

ANR CORPUS GEOMEDIA

Paris, 25 février 2013

Agrégation spatiale et agrégation temporelle

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Les données

168 pays

90 semaines

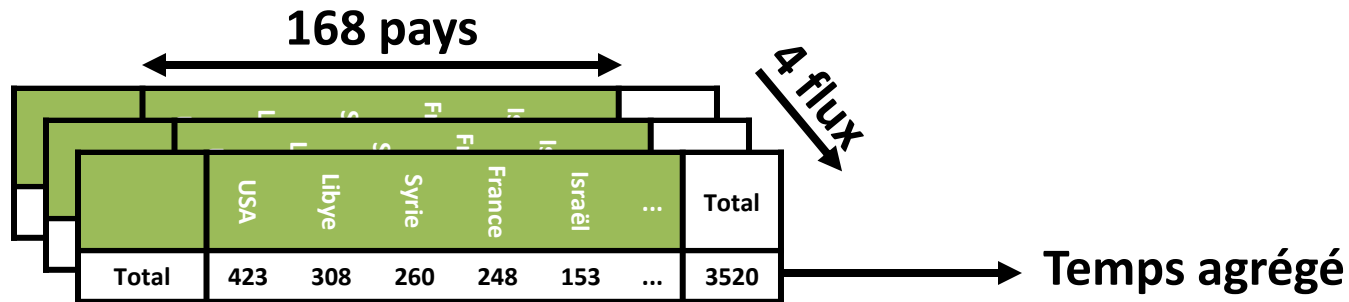
4 flux

| | USA | Libye | Syrie | France | Israël | ... | Total |
|-----------|-----|-------|-------|--------|--------|-----|-------|
| 2 mai | 25 | 12 | 11 | 10 | 4 | ... | 142 |
| 9 mai | 14 | 6 | 12 | 12 | 5 | ... | 108 |
| 16 mai | 20 | 11 | 12 | 6 | 9 | ... | 142 |
| 23 mai | 15 | 9 | 6 | 13 | 5 | ... | 120 |
| 30 mai | 10 | 16 | 17 | 9 | 4 | ... | 137 |
| 6 juin | 14 | 16 | 16 | 9 | 4 | ... | 114 |
| 13 juin | 15 | 14 | 17 | 9 | 6 | ... | 119 |
| 20 juin | 17 | 13 | 12 | 12 | 7 | ... | 123 |
| 27 juin | 7 | 6 | 7 | 20 | 2 | ... | 103 |
| 4 juill. | 12 | 13 | 8 | 10 | 6 | ... | 129 |
| 11 juill. | 21 | 10 | 10 | 14 | 3 | ... | 107 |
| 18 juill. | 7 | 3 | 8 | 4 | 5 | ... | 61 |
| 25 juill. | 16 | 7 | 6 | 13 | 4 | ... | 128 |
| 1 août | 21 | 1 | 9 | 7 | 4 | ... | 88 |
| 8 août | 16 | 4 | 10 | 11 | 4 | ... | 112 |
| ... | ... | ... | ... | ... | ... | ... | ... |
| Total | 423 | 308 | 260 | 248 | 153 | ... | 3520 |

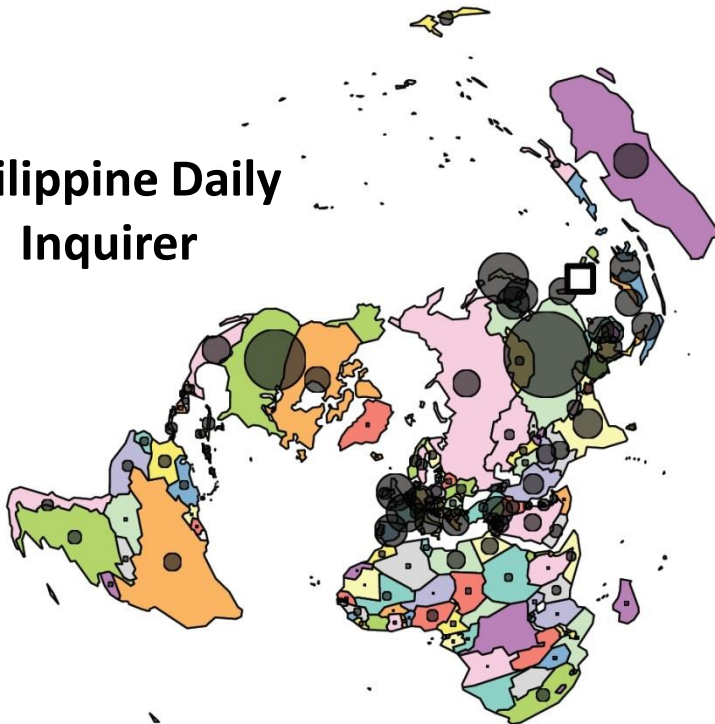
- Espace : 168 pays
- Temps : 90 semaines
(de mai 2011 à janvier 2013)
- Sources : 4 flux
 - The Vancouver Sun
 - The Daily Mail
 - The Philippine Daily Inquirer
 - The Guardian

AGRÉGATION SPATIALE

Les données spatiales

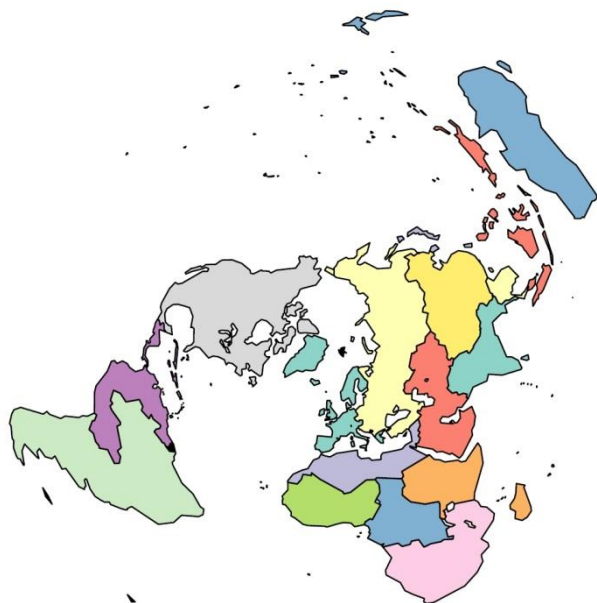
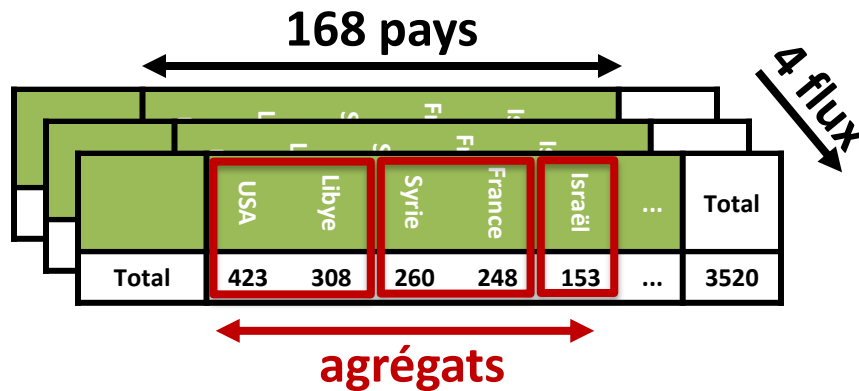


Philippine Daily
Inquirer



x 4 flux

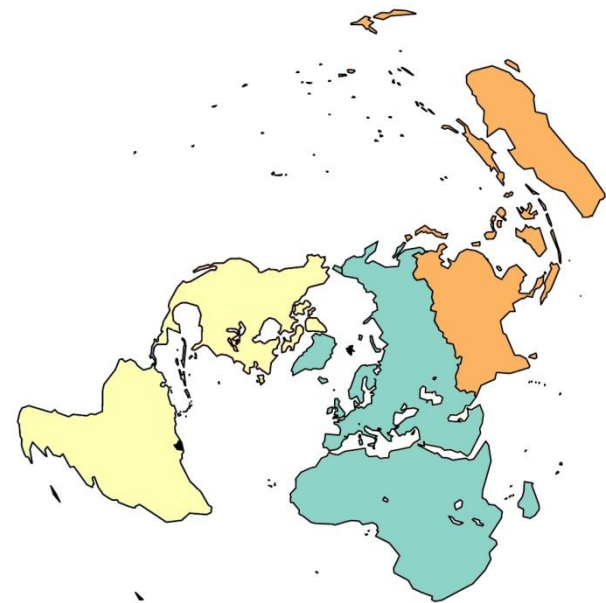
Les agrégats spatiaux



WUTS3
(17 agrégats)

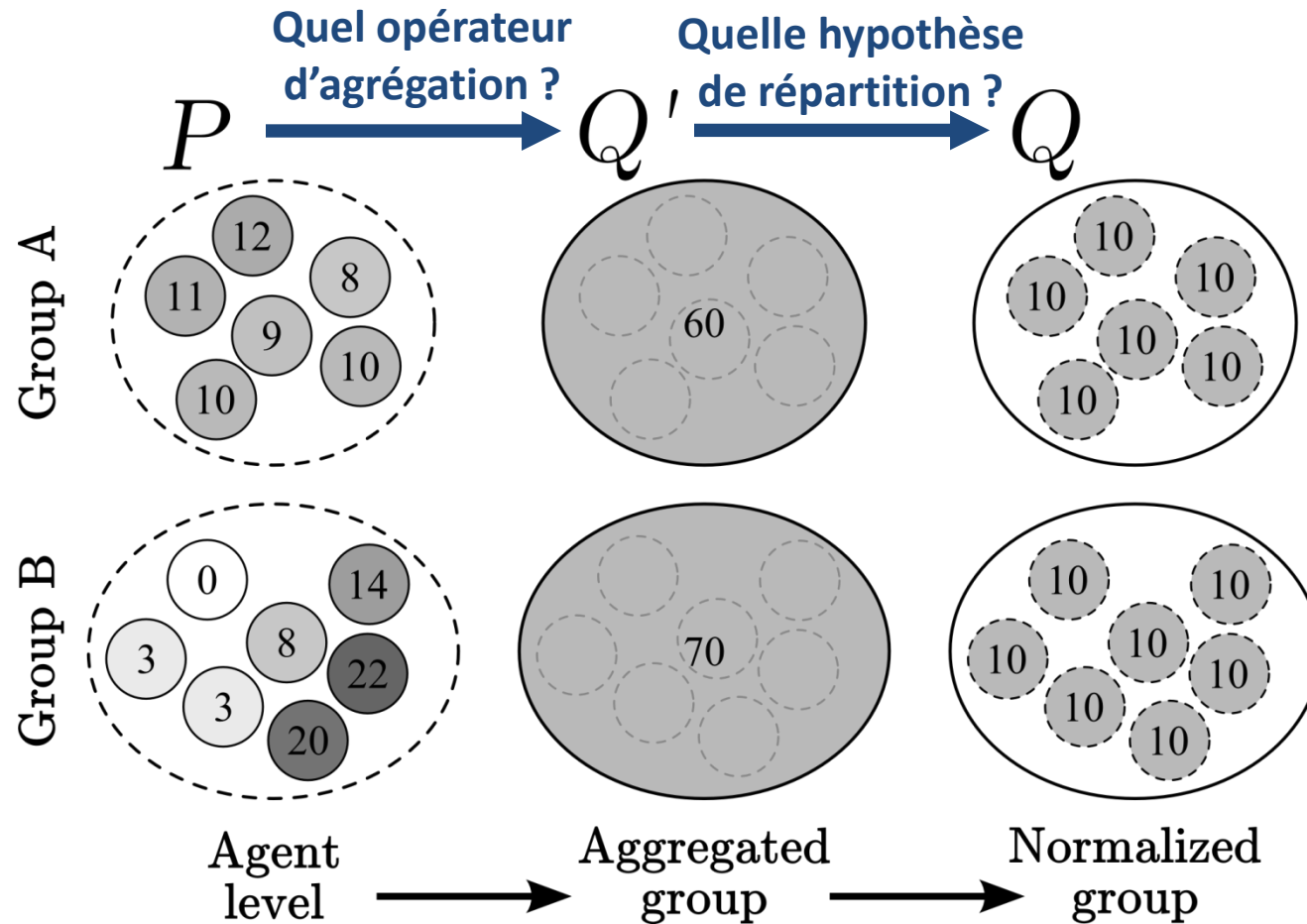


WUTS2
(6 agrégats)

