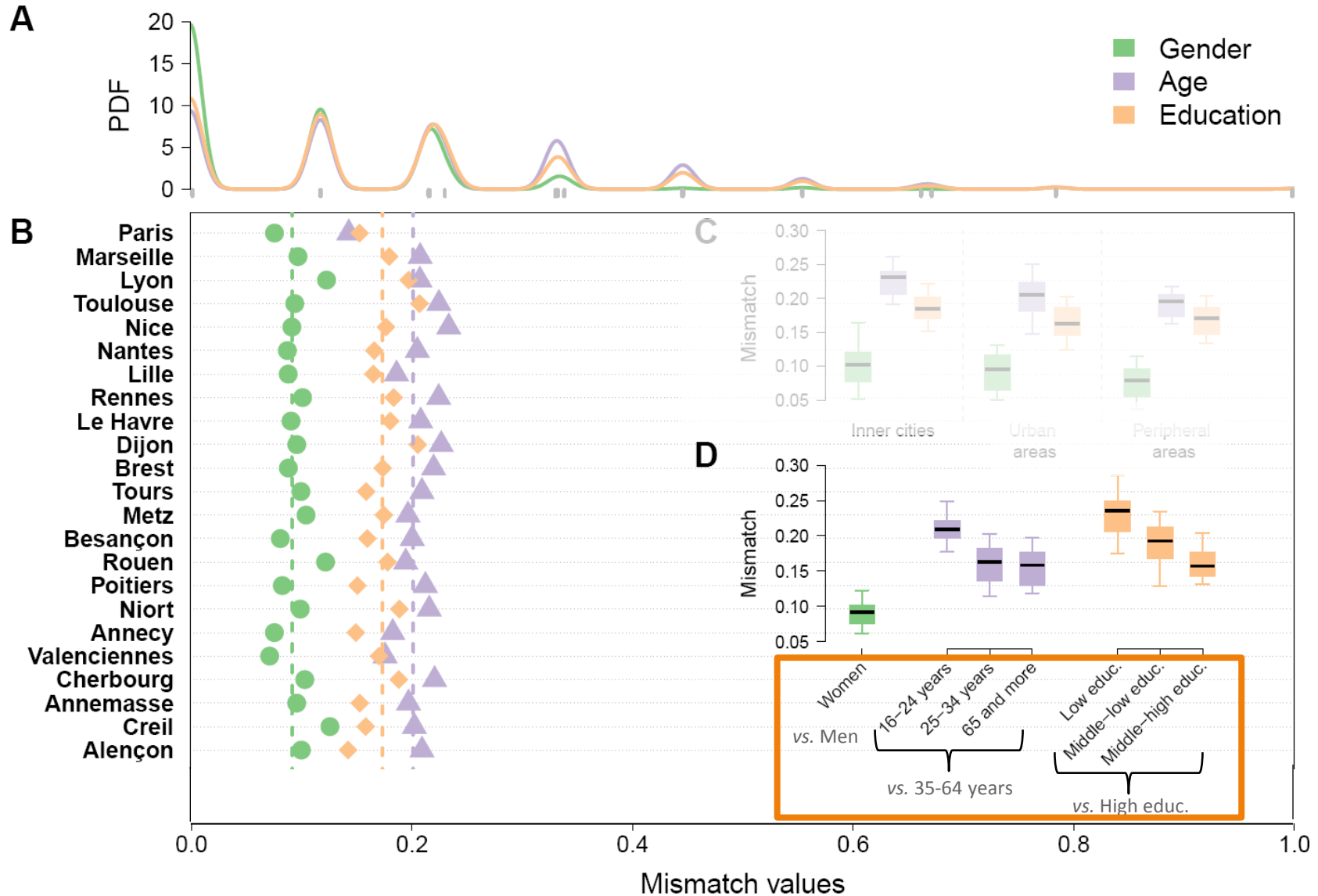
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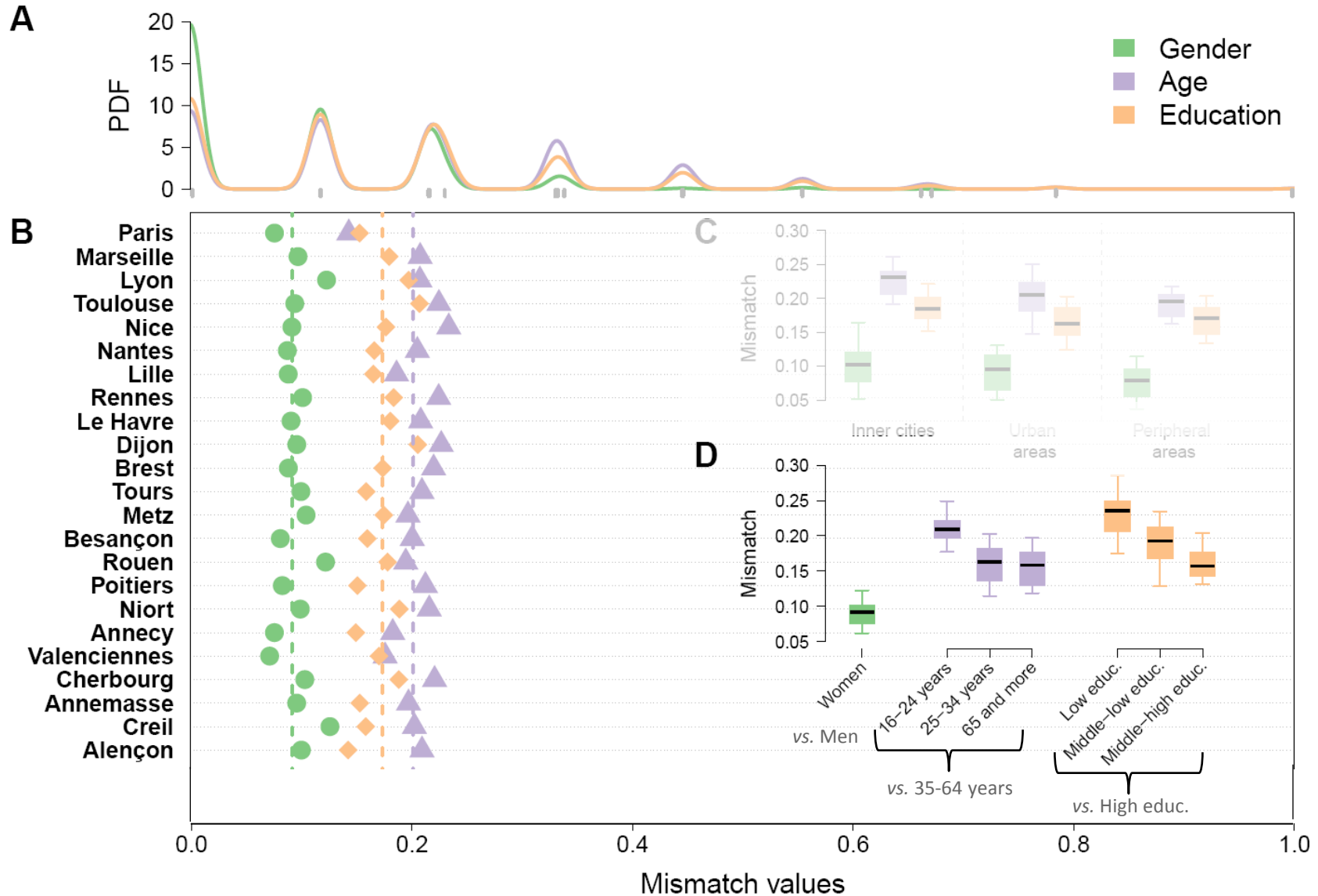
