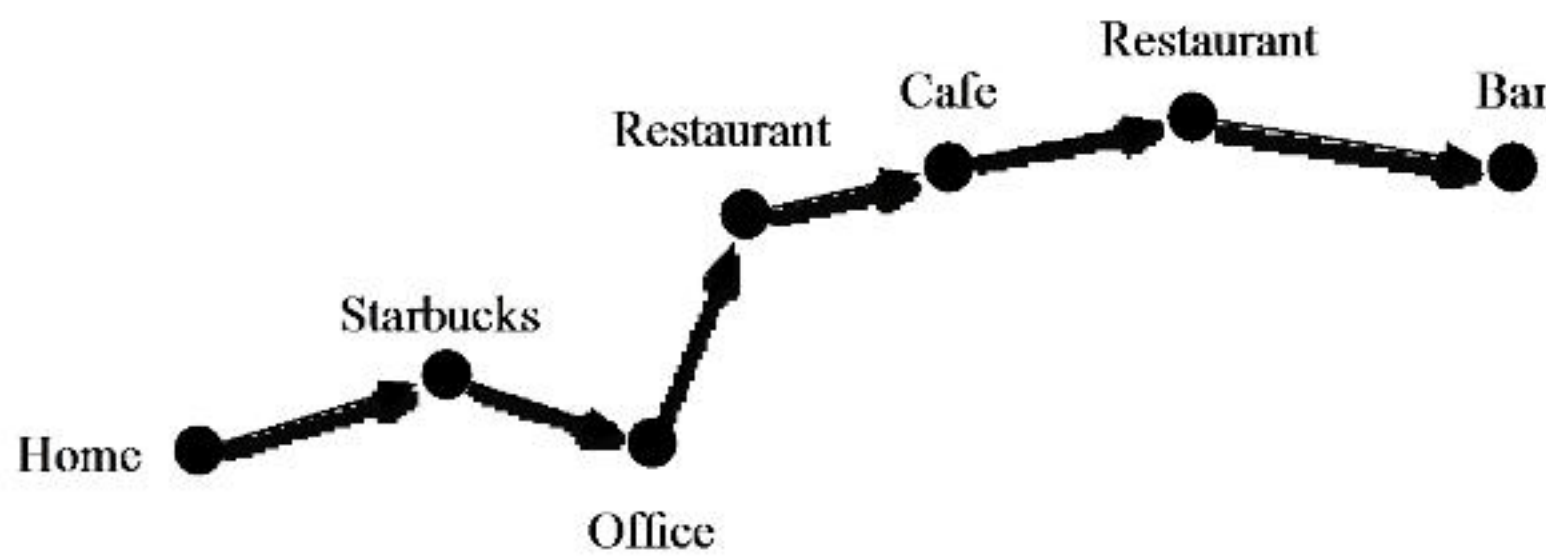


The background of the slide is a complex, abstract composition. It features a central white rectangular area containing the title. Surrounding this area are various geometric and data-related patterns. On the left, there's a vertical strip with a grid of small plus signs and a cluster of orange and red dots. To the right, there's a dark, textured area with a network of thin, light-colored lines. The overall color palette is muted, with shades of brown, grey, and white, accented by the orange and red in the data clusters.

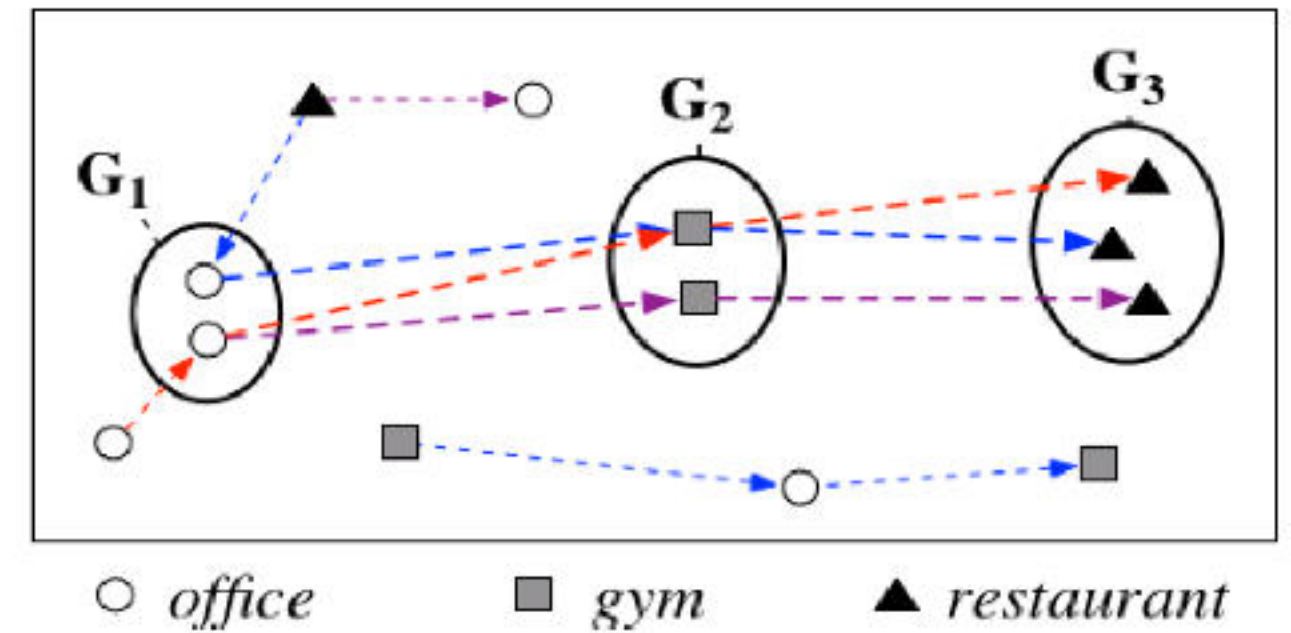
Mining Semantics-Rich Movement Patterns

Mining Frequent Movement Patterns

- **Frequent Movement Pattern:** A movement sequence that frequently appears in the input trajectory database
- **Frequent Movement Pattern vs. Frequent Sequential Pattern**
 - Both aim at finding frequent subsequences from the input sequence database
 - For mining frequent movement patterns, similar places may need to be grouped to collectively form frequent subsequences