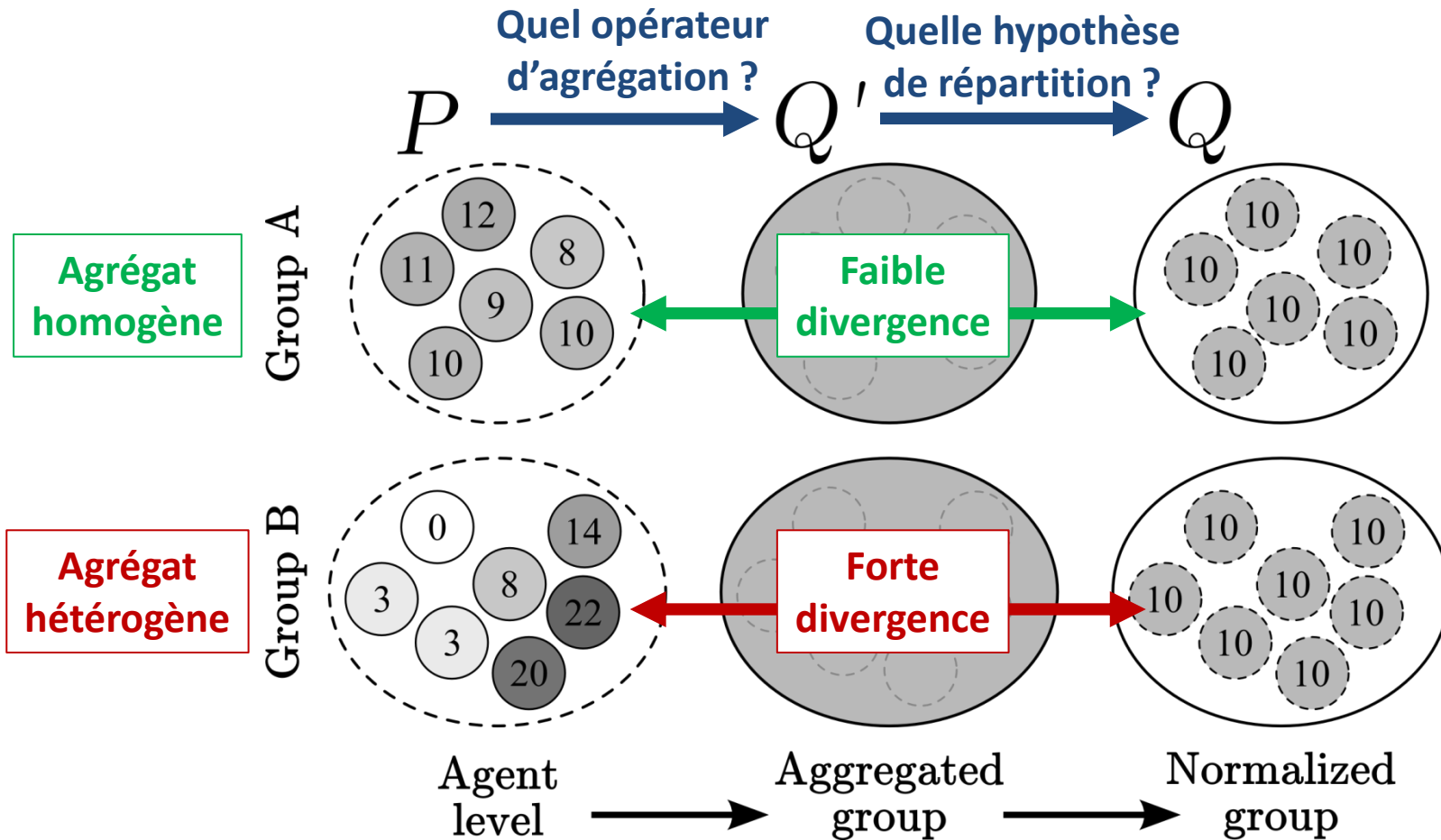


WUTS1
(3 agrégats)

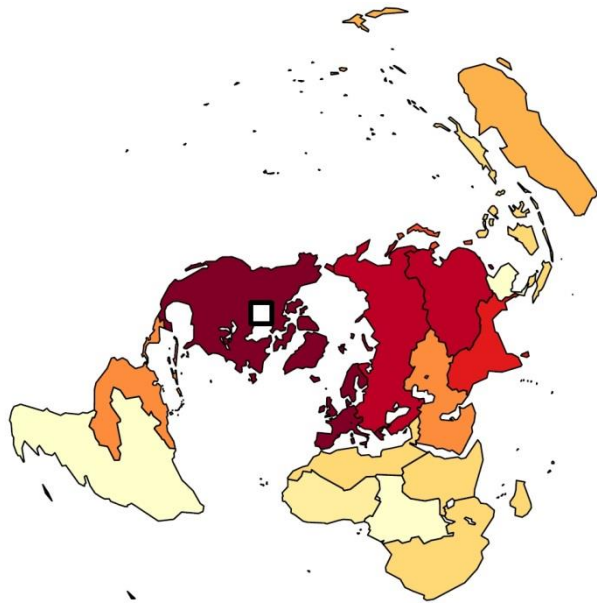
Qualité des agrégats



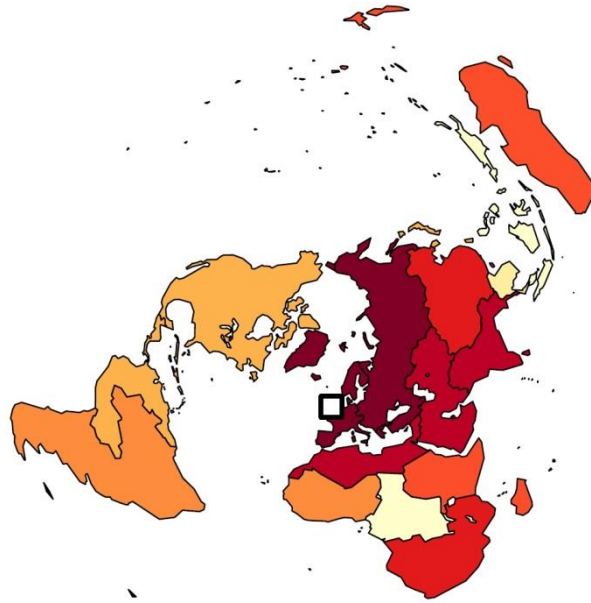
Qualité des agrégats



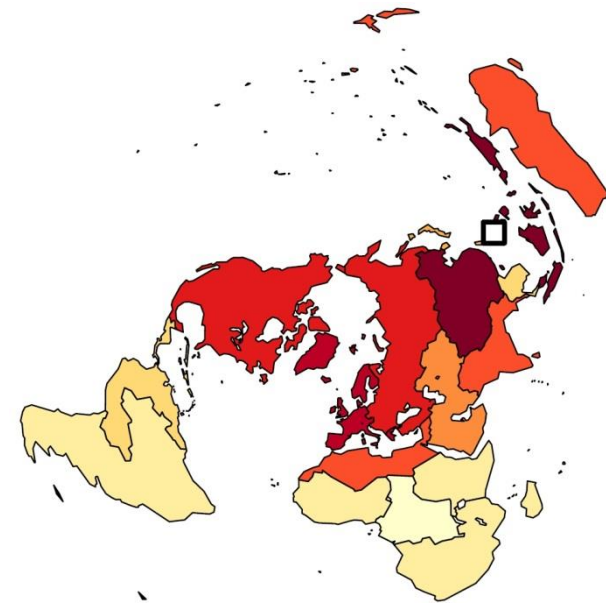
Variation spatiale de la divergence (WUTS3)



Vancouver Sun



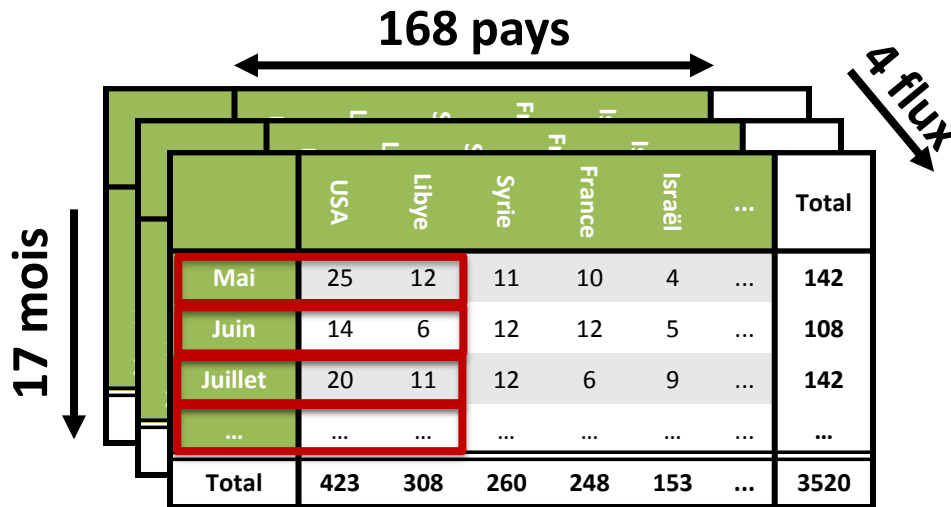
Daily Mail



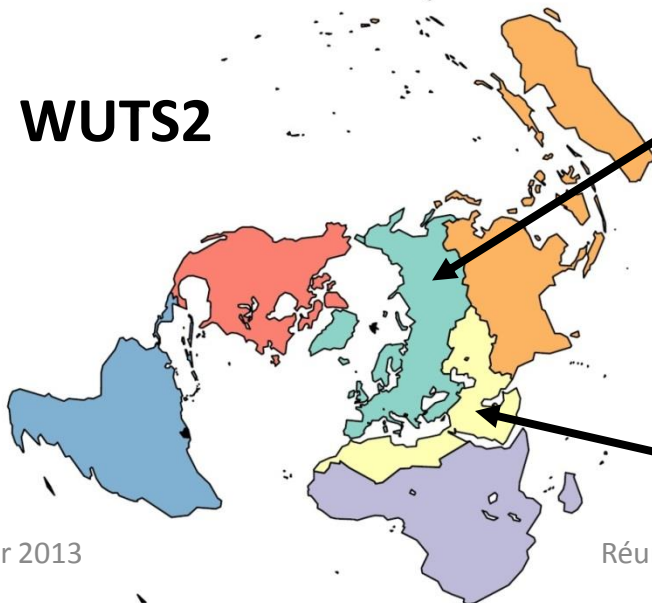
Philippine Daily Inquirer



Variation temporelle de la divergence

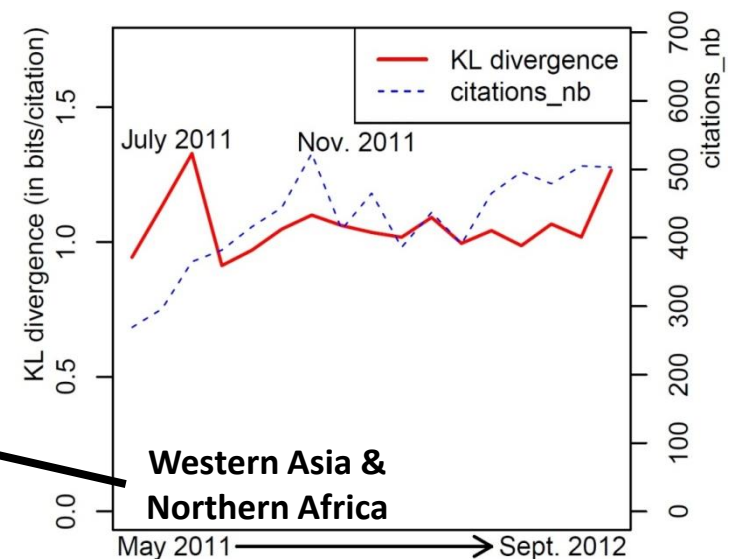
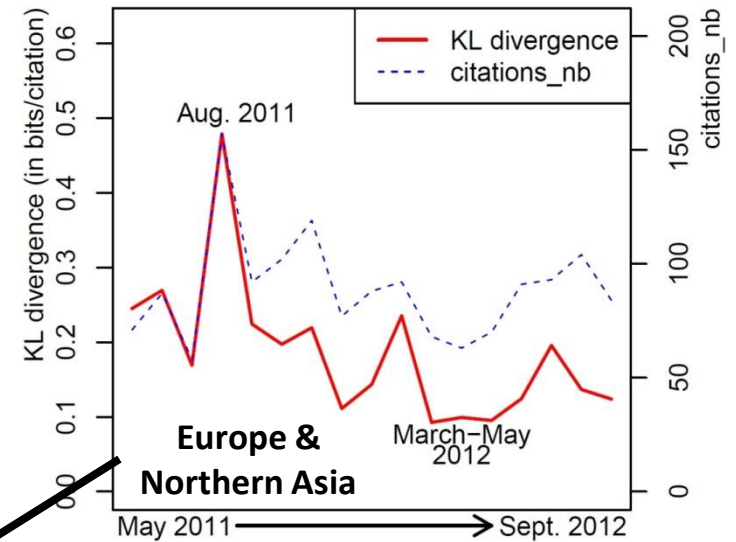


