Manage and Query Generic Moving Objects in SECONDO

Jianqiu Xu and Ralf Hartmut Güting
FernUniversität in Hagen, Germany

1. Motivation

Represent and manage moving objects with different transportation modes in a database system and provide efficient query processing. Two example trips:

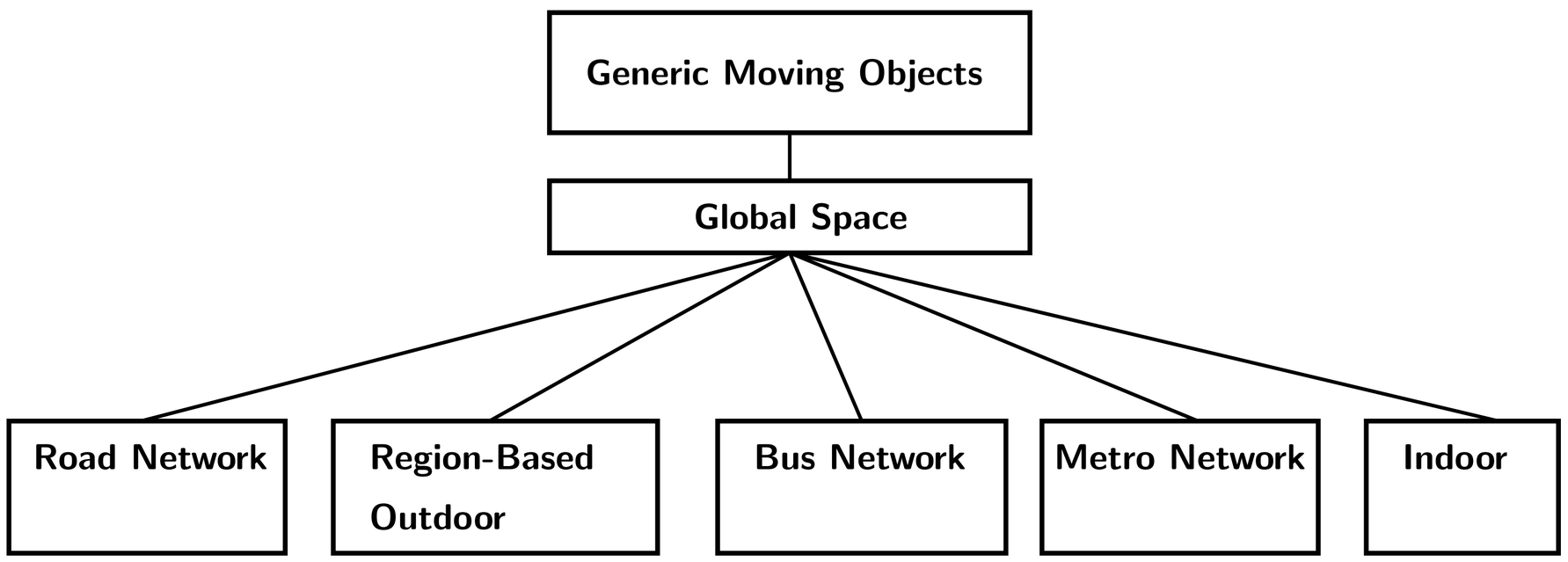
(a) Trip 1

(b) Trip 2

(1) Trip 1: A $\xrightarrow{Walk}$ B $\xrightarrow{Bus}$ C $\xrightarrow{Walk}$ D $\xrightarrow{Indoor}$ office room

(2) Trip 2: A $\xrightarrow{Car}$ B $\xrightarrow{Walk}$ C $\xrightarrow{Indoor}$ office room.

2. Data Representation



3. Example Queries

(1) Who arrived by taxi at the university on Friday?

(2) Find out all people staying at room 154 in the office building for more than 1h on Thursday.

(3) Did bus No. 35 pass by any bicycle traveler on Monday?

4. Demonstration

(1) Execute example queries on moving objects with transportation modes.

(2) Trip planning in multiple environments and in a single environment (e.g., pavement areas, indoor).

(3) Some operators on the data, e.g., get sub trips according to modes.