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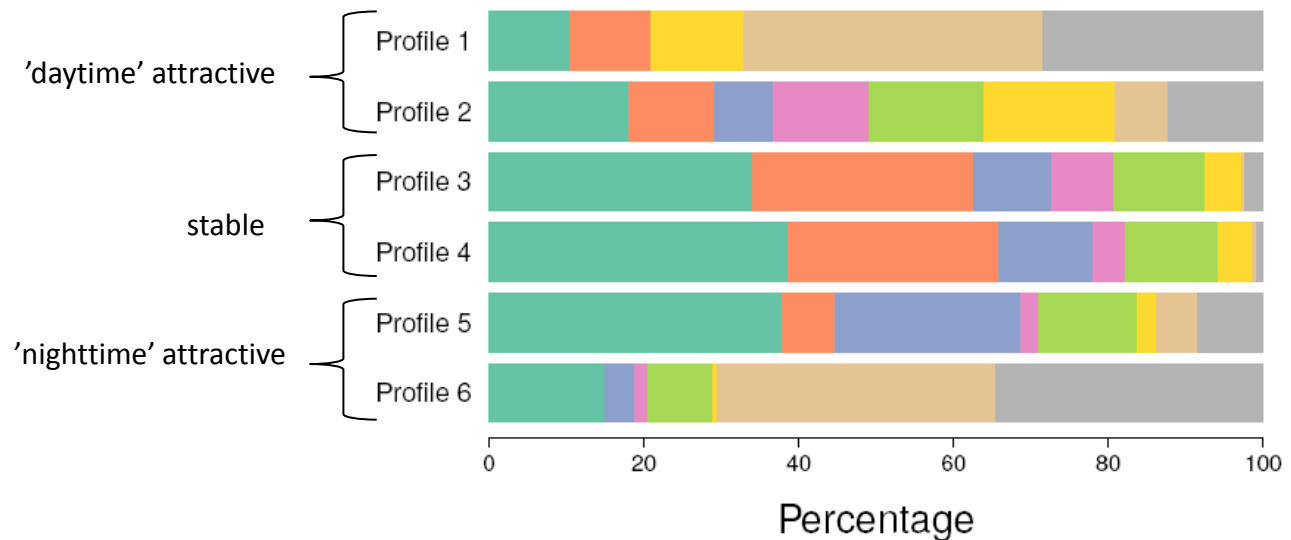
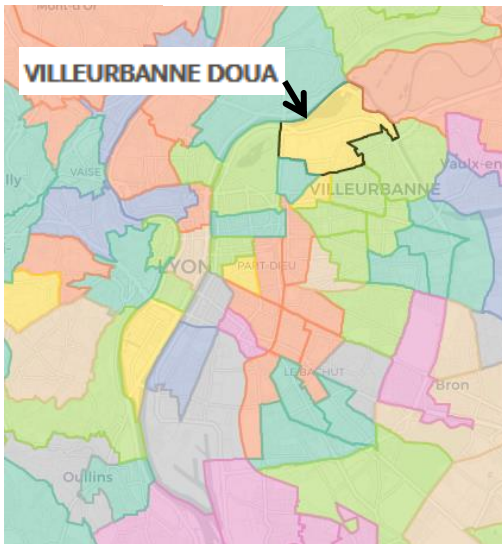