WUTS2



25 février 2013

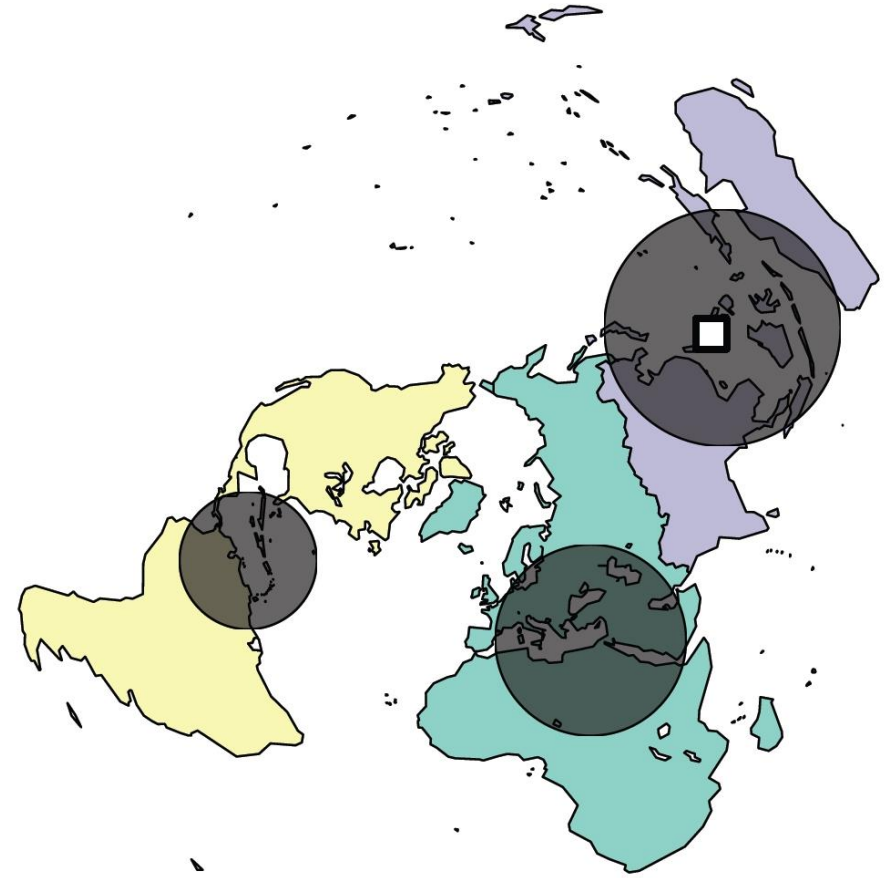
Réunion GEOMEDIA



Complexité des données agrégées



**Forte complexité
(168 valeurs)**



**Faible complexité
(3 valeurs)**

**Quelle mesure
de complexité ?**

Combiner la divergence et la complexité

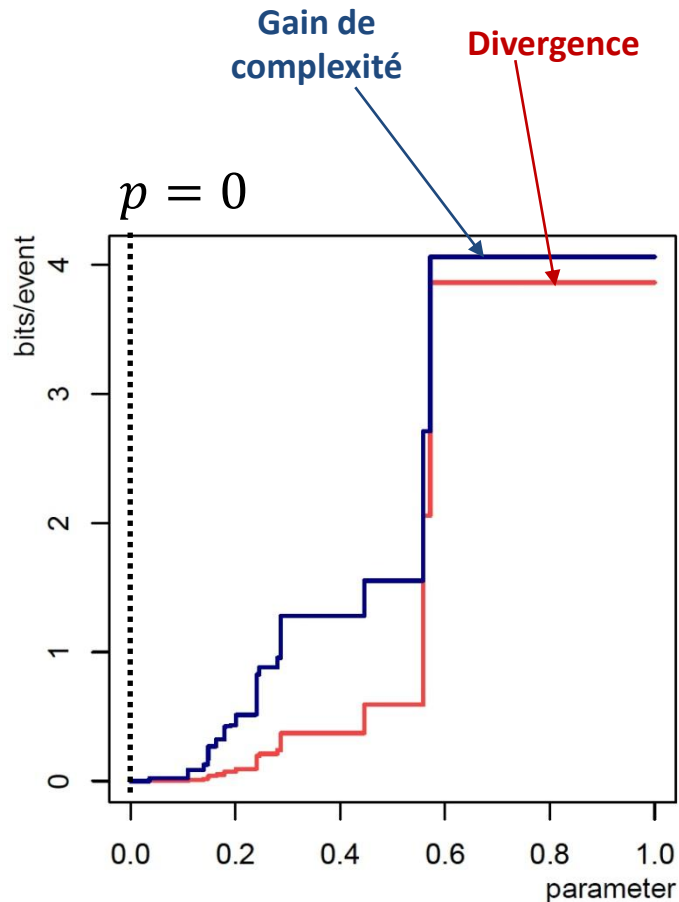
Gain de complexité vs. Divergence

Maximiser $m_p = p \times \textit{gain} - (1 - p) \times \textit{div}$

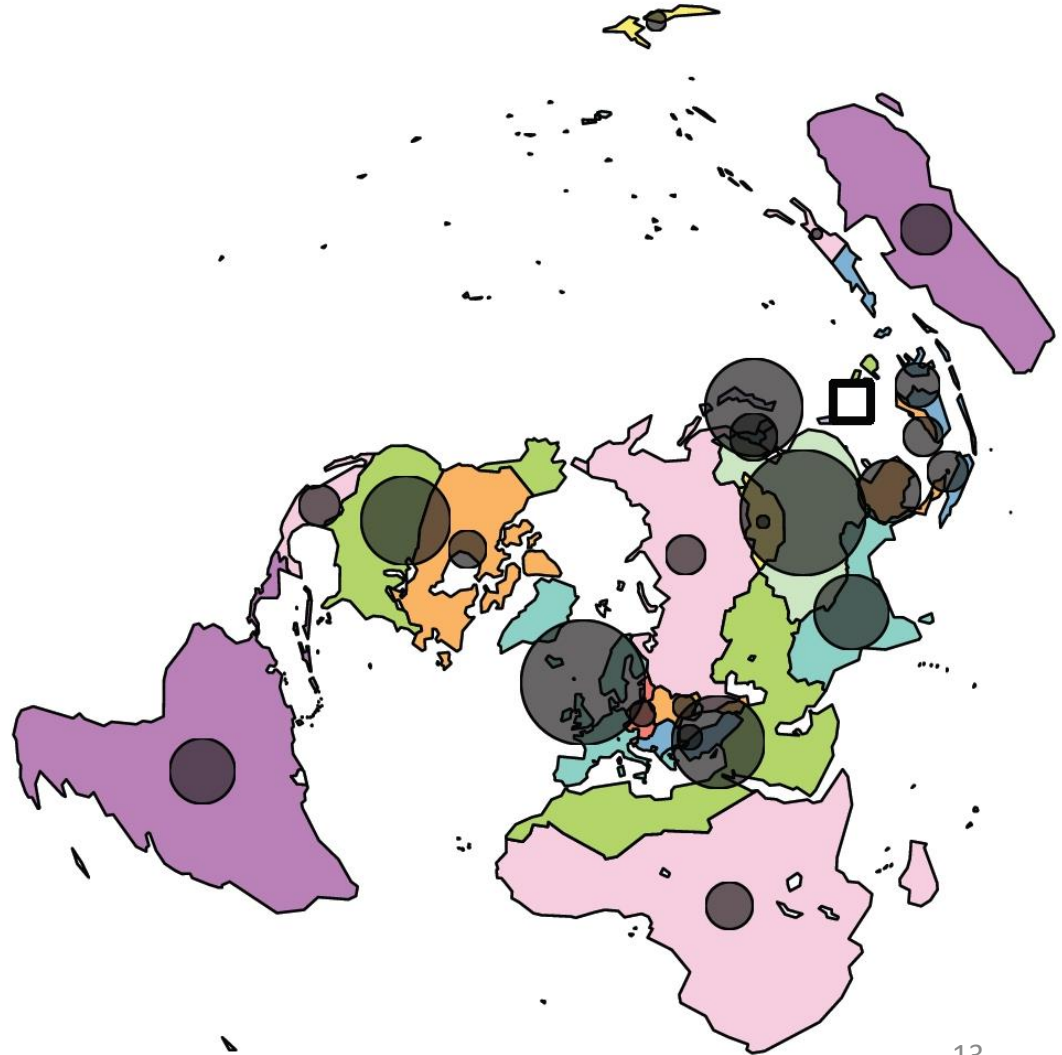
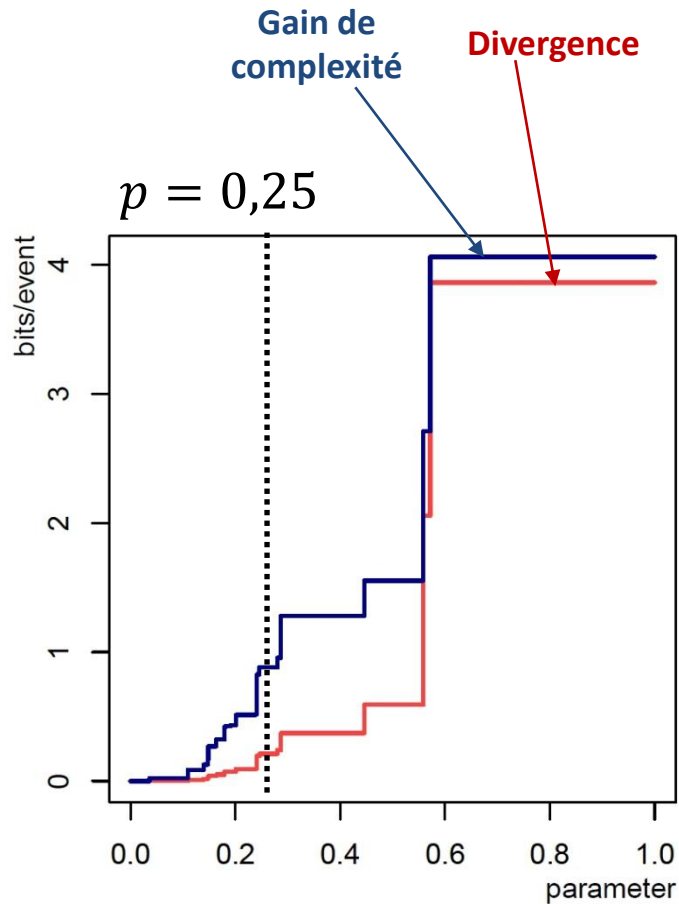
$m_0 = -\textit{div} \longrightarrow$ **Aucune agrégation** (toutes les données)

$m_1 = \textit{gain} \longrightarrow$ **Agrégation totale** (une seule valeur)

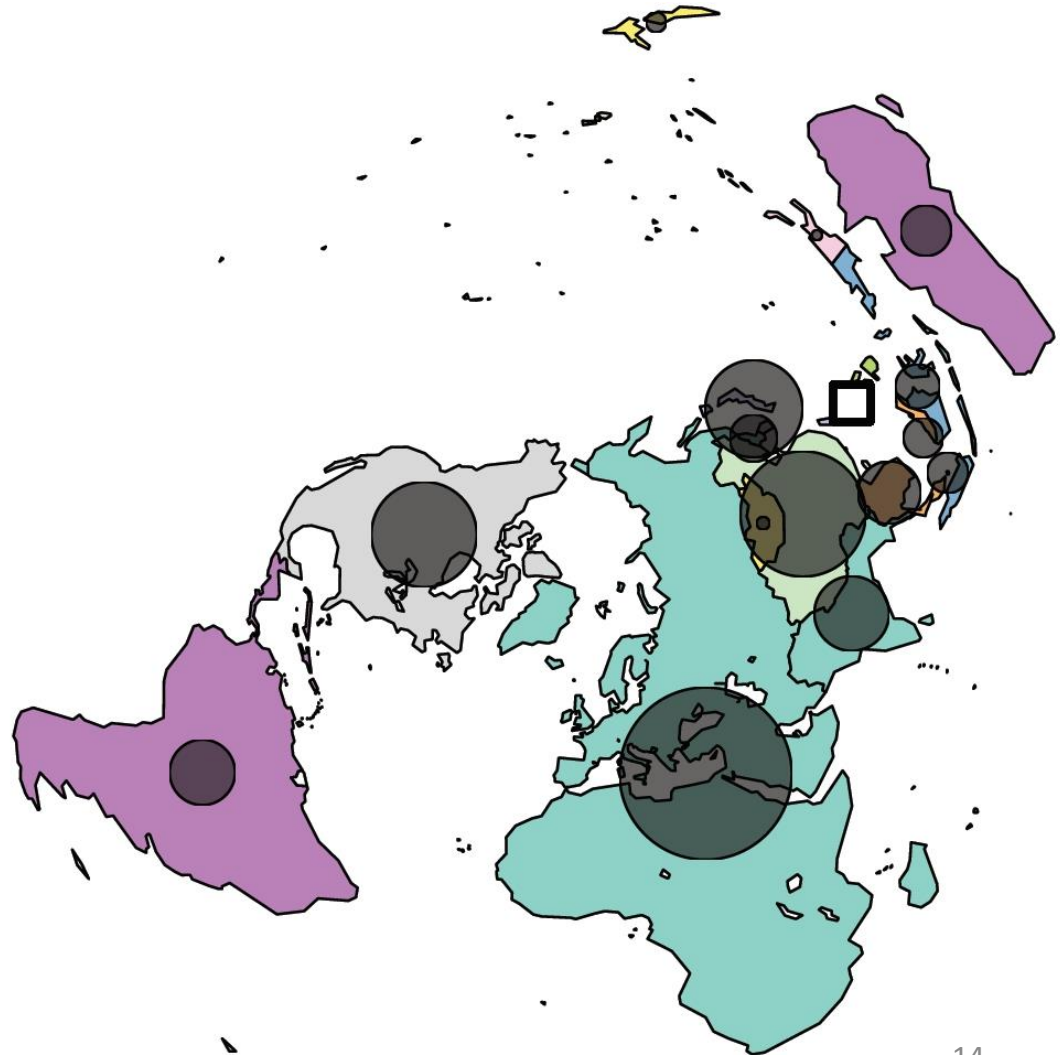
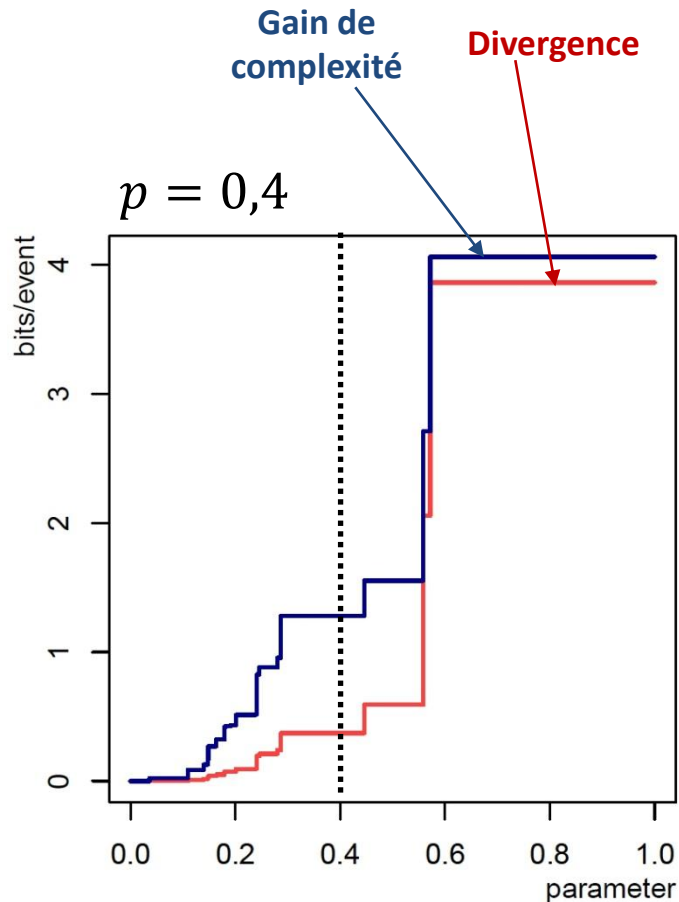
Agrégation spatiale multi-résolution