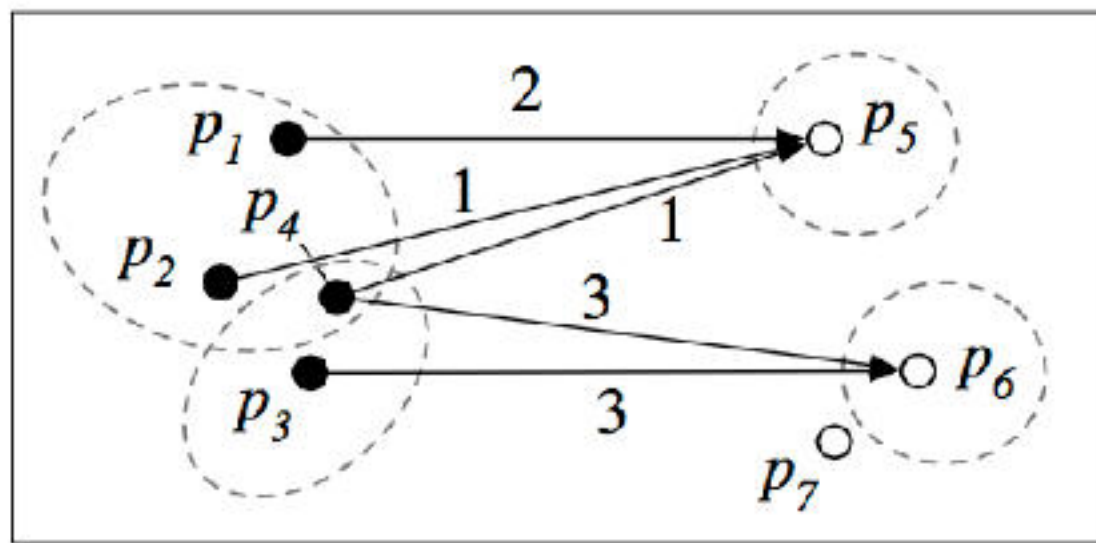
An example trajectory



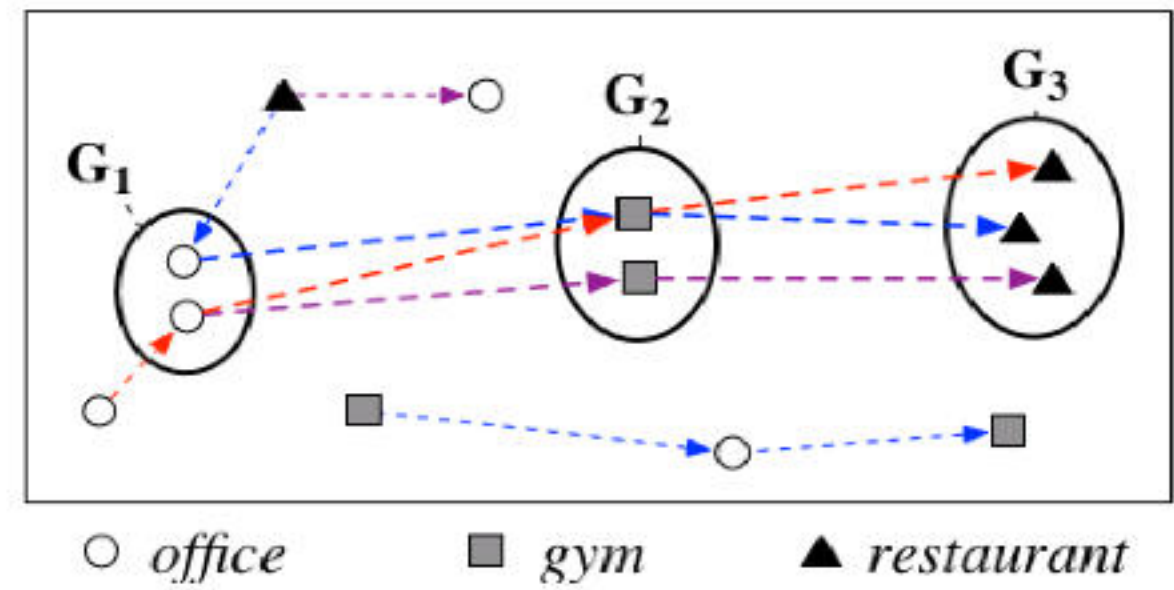
An example movement pattern

Mining Semantics-Rich Movement Patterns

- **Semantics-rich movement pattern:** In addition to knowing how people move from one region to another, we also want to understand the functions of the regions
- **A two-step top-down mining approach:**
 - Step 1: Find a set of coarse patterns that reflect people's semantics-level transitions (e.g., office → restaurant, home → gym)
 - Step 2: Split each coarse pattern into several fine-grained ones by grouping similar movement snippets



● office
○ gym



C. Zhang et al., Splitter: Mining Fine-Grained Sequential Patterns in Semantic Trajectories, VLDB 2014