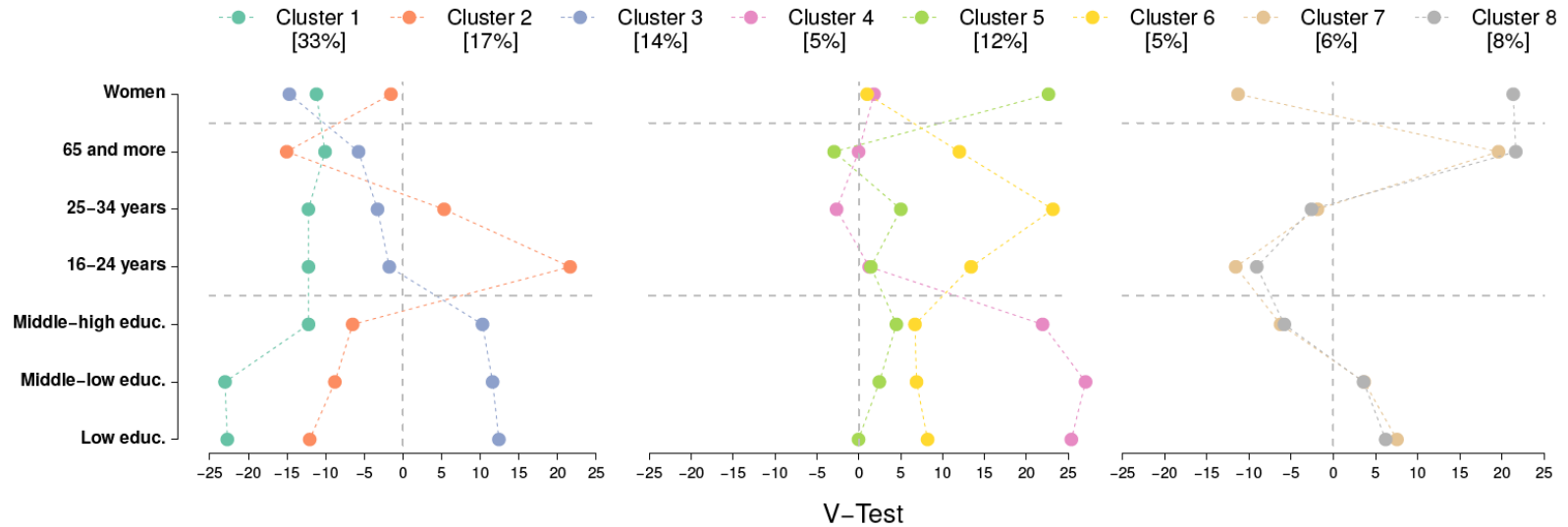
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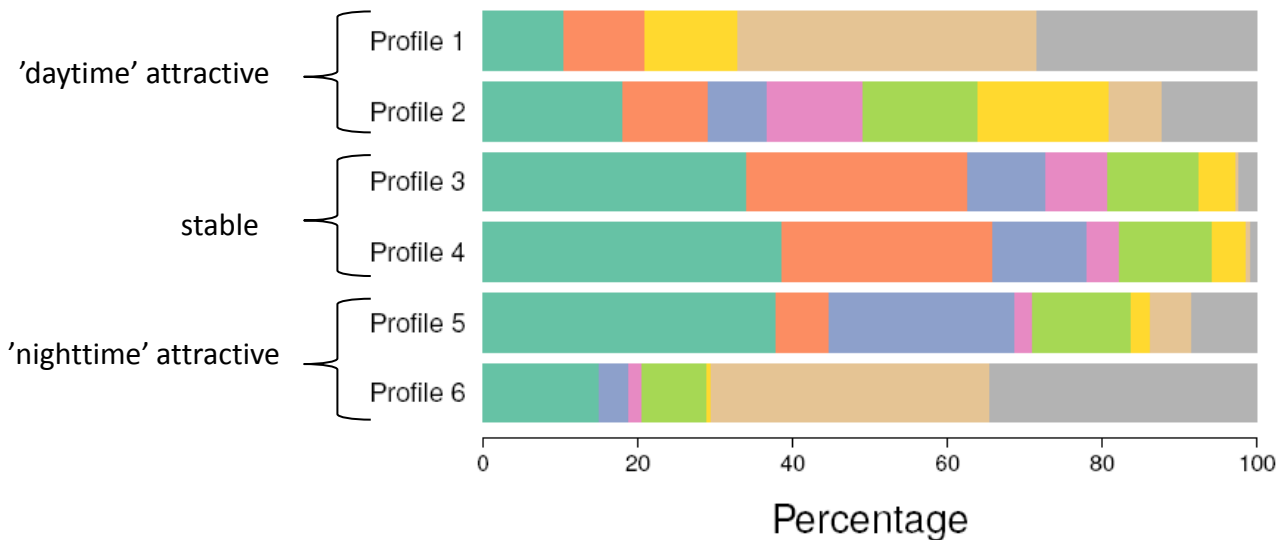