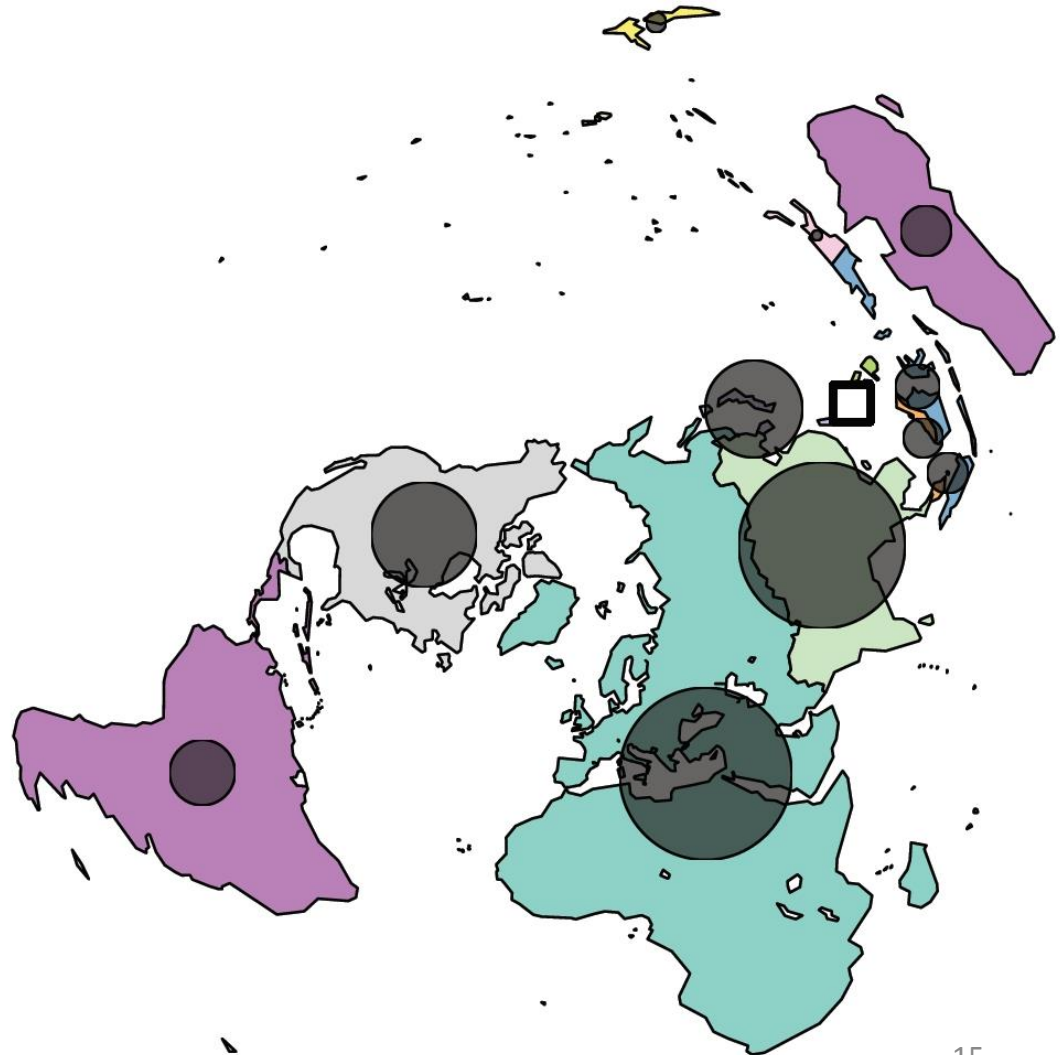
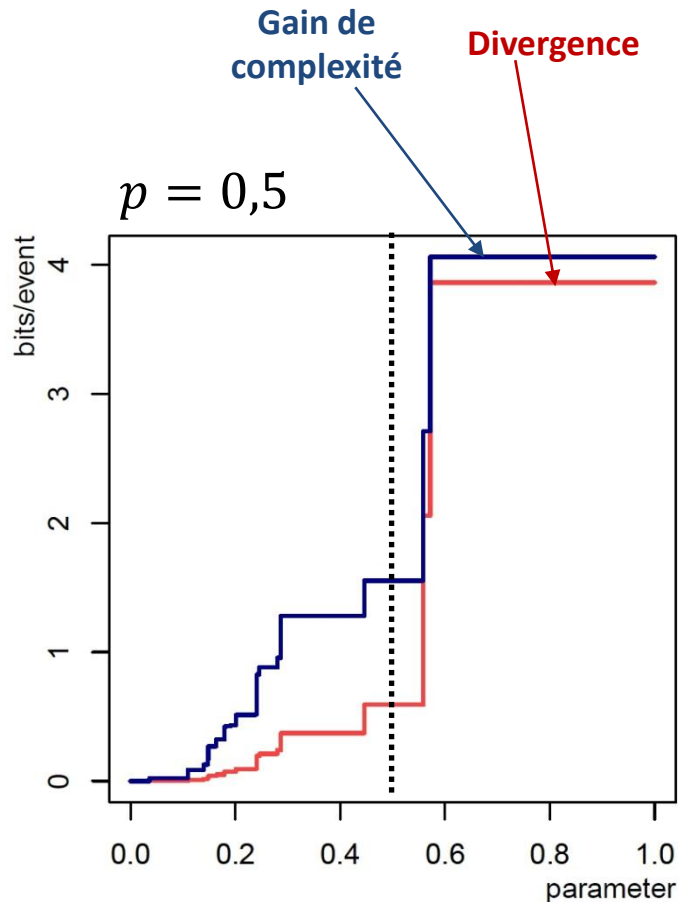
Agrégation spatiale multi-résolution



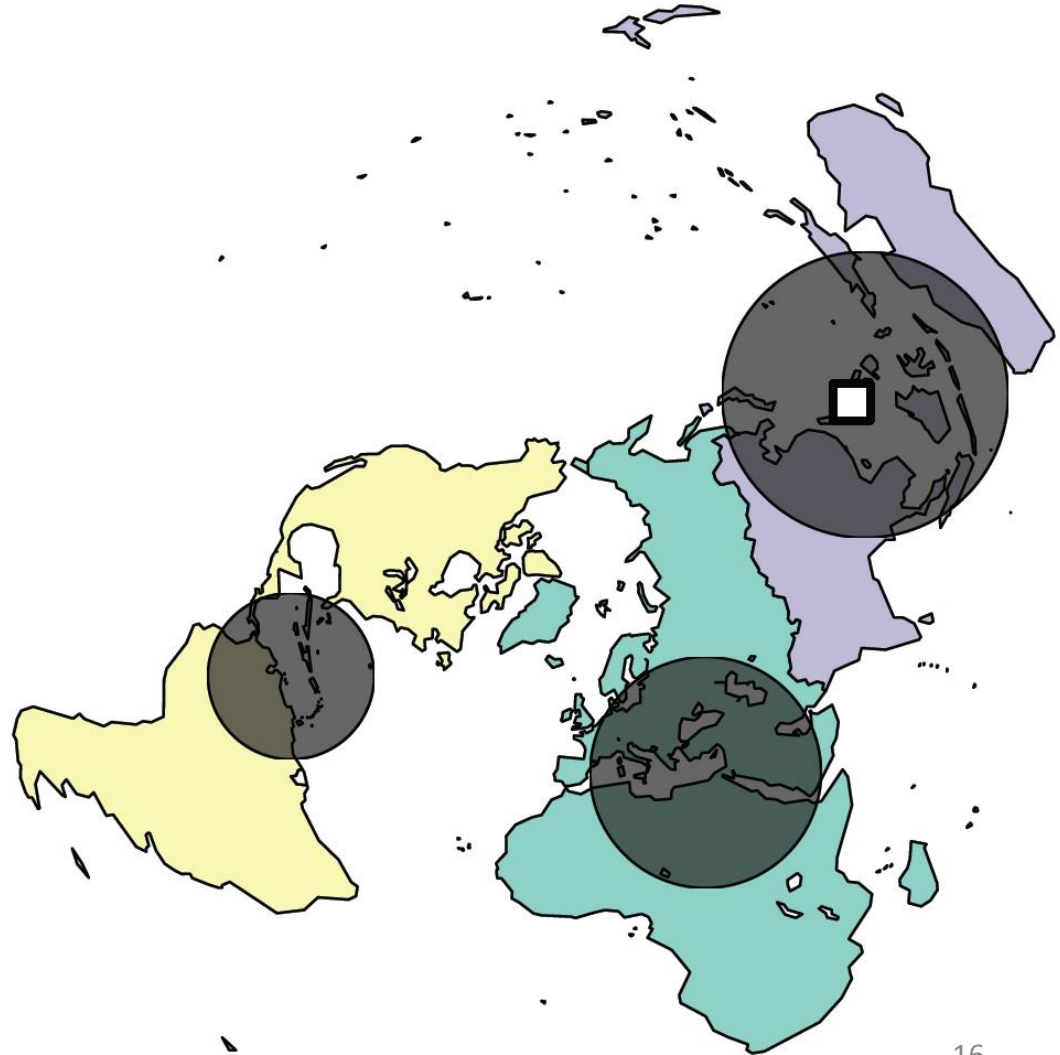
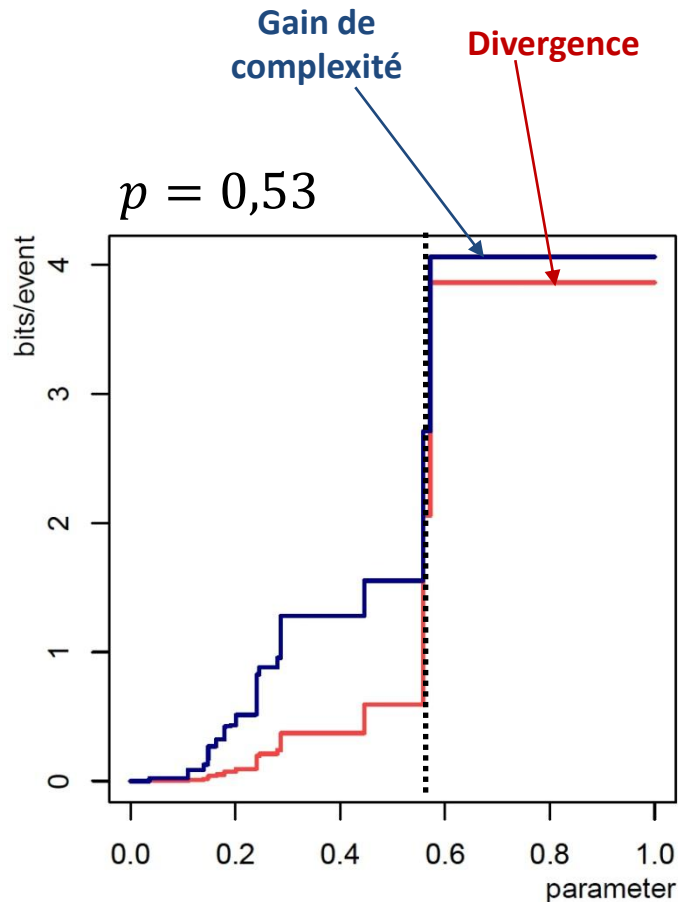
Agrégation spatiale multi-résolution



Agrégation spatiale multi-résolution



Agrégation spatiale multi-résolution



AGRÉGATION TEMPORELLE

Les données temporelles

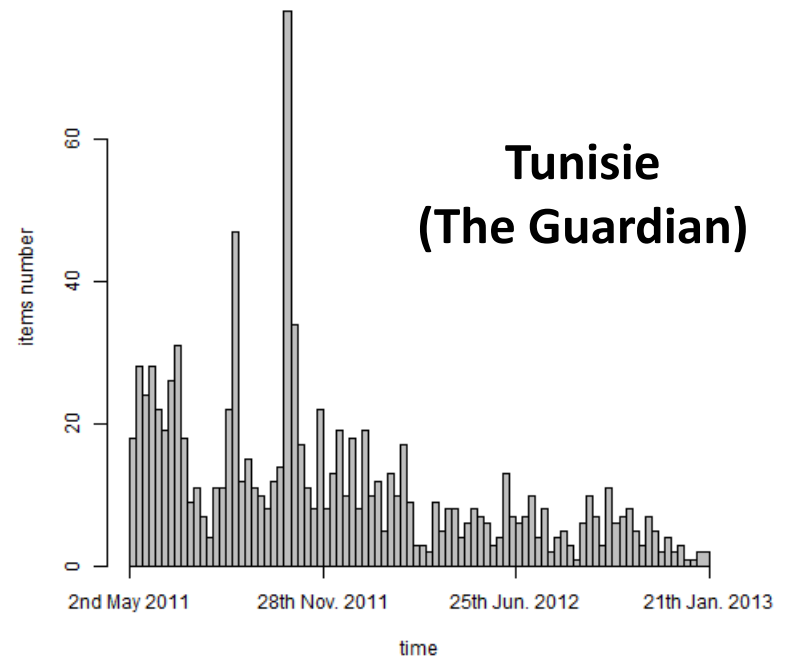
Diagram illustrating the structure of temporal data across 168 countries and 90 weeks, with 4 fluxes.

