Redefining Event Types and Group Evolution in Temporal Data

Andrea Failla[1,2], Rémy Cazabet[3], Giulio Rossetti[2], Salvatore Citraro[2]

1. University of Pisa, Pisa, Italy
2. Institute of Science and Information Technologies (ISTI), National Research Council (CNR), Pisa, Italy
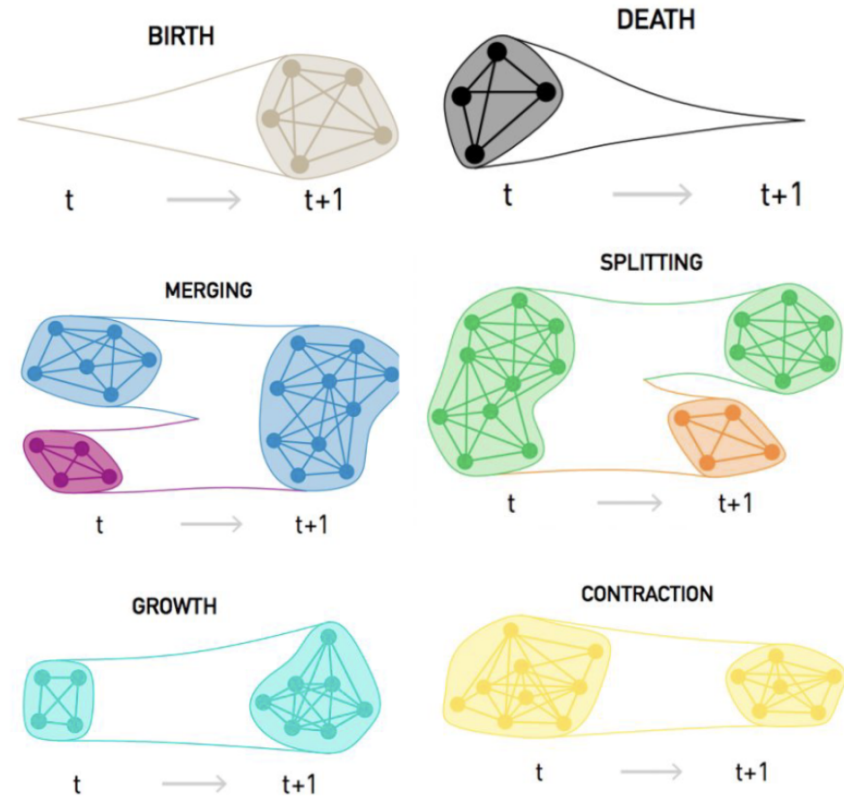3. Univ. Claude Bernard Lyon 1, Villeurbanne, France

Community Events

1. **Identify communities** at each time step

2. **Match communities** across adjacent time steps

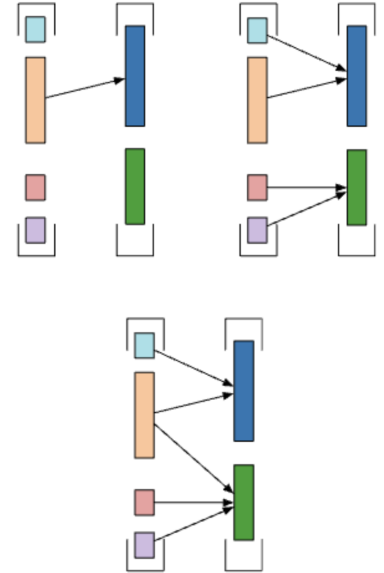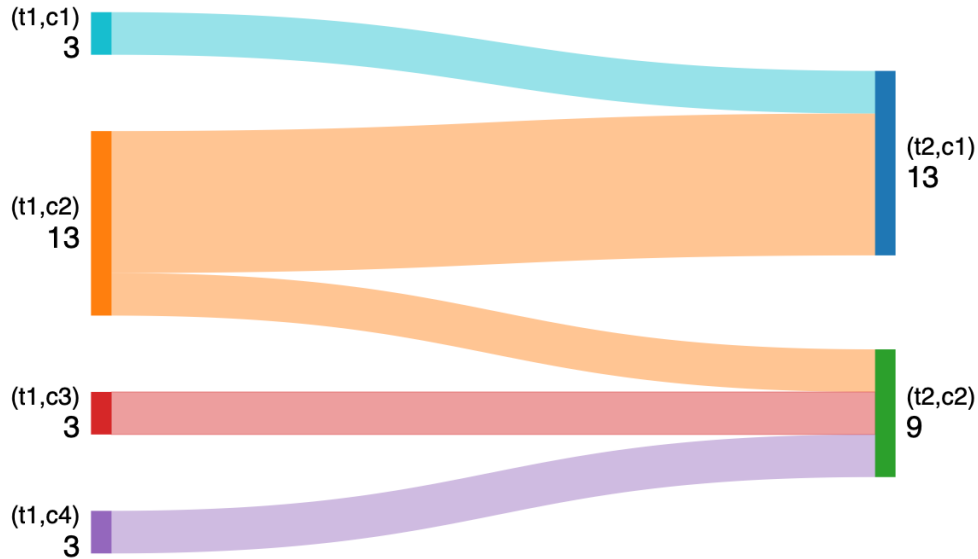3. **Look for events** depending on some criteria

Real temporal data is more complex!