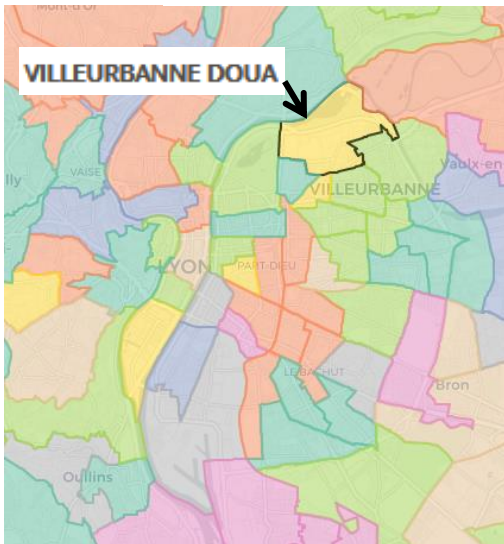
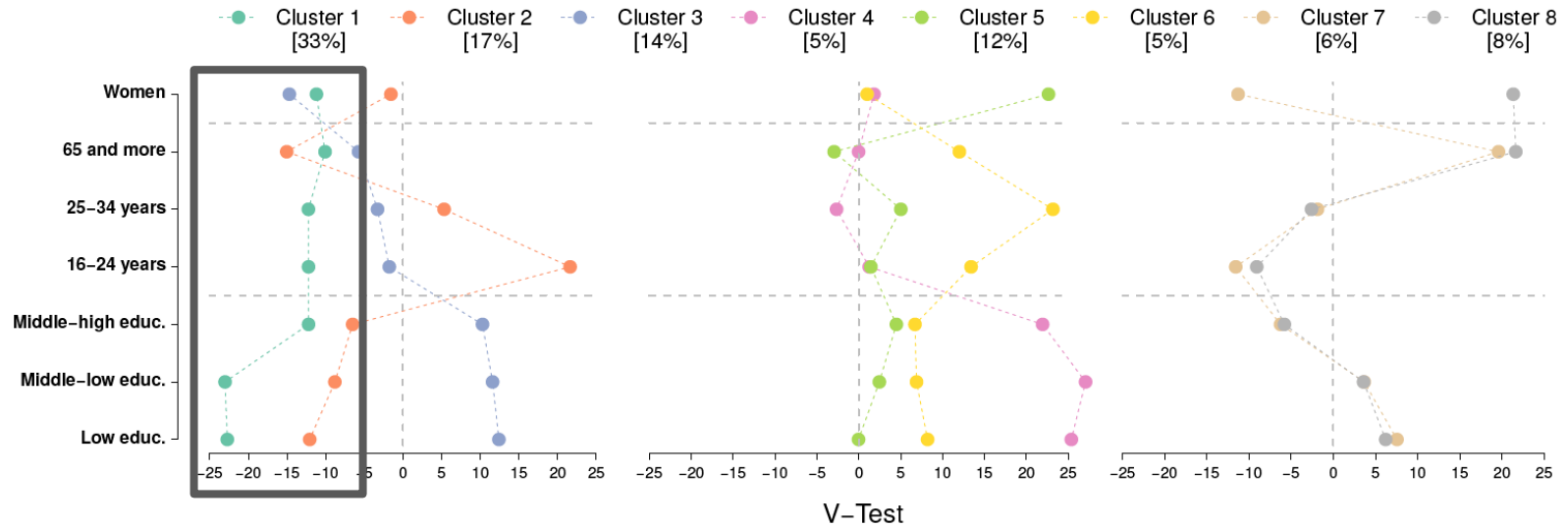
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