168 pays (horizontal dimension)

90 semaines (vertical dimension)

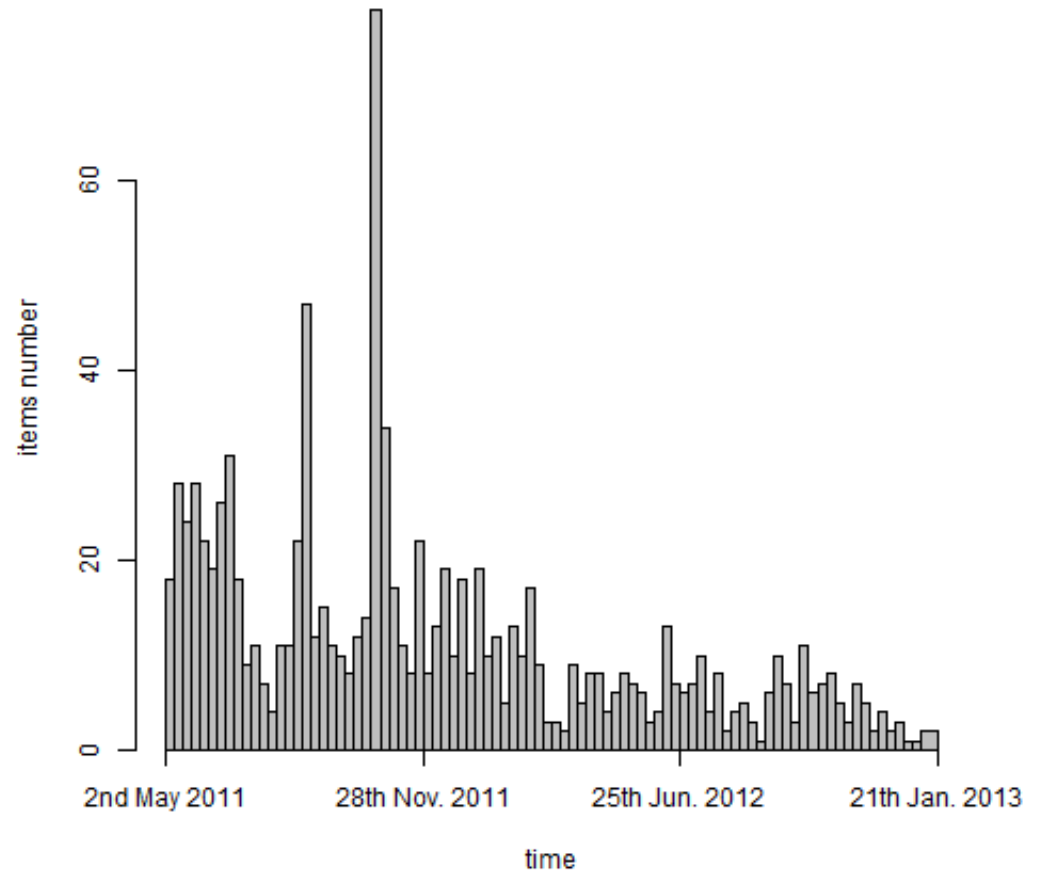
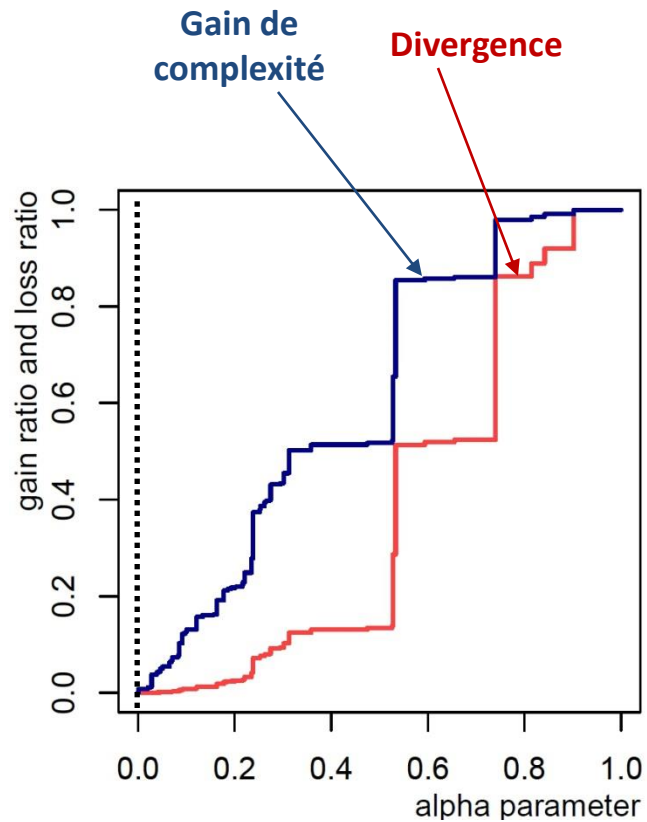
4 flux (diagonal dimension)

| | USA | Libye | Syrie | France | Israël | ... | Total |
|--------------|------------|------------|------------|------------|------------|------------|-------------|
| 2 mai | 25 | 12 | 11 | 10 | 4 | ... | 142 |
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| Total | 423 | 308 | 260 | 248 | 153 | ... | 3520 |

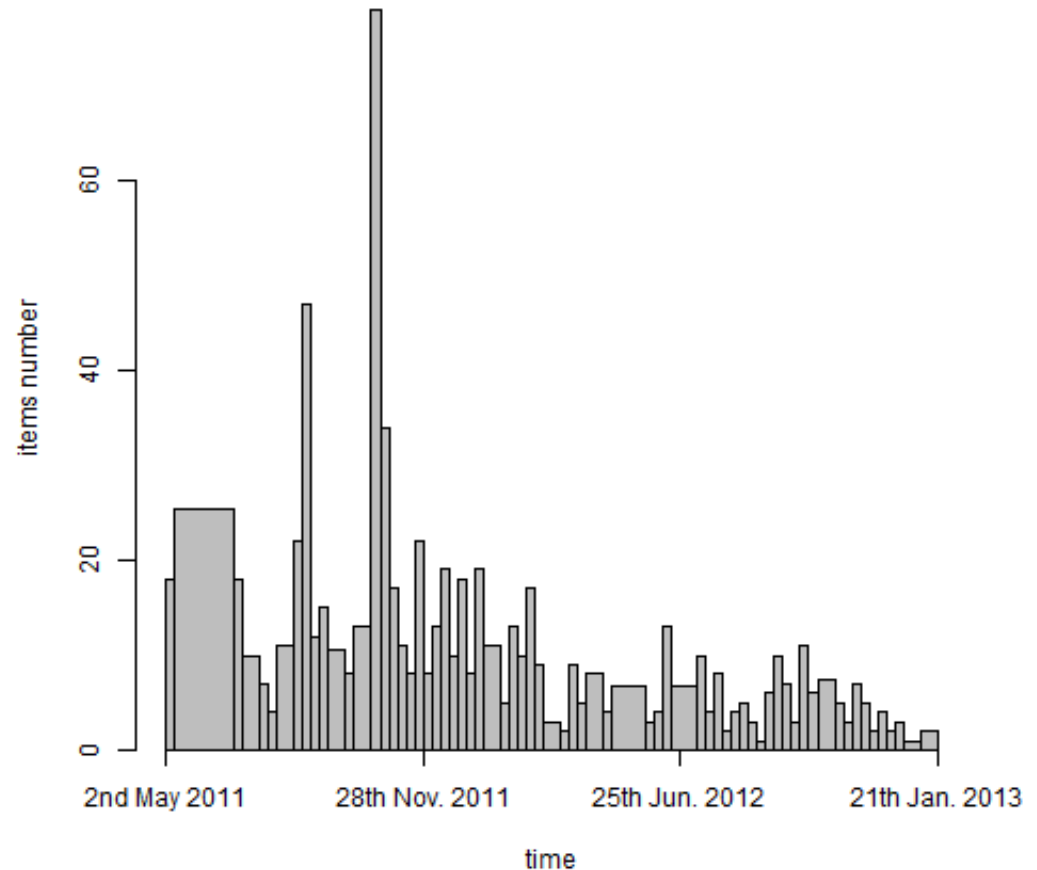
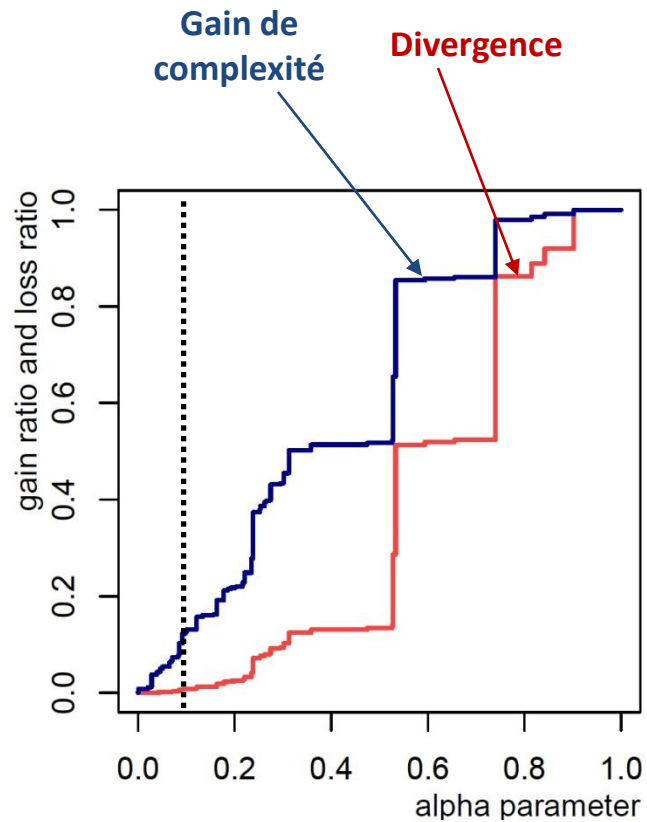


