

Geospatial Ontology – ISAO 2016

Further reading - “Dynamic spatial ontologies”

Worboys’ paper (“Event-oriented approaches to geographic phenomena”) present a good overview of the evolution of theoretical approaches to representation of events and processes in geographical space.

Galton’s first paper (“Fields and Objects in Space, Time, and Space-time”) includes a necessary discussion on models that focus on individual objects (“endurants”) and those that focus on what happens to these objects (events of “perdurants”). Notice how Galton makes the contrast between “space + time” views and “space-time” ones.

Galton’s second paper (“The water falls but the waterfall doesn’t fall”) presents an interesting view on events and processes, trying to establish a distinction between these two concepts, which are often used interchangeably.

Grenon and Smith provide a general terminology that distinguishes terms associated to endurants (SPAN) and to perdurants (SNAP). They show how we use these terms in our language to express individuals and changes that happen to them.

Ferreira et al. (“An algebra for spatiotemporal data: from observations to events”) present a system-oriented view that attempts to provide a spatio-temporal model based on the “space + time” perspective, where space and time are considered as separate dimensions.

For your further reflection, you could consider the following issues:

1. What are the four stages of in the development of ST GIS, according to Worboys?
2. What are the similarities and differences between Worboys and Galton?
3. Do you agree with Galton when he says: “in the real world we find many phenomena of sufficient spatio-temporal complexity that it is not easy to shoehorn them into a simple object/event dichotomy”?
4. To derive his concepts of ‘snapshots’ and ‘histories’, does Galton use a ‘three-plus-one’ dimensional approach (‘space with time’) or a strictly four-dimensional approaches (‘space-time’)?

5. What distinguishes the model from Ferreira et al. from the other papers? What are the similarities and differences between the approaches of Galton and Ferreira et al.? Is the model proposed by Ferreira et al. capable of expressing the concepts of Galton ('snapshot', 'history', 'state', 'config', 'life', 'effect')?