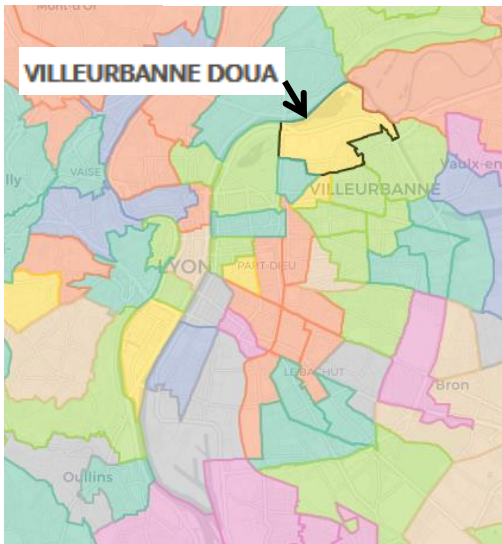
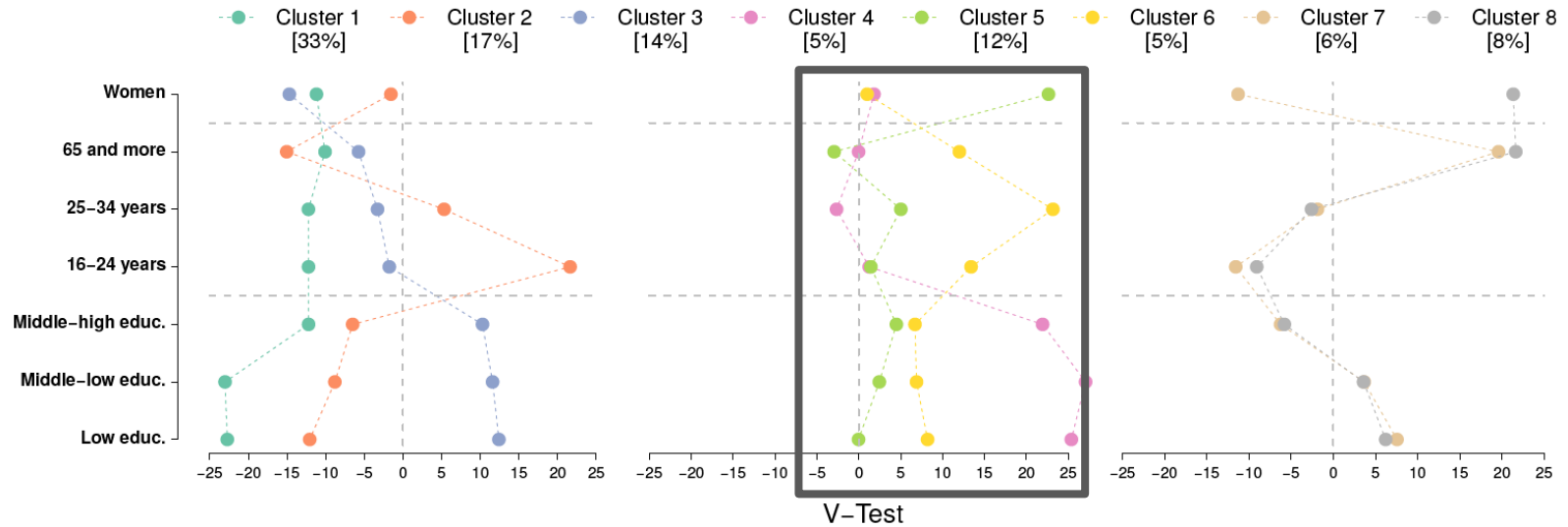
COMBINATIONS OF MISMATCHES IN HOURLY PROFILES