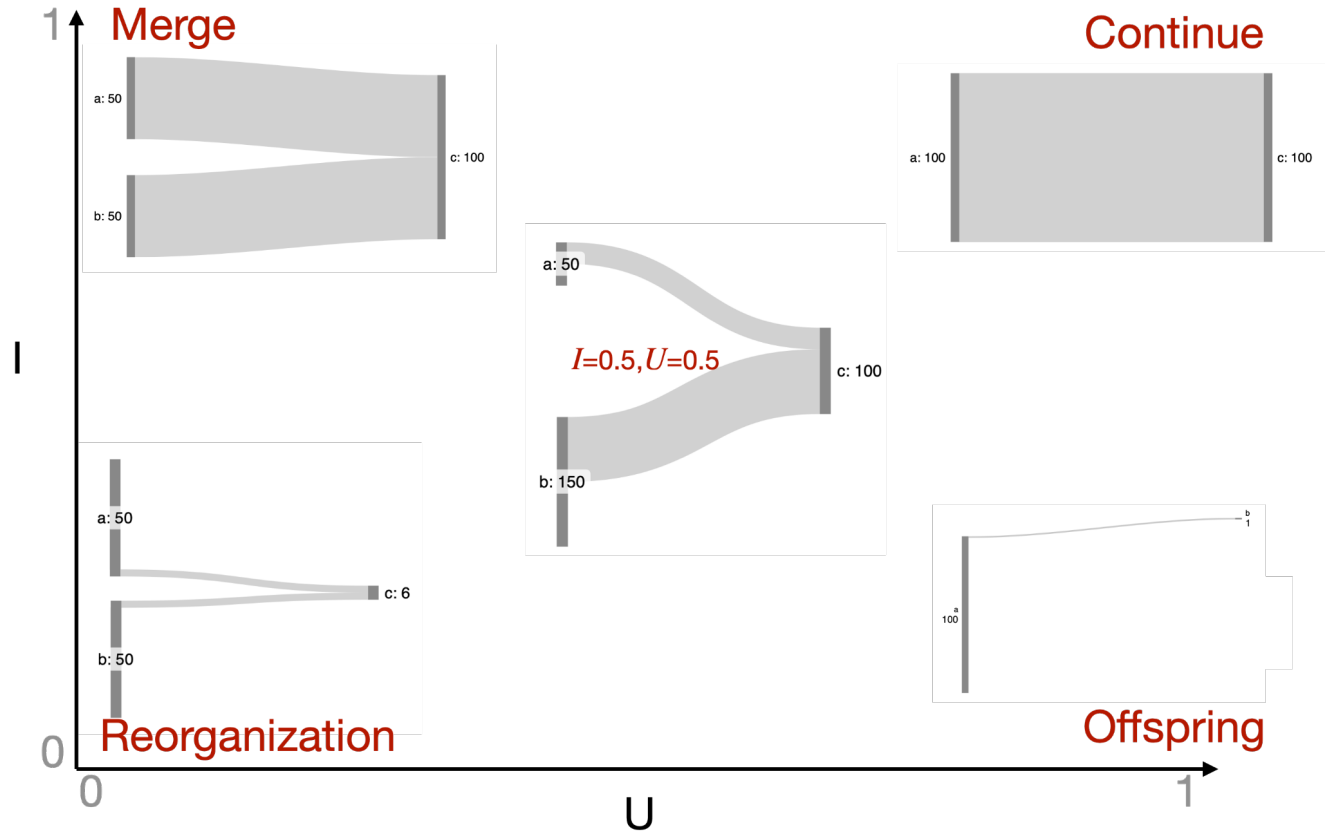Different strategies describe
the same situations differently

Unicity vs. Identity

Merge

Continue

I=0.5, U=0.5

Reorganization

Offspring

Preprint

About me

Event Scores

U: Unicity
One or multiple sources?

I: Identity
Contributing to the best of their capacity?

O: Outflow
New/dead nodes?

BACKWARD	FORWARD	Measure
Birth	Death	U (1-I) O
Accumulation	Dispersion	(1-U) (1-I) O
Continue	Continue	U I (1-O)
Merge	Split	(1-U) I (1-O)
Offspring	Ancestor	U (1-I) (1-O)
Reorganization	Disassemble	(1-U)(1-I)(1-O)
Growth	Shrink	U I O
Expansion	Reduction	(1-U) I O

Event Analysis

- global dynamics
- specific events
- event quality
- temporal stability

Thank You!

Preprint

About me