Project

Bliss

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COMS 641: Data Intensive Languages and Systems - Design and Semantics

- Pregel takes a directed graph as input where vertices and edges are associated with respective modifiable, user defined values
- Pregel has topology mutation, which it uses to solve conflicts
- Users need to have prior knowledge about ordering of mutation and conflicts that may occur

- More about Topology Mutation and Stuffs
- Conflicts presented in the paper
- Possibly an example

Theory Audience

- An alternative abstraction for graph mutation that is unambiguous
- An analysis that can detect before it happens
- Add a user defined handler to prioritize the Vertices

- What kind of ordering will mess up the programmers reasonings
  - Example: (That it causes a problem)
  - Proof: That it doesn't. Use COQ to model the process, and prove that it doesn't cause a problem

- Pregel : provides partial ordering, but forces the programmer to understand the reordering to close the gap between the logic of the programmer and what actually happens, or, it doesn?t provide proof that the reordering doesn?t cause problem.
- GPS features an optional dynamic migration scheme. Dynamic migration repartitions the graph during computation by migrating vertices between workers, to improve workload balance and network usage.
- GraphLab does not fully support graph mutations. It supports adding edges, but not removal of vertices or edges.
- Pregel-like Graph Processing Systems (Apache Graph, GPS, Mizan, and GraphLab)