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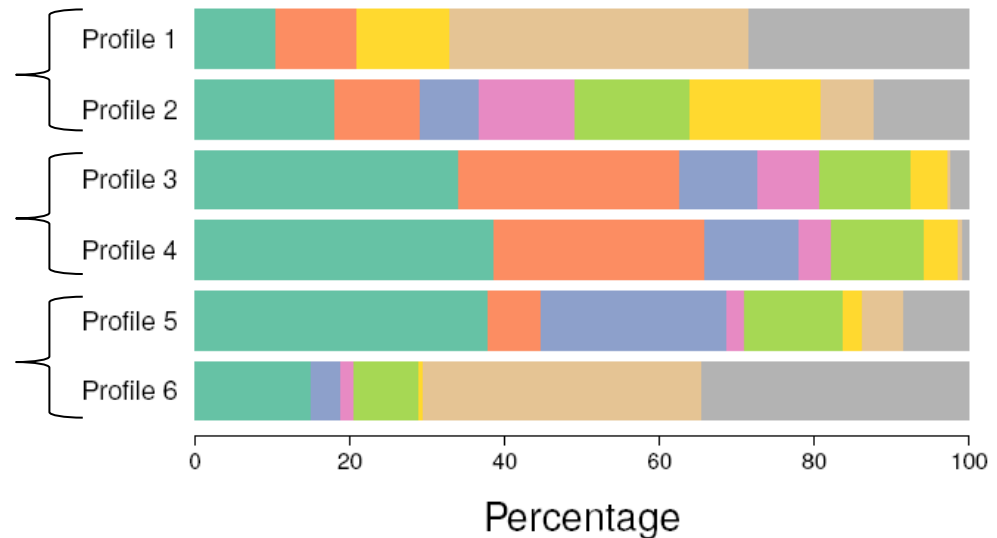
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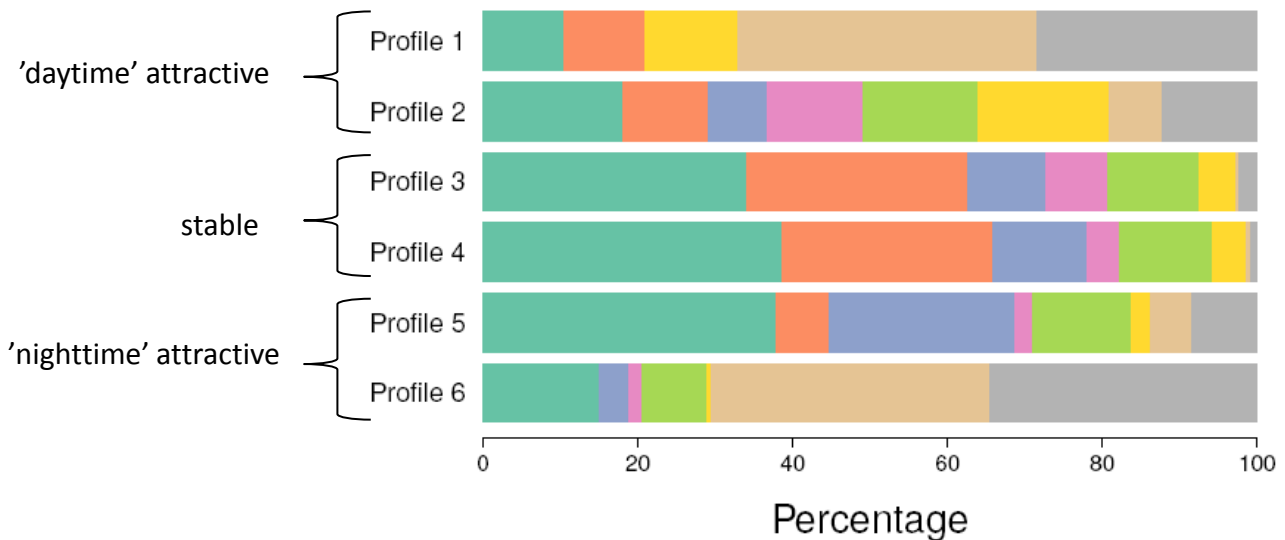
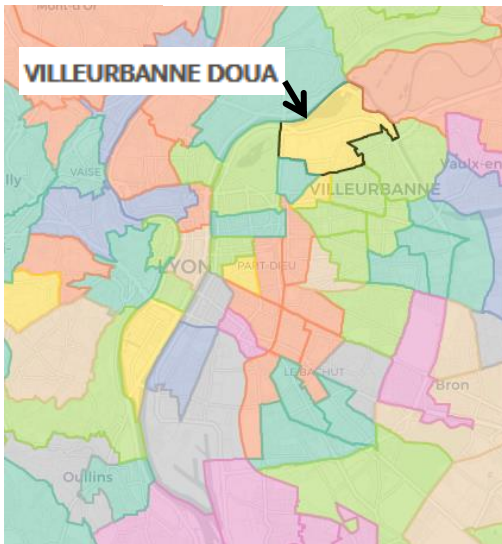
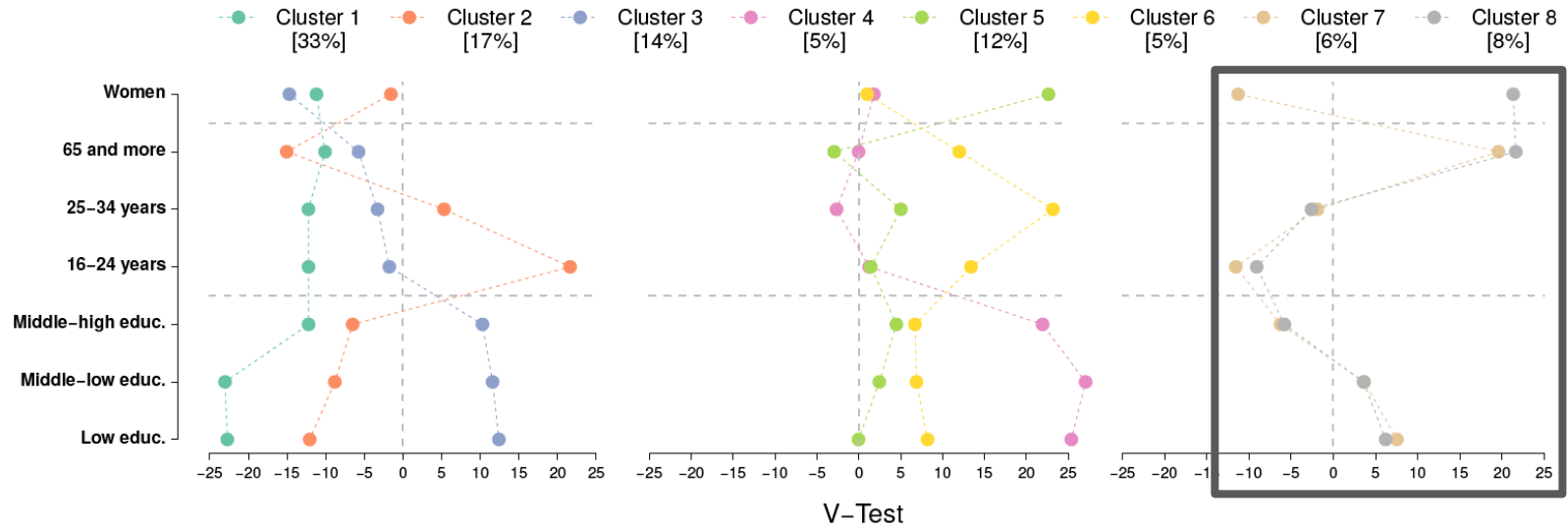
'daytime' attractive

