Analytical process

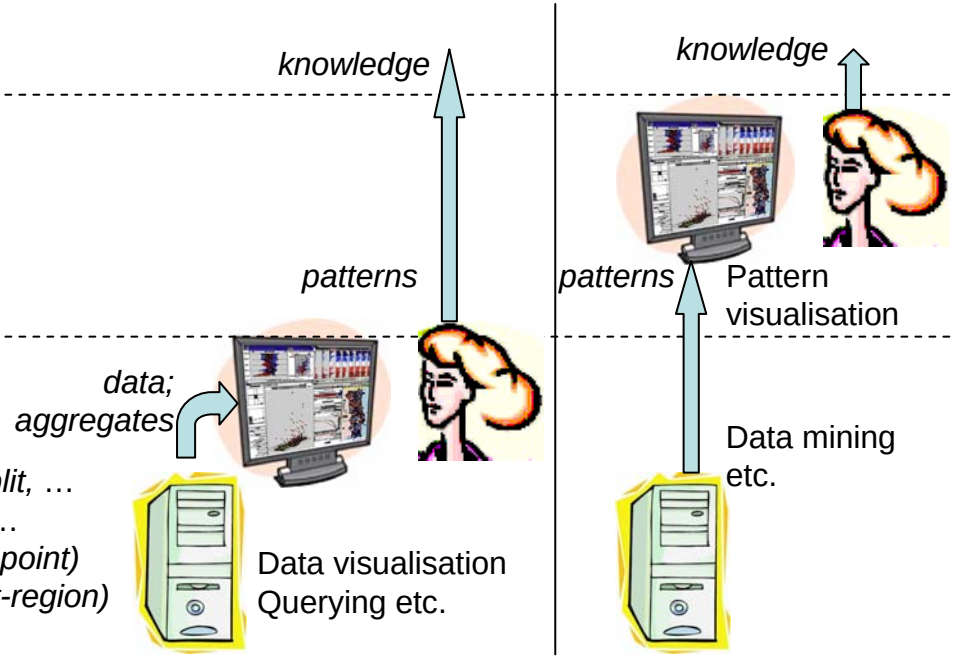
Knowledge: *interpreted patterns; synthetic patterns*

Patterns
- multi-scale (structural)
- large scale: *flow, tropism, diffusion, …*
- local (= interactions?)

Aggregates — *traffic flow…* — characteristics: *intensity, direction, …* - variation over time

Elementary objects — *point region …* — individual changes: *move, expand, split, …*
interactions: *encounter, enter, pass, …*
- with objects of the same kind *(point-point)*
- with a different kind of objects *(point-region)*

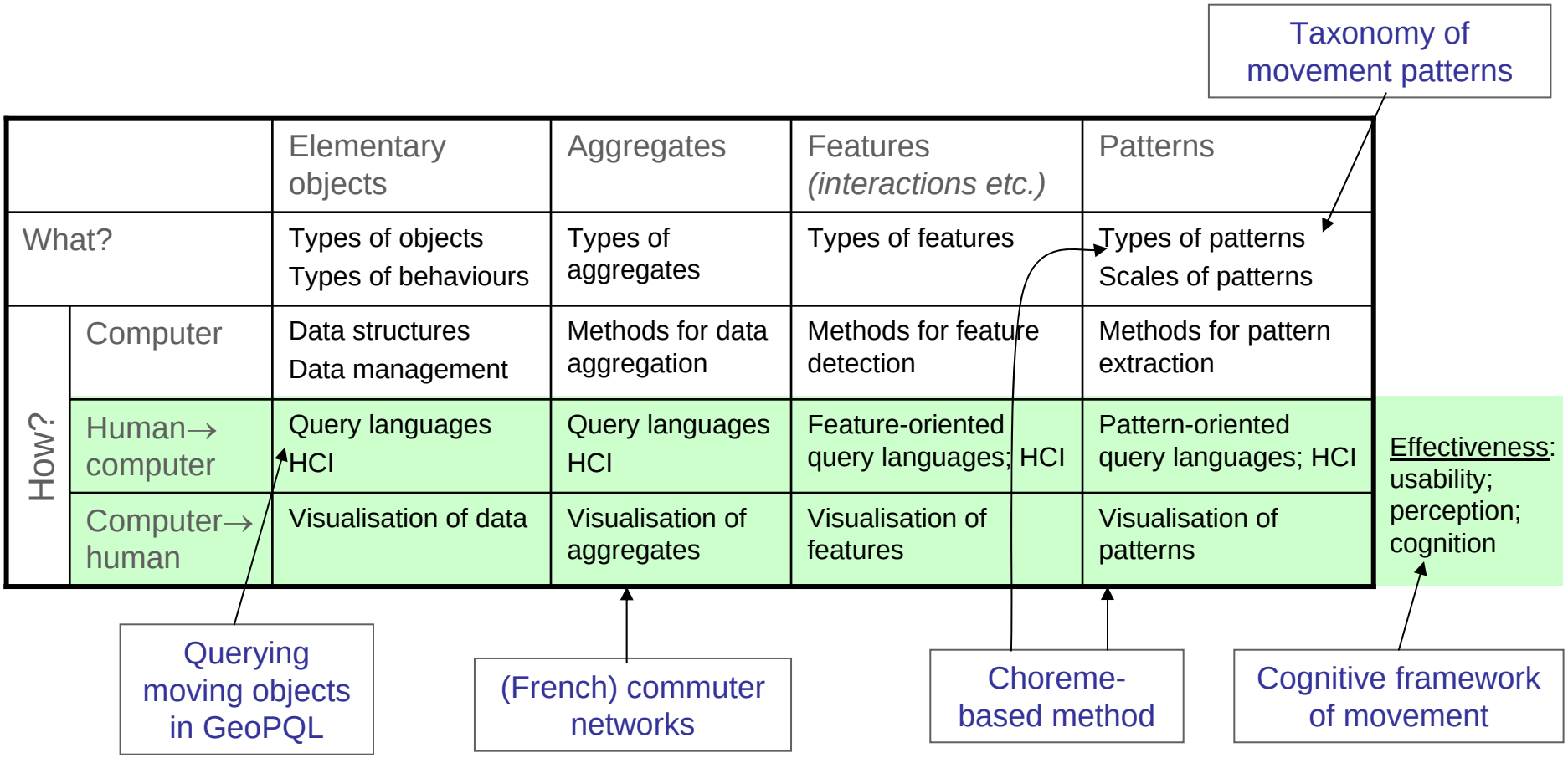
2 basic approaches



Research

		Elementary objects	Aggregates	Features *(interactions etc.)*	Patterns
What?		Types of objects Types of behaviours	Types of aggregates	Types of features	Types of patterns Scales of patterns
How?	Computer	Data structures Data management	Methods for data aggregation	Methods for feature detection	Methods for pattern extraction
	Human→ computer	Query languages HCI	Query languages HCI	Feature-oriented query languages; HCI	Pattern-oriented query languages; HCI
	Computer→ human	Visualisation of data	Visualisation of aggregates	Visualisation of features	Visualisation of patterns

Effectiveness: usability; perception; cognition



- Are there gaps, weaknesses, impediments to further research?
- What kind of (basic) research could advance the developments in all or many directions?
- Are there directions requiring concentrated efforts? If so, how could joint efforts be effectively organised?
- How close are we (our methods) to end users? Do we know how to approach them?