x 168 pays
x 4 flux

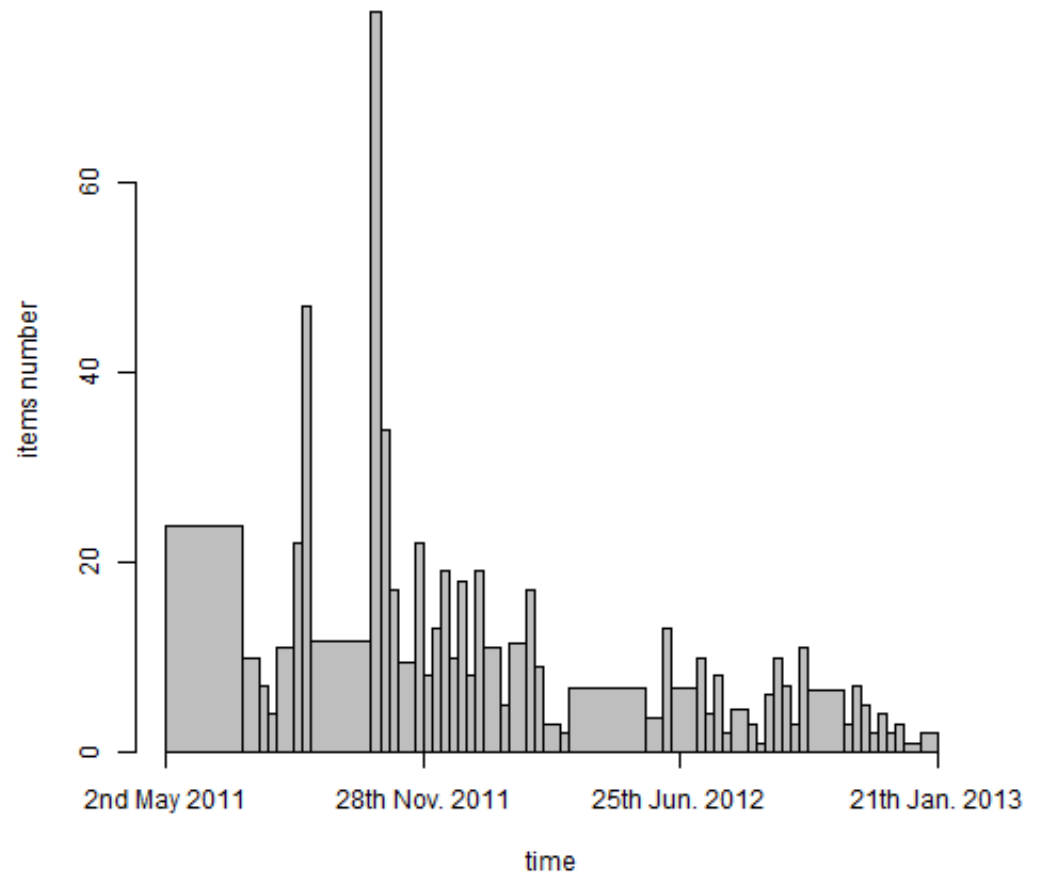
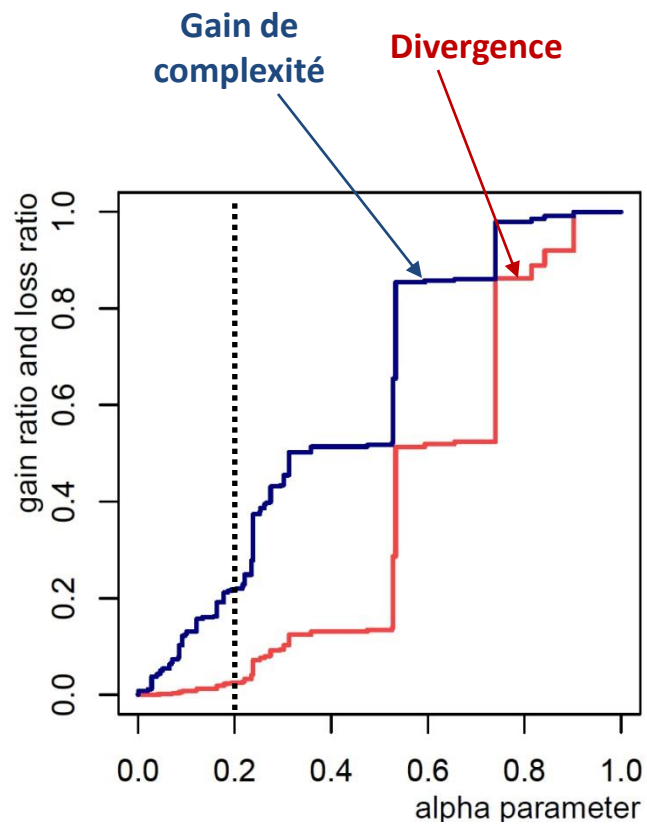
Agrégation temporelle



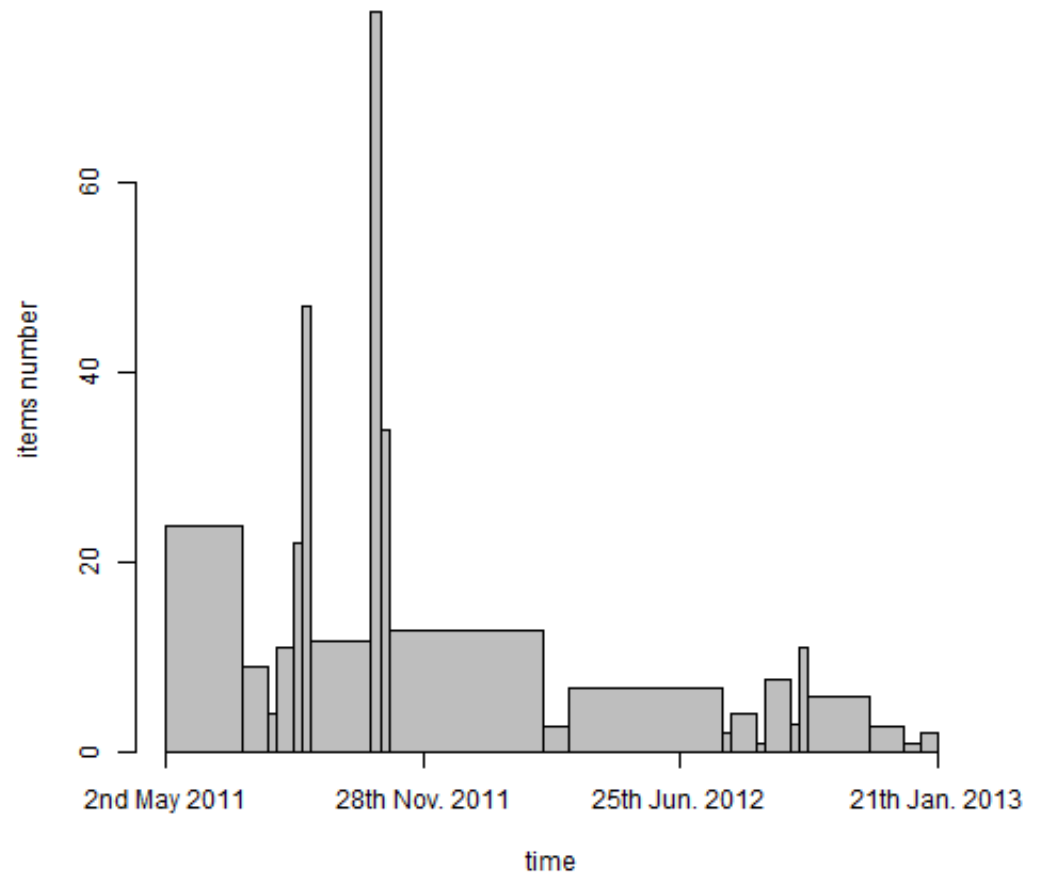
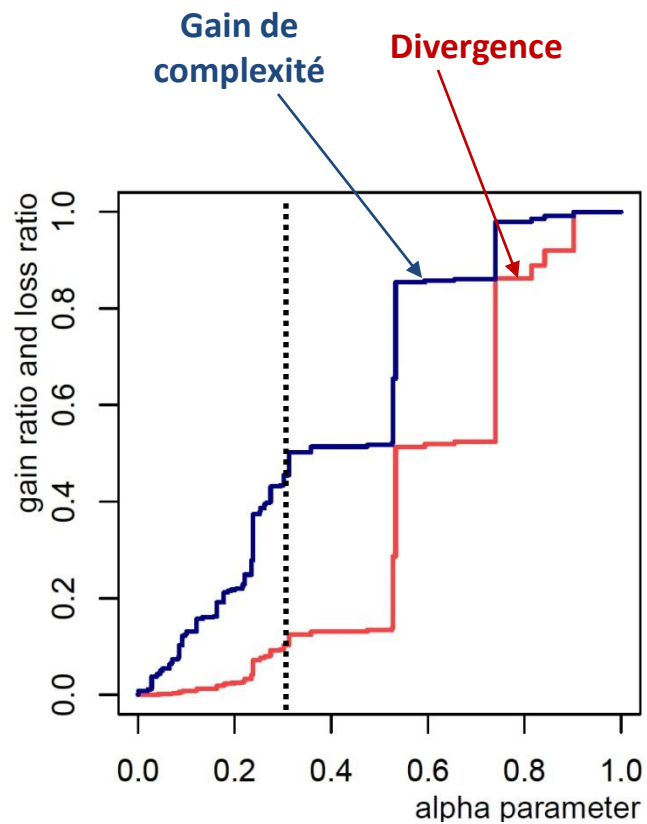
Agrégation temporelle



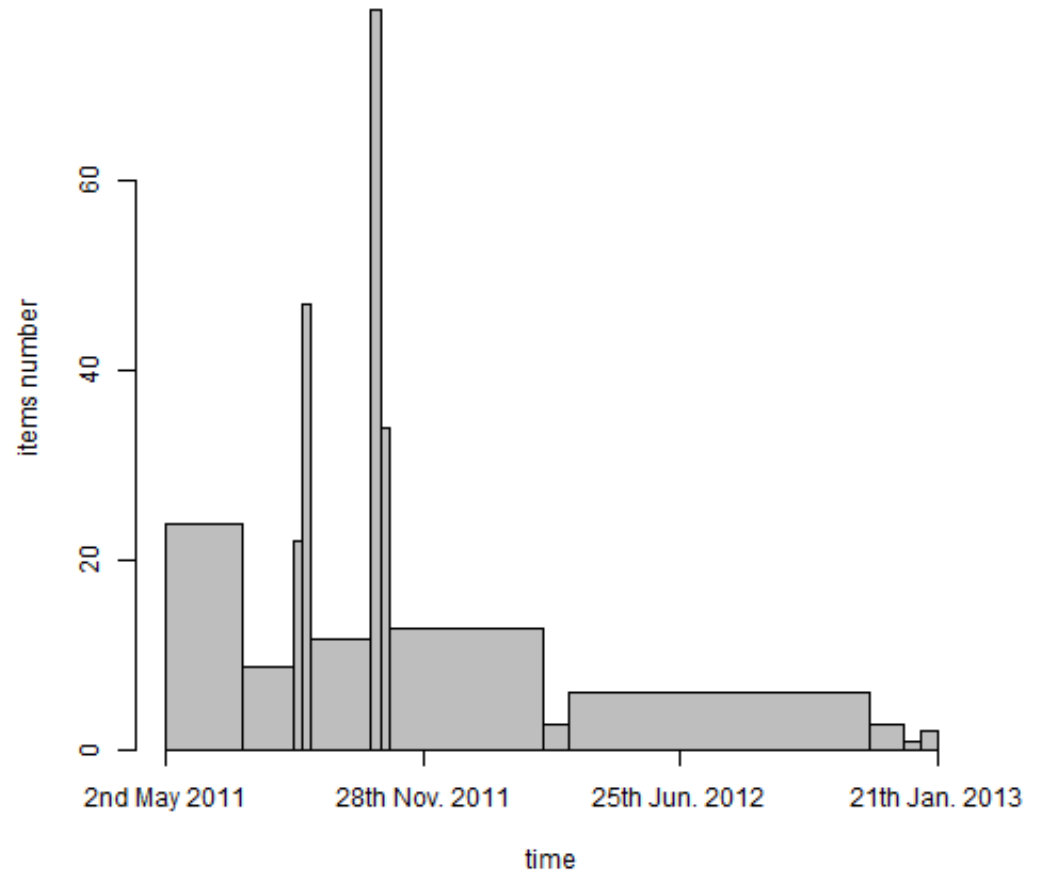
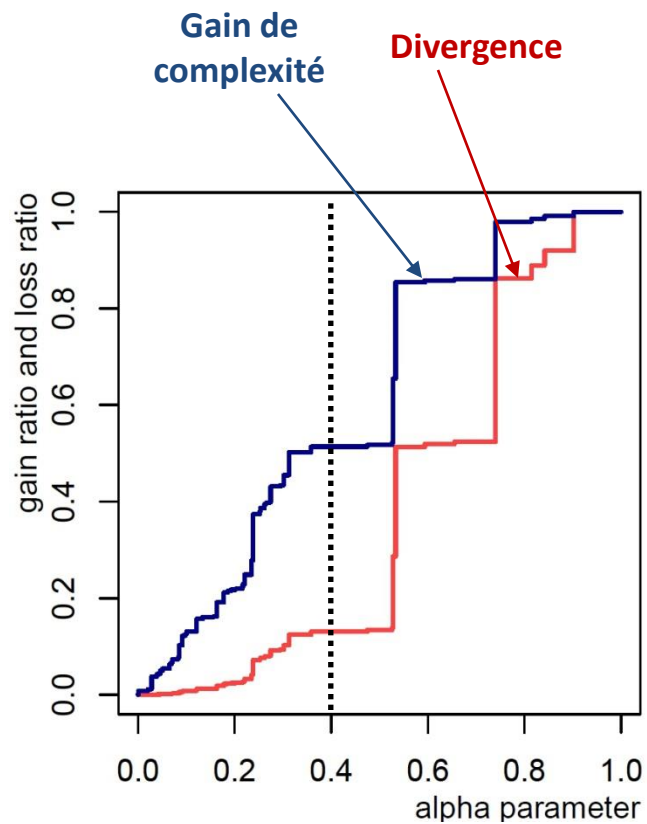
Agrégation temporelle