stable

'nighttime' attractive



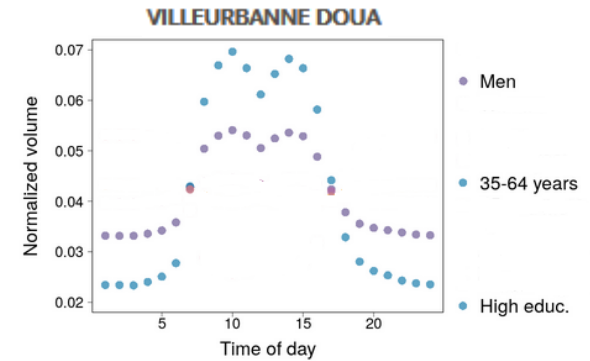
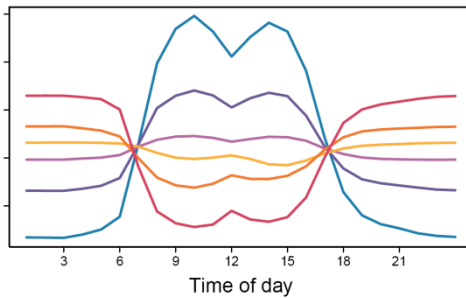
COMBINATIONS OF MISMATCHES IN HOURLY PROFILES



MISMATCH IN HOURLY PROFILES - Methods

DOMINANTS *versus* SUBORDINATES

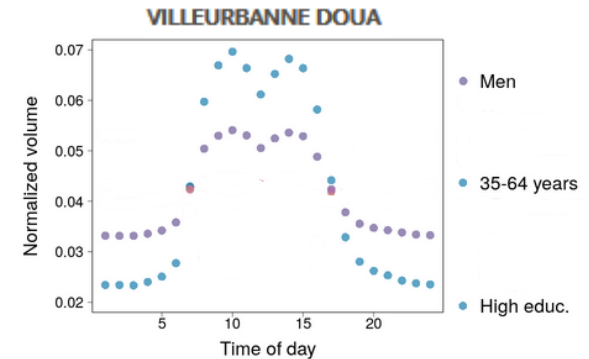
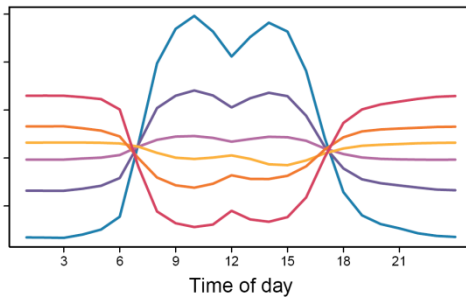
Mismatch between the three '**dominants**' groups:
men, middle-age and high educational people



