Geospatial Ontolgy – ISAO 2016

An essay on "Dynamic spatial ontologies"

In this assignment, you will discuss the issues related to events and change.

Read the first three sections of Worboys' paper ("Event-oriented approaches to geographic phenomena"), that present a good overview of the evolution of theoretical approaches to representation of events and processes in geographical space. For the purposes of this essay, you can skip sections 4-6 of the paper.

Galton's 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"). Galton's paper is full of concepts, and requires at least careful three readings to grasp its ideas. Notice how Galton makes the contrast between "space + time" views and "space-time" ones.

Follow Galton with the Ferreira et al. paper ("An algebra for spatiotemporal data: from observations to events"). This is 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.

Based on these papers, write an essay on geographical ontologies (400-1000 words). Please present your vision of the topic and also 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')?