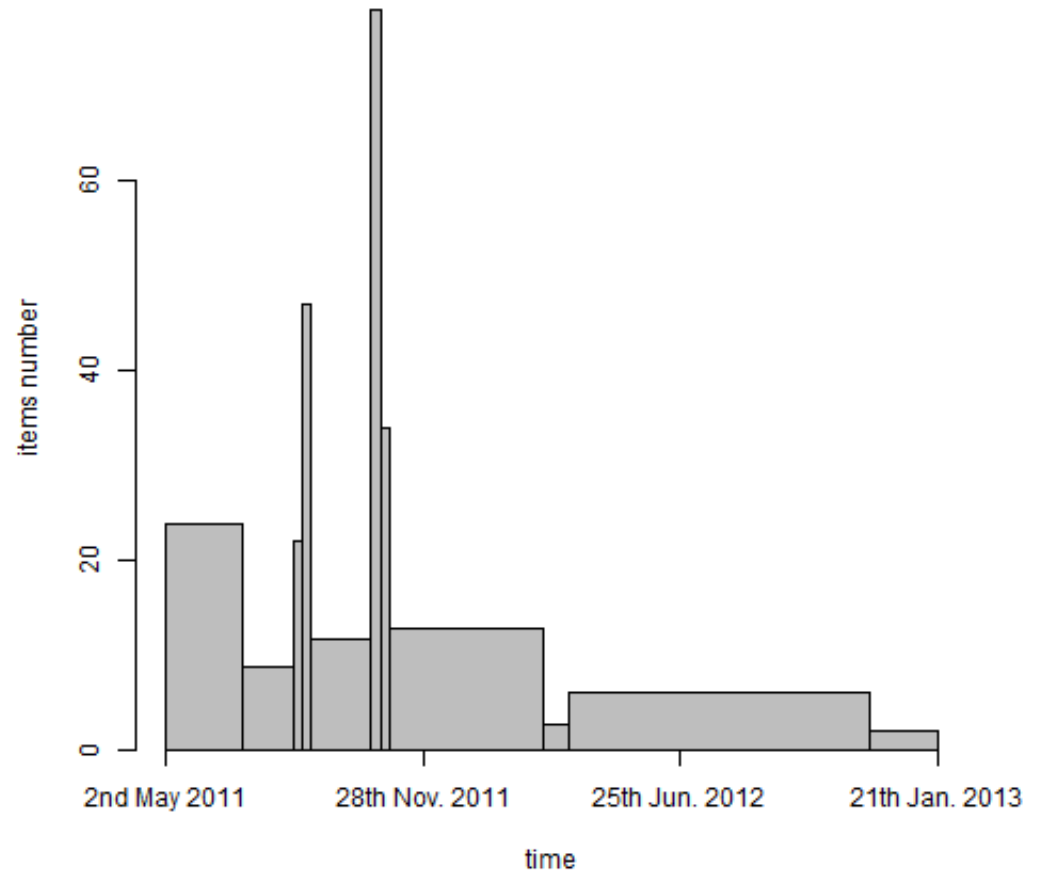
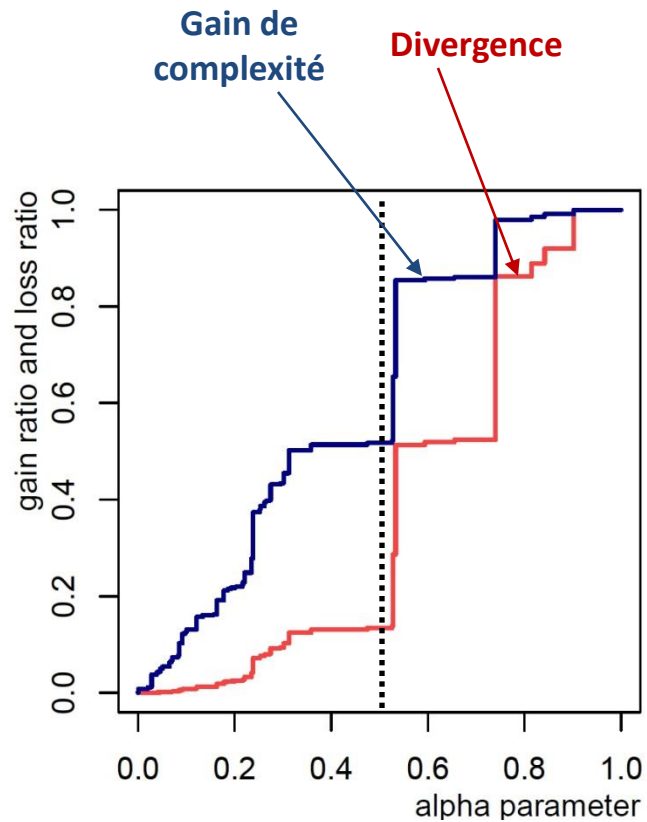
Agrégation temporelle



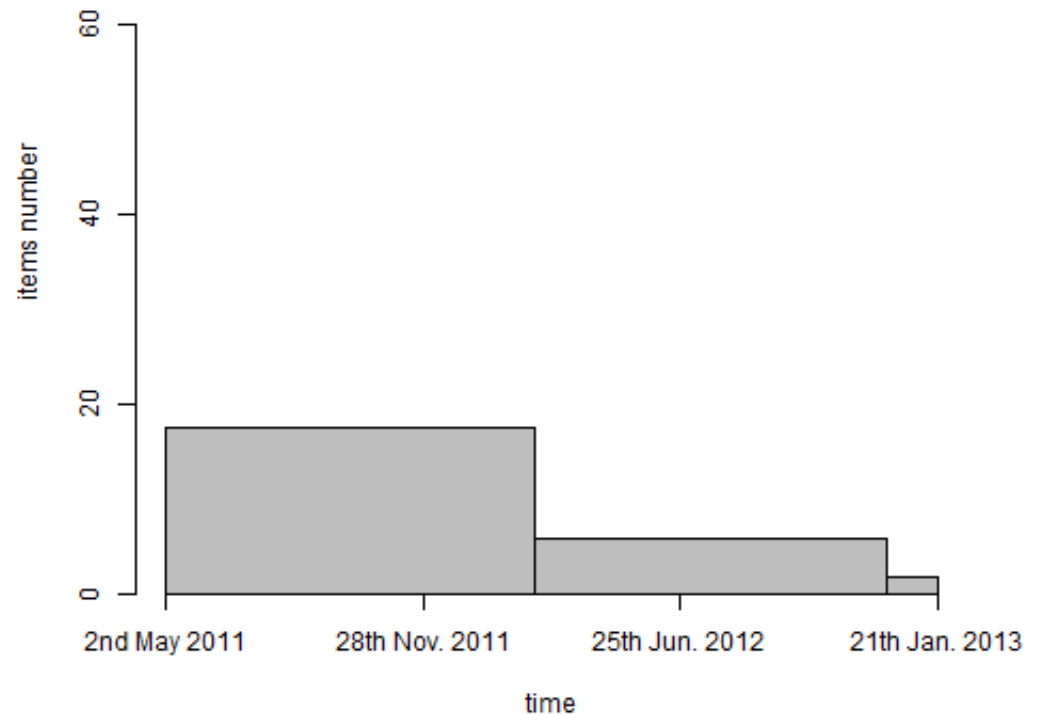
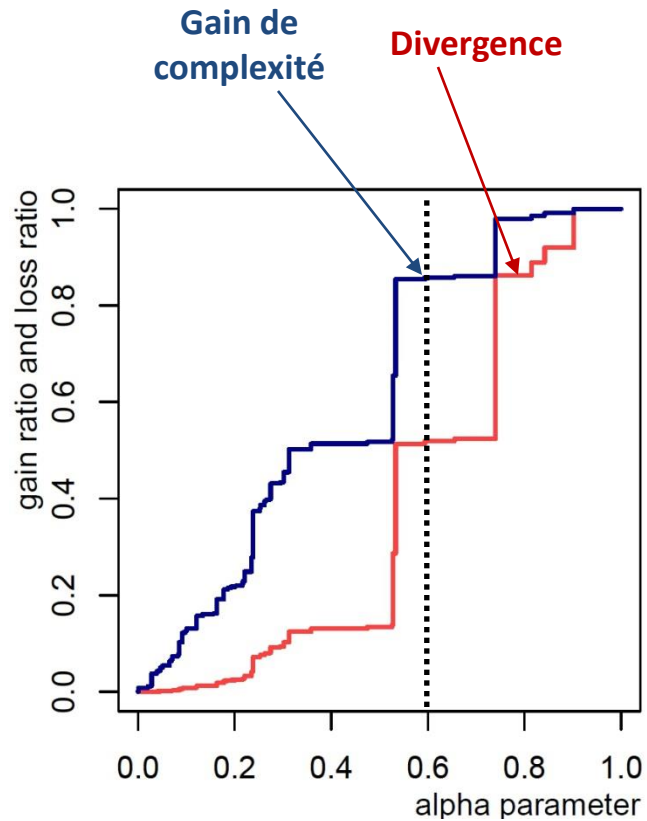
Agrégation temporelle



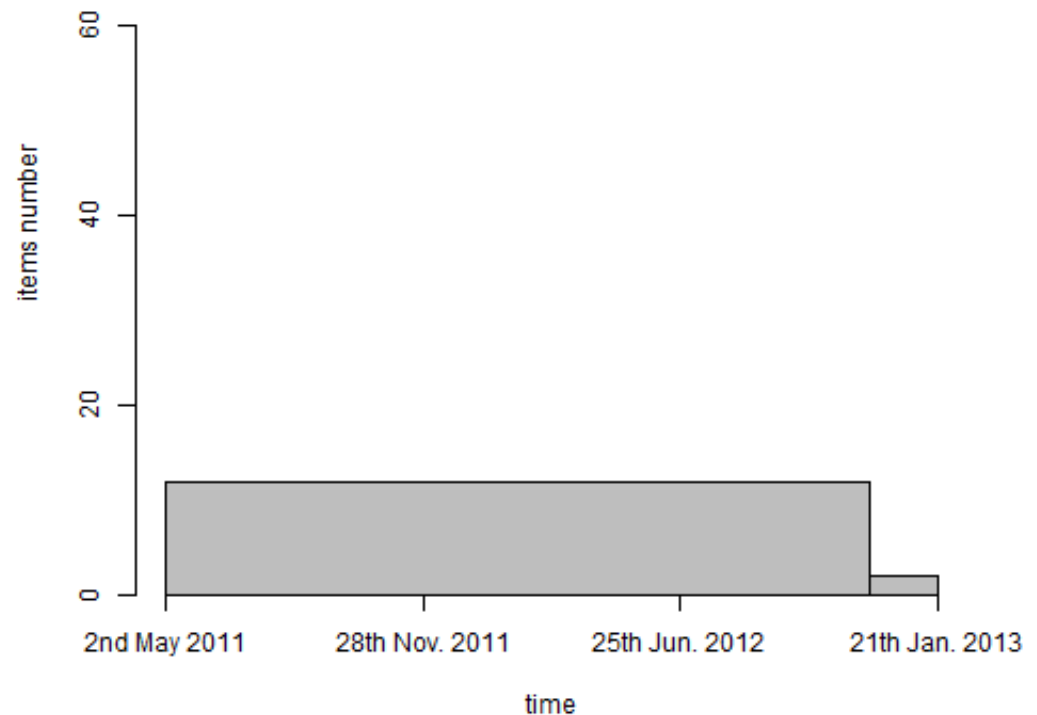
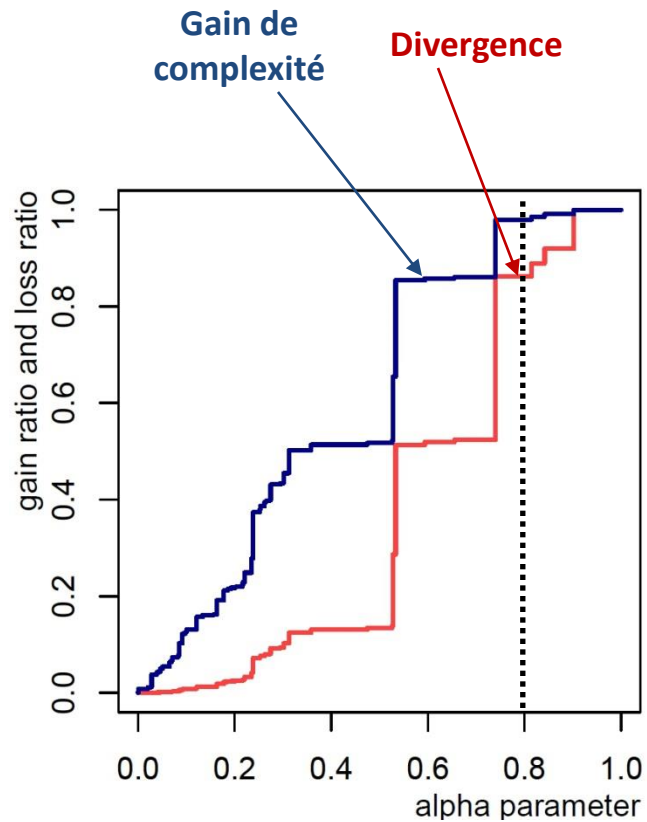
Agrégation temporelle



