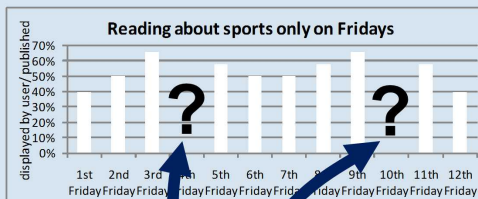


Context Inference Using Correlation in Behaviour

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Goals

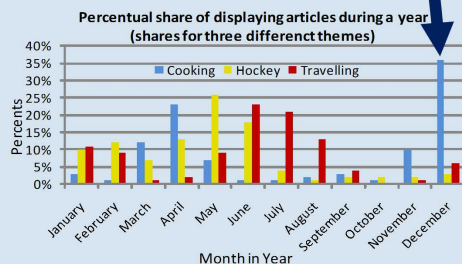
- discover what influences the user
- implicitly define the rules
- determine current user needs
 - recommend
 - adapt



What affects the ritual?

- **Visible context (K)**
 - Directly acquired by sensors (GPS module, timestamps)
 - Directly acquired by explicit questioning
- **Hidden (H)**
 - Acquired by data mining (utilization of discovered effects)
 - Combination of other contextual information

$$K^n \rightarrow H^m$$



Correlation in behaviour

- similar behaviour means similar context influence
- users are different but there are communities
- differences help to infer context

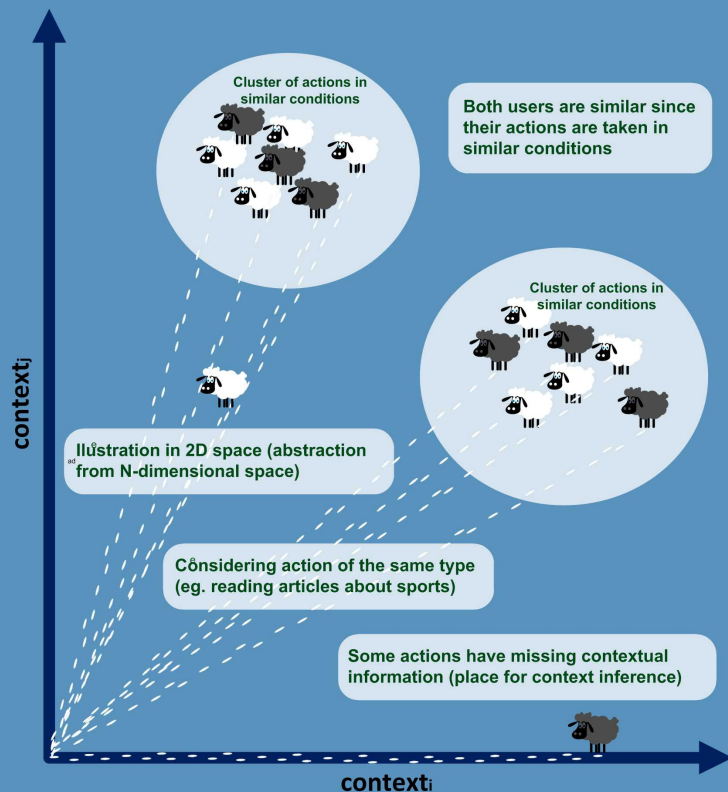
UserA reads **blogs** while its raining
UserA reads **sports** while its sunny
UserA reads **economics** at work

UserB reads **blogs** while its raining
UserB reads **sports** while its sunny

UserB has **no GPS** module
UserB reads **economics** (UserB is possibly at work)

Context inference

- known (easy acquired) context is used
- user actions are grouped by similarity
- clusters work as association rules
 - **without inappropriate discretization**
- inferred context is applied to user history



Recommendation

- predicting user needs using contextual rules
- rules are suitable as extension to standard methods

Contributions

- user model enriched by contextual rules
- user actions enriched by contextual information
- better prediction model