Class: Type Diagrams

- Dealing with observations

CE202 Software Engineering, Autumn term

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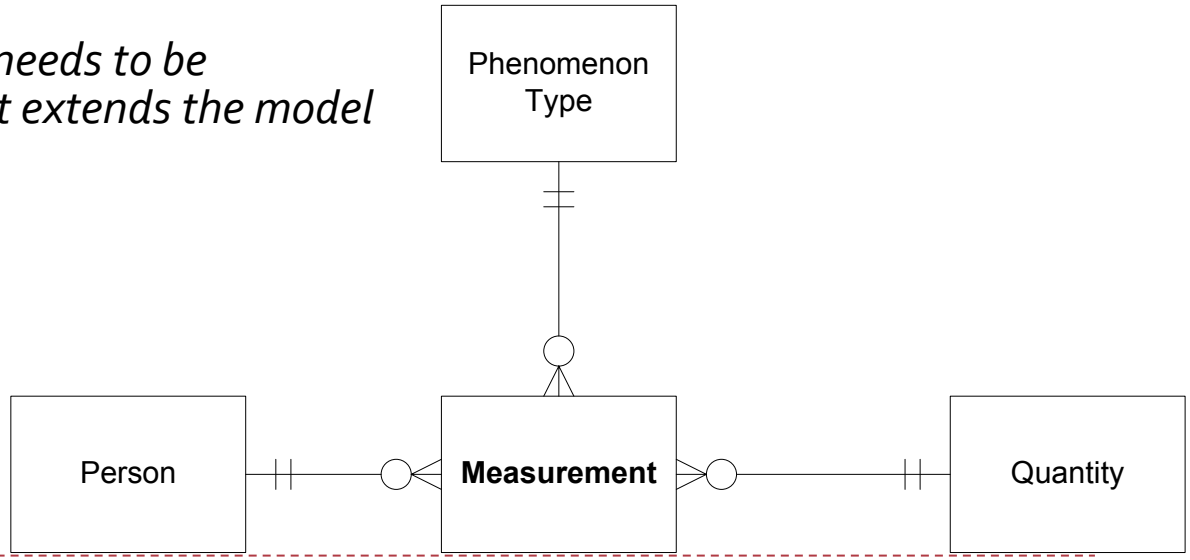