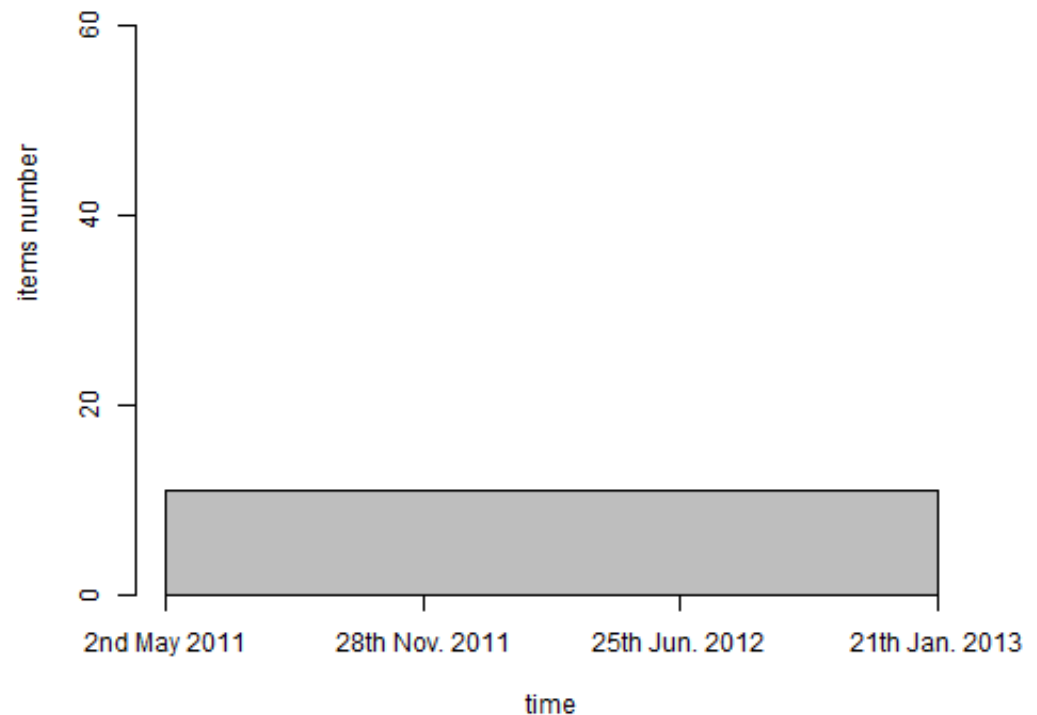
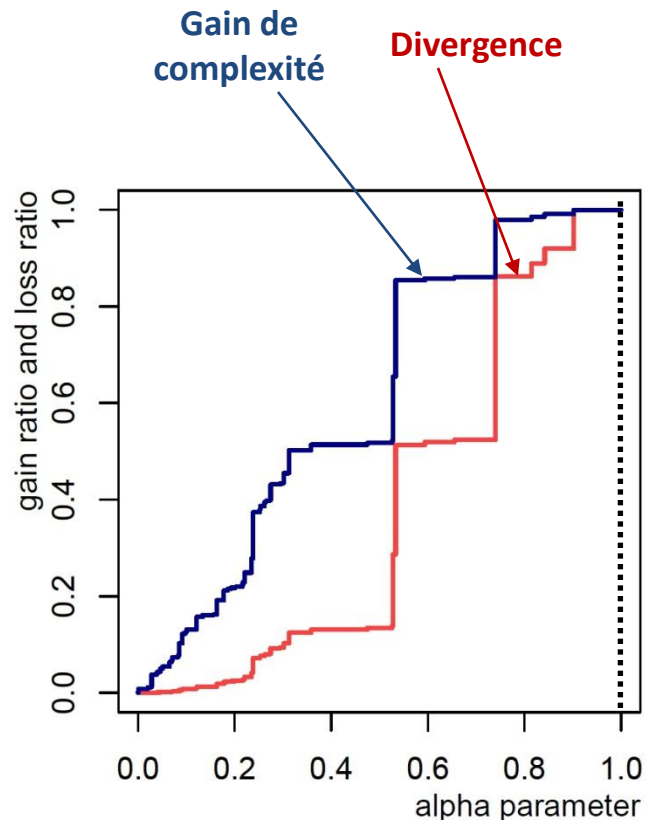
Agrégation temporelle



Agrégation temporelle

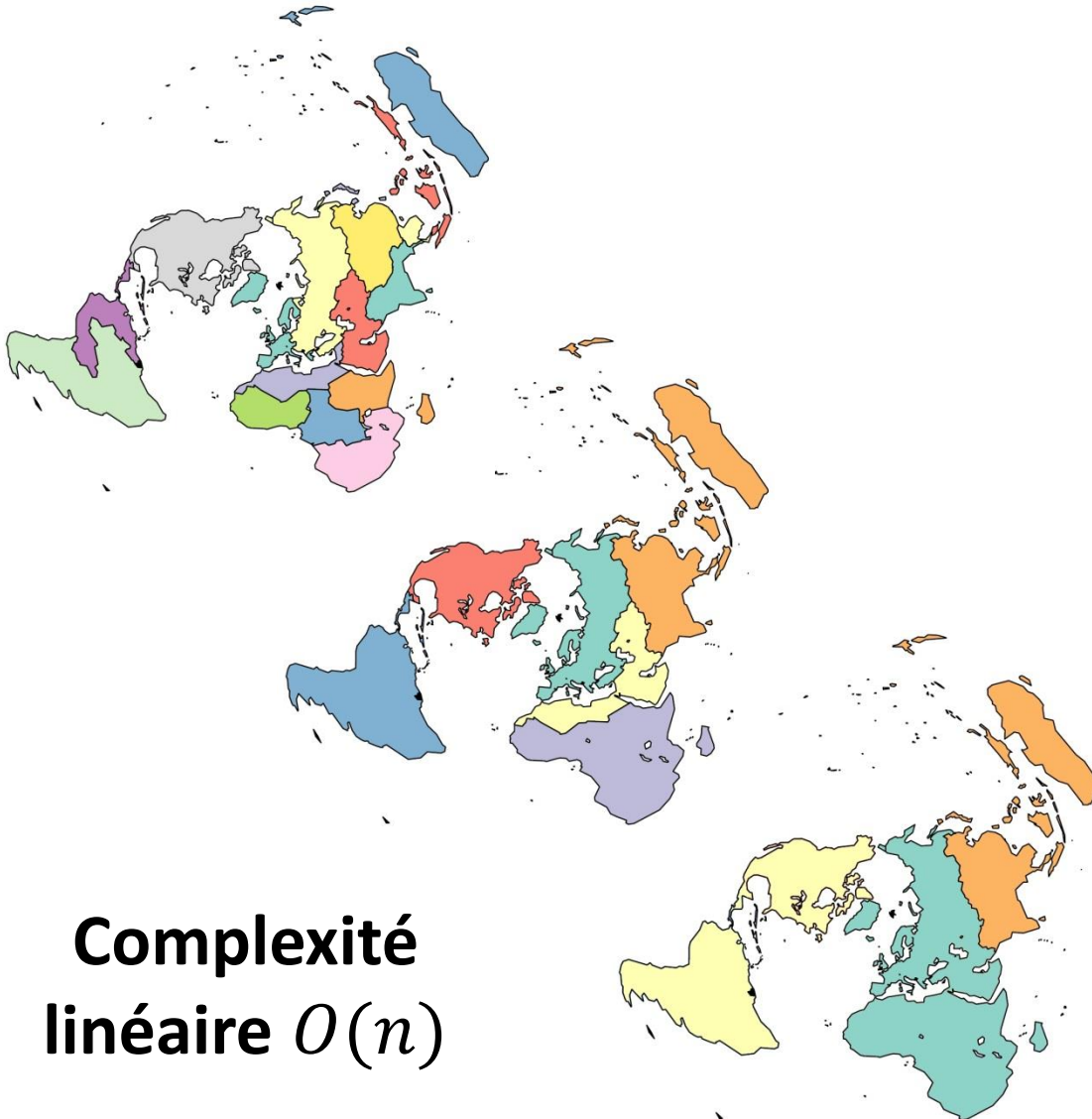


Agrégation temporelle

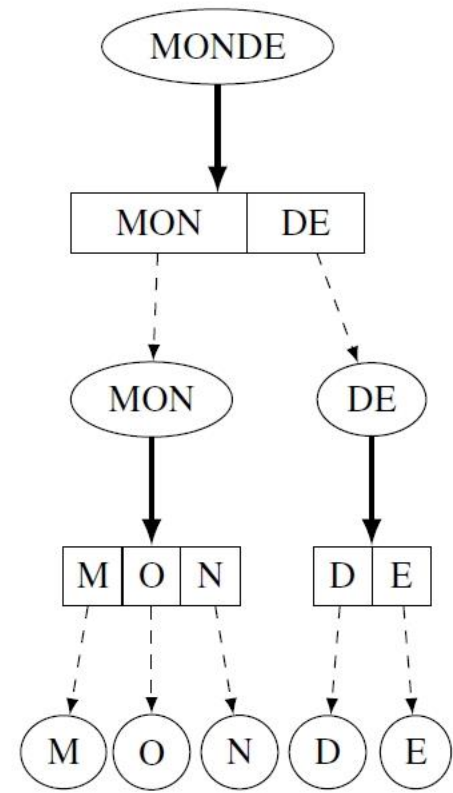


TOPOLOGIE DE L'AGRÉGATION

Hiérarchie et agrégation spatiale

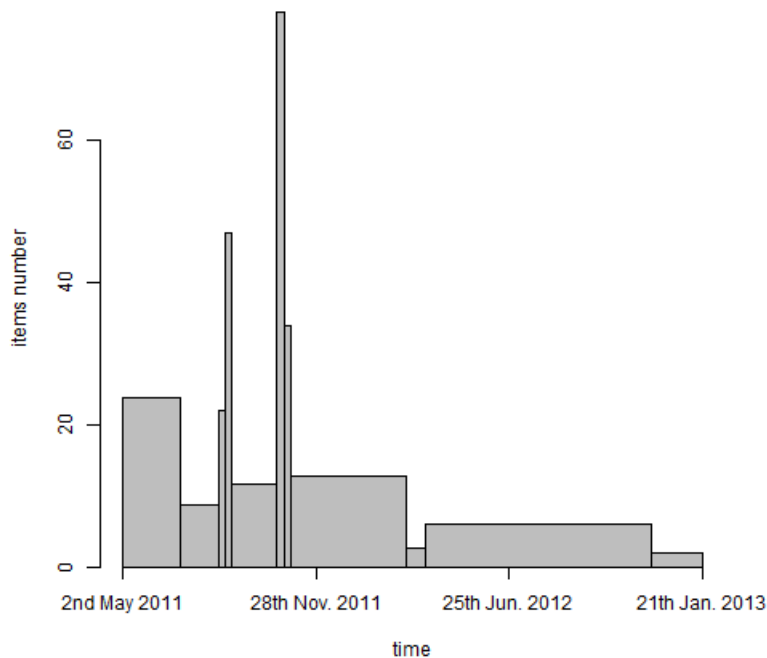


**Complexité
linéaire $O(n)$**

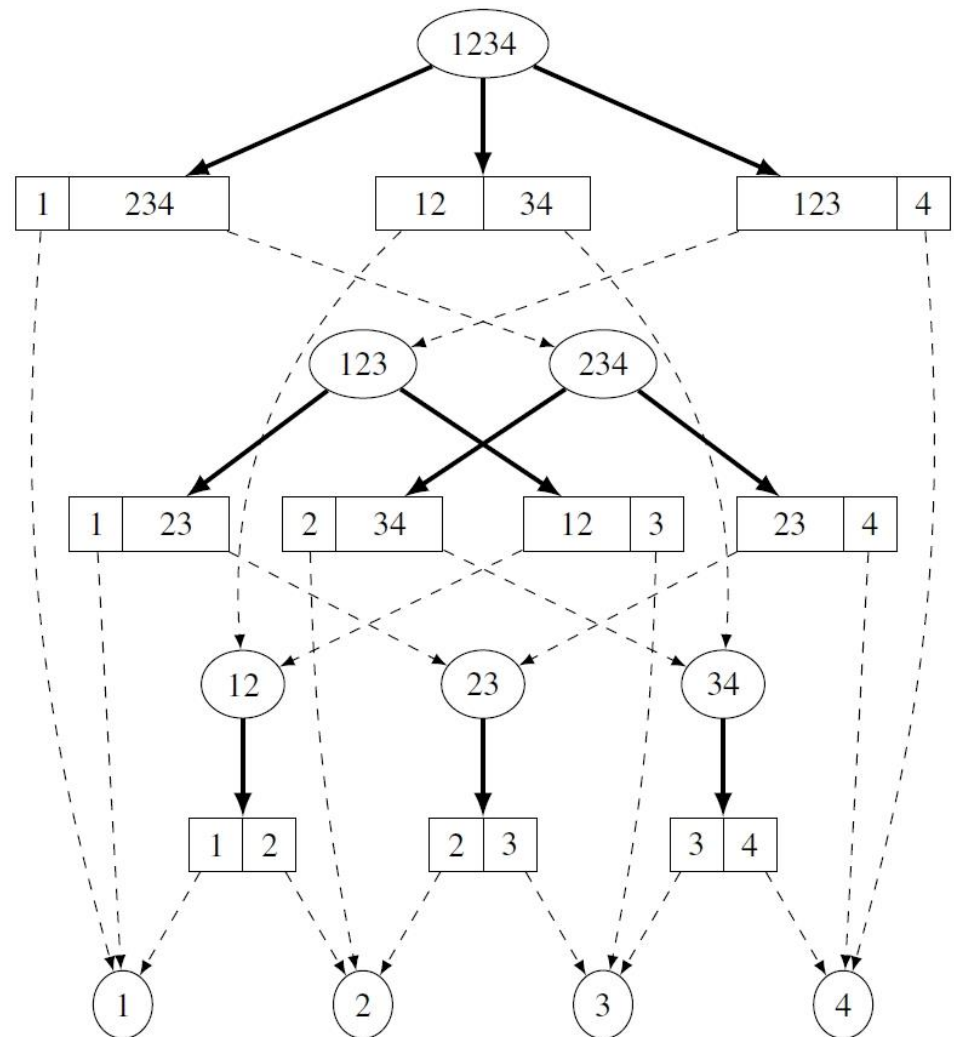


Ordre et agrégation temporelle

D'autres dimensions ?
Quelles topologies ?
Quelle complexité ?



Complexité
polynomiale $O(n^3)$



MERCI POUR VOTRE ATTENTION