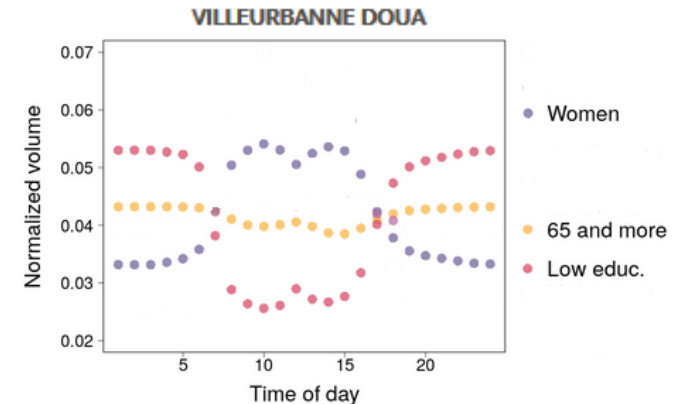
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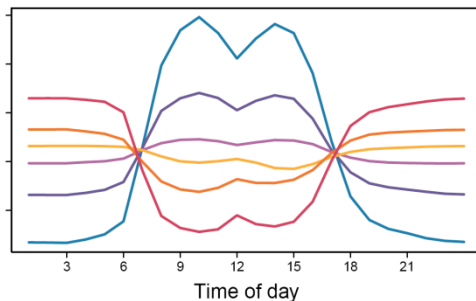
Mismatch between three '**subordinates**' groups:
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MISMATCH IN HOURLY PROFILES - Results

DOMINANTS *versus* SUBORDINATES

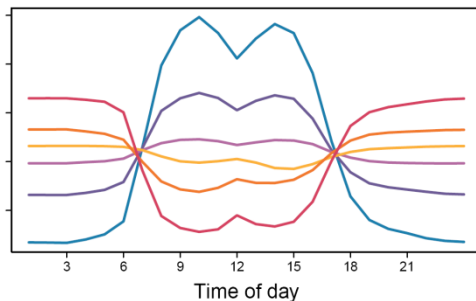
		Dominants <i>men, middle-age and high educational people</i>	Subordinates <i>women, elderly and low educated people</i>
Number of districts		Average mismatch (<i>and standard deviation</i>) in hourly profiles	
Per profiles (for the All population)			
■ Profile 1	67	0.068 (0.112)	< <u>0.273</u> (0.134)
■ Profile 2	261	0.163 (0.117)	≈ 0.168 (0.1)
■ Profile 3	585	0.125 (0.109)	> 0.09 (0.09)
■ Profile 4	567	0.125 (0.104)	> 0.084 (0.077)
■ Profile 5	901	0.11 (0.087)	≈ 0.125 (0.077)
■ Profile 6	180	0.052 (0.074)	< <u>0.209</u> (0.102)



MISMATCH IN HOURLY PROFILES - Results

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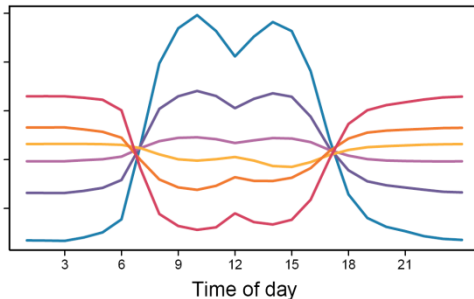
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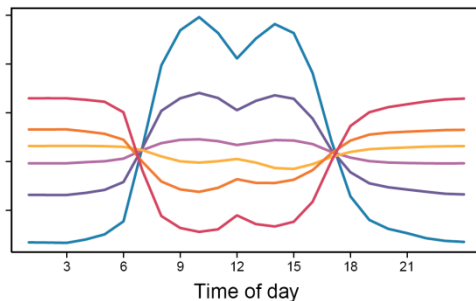
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TO RESUME

- It is especially in areas with strong increase or decrease of population during the day that hourly profiles
 - combine the largest dissimilarities within gender, age and educational subgroups
 - are widely more synchronous between 'dominants' subgroups than between 'subordinates' subgroups
- Empirical keys
 - to broaden the scope of segregation traditionally centered on residential areas
 - to improve knowledge of space-time (de)synchronization across gender, age and educational groups
- A step forward to distinguish
 - places where 'dominants' groups are well-placed to join forces and perpetuate differential access to privileges,
 - or conversely places where 'subordinates' groups face larger obstacles to make common causes and to get a convergence in their empowerment

OPEN SCIENCE

- All data, code and materials are available
 - Initial **data** with hourly populations estimations
 - ✓ in the **M**BILISCOPE platform - <https://mobiliscope.cnrs.fr/en>
 - ✓ also in a Zenodo repository - <https://doi.org/10.5281/zenodo.4900655>
 - **Procedures** in a public repo - <https://gitlab.huma-num.fr/daycourse/intersectionality>
 - **Findings** can be fully explored in a open dedicated cartographic platform
<http://shiny.umr-tetis.fr/Intersectionality>
- Pre-print paper - <https://arxiv.org/abs/2106.15492>



UrbanSys 2021, Lyon

INTERSECTIONAL APPROACH OF EVERYDAY GEOGRAPHY

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Maxime Lenormand - maxime.lenormand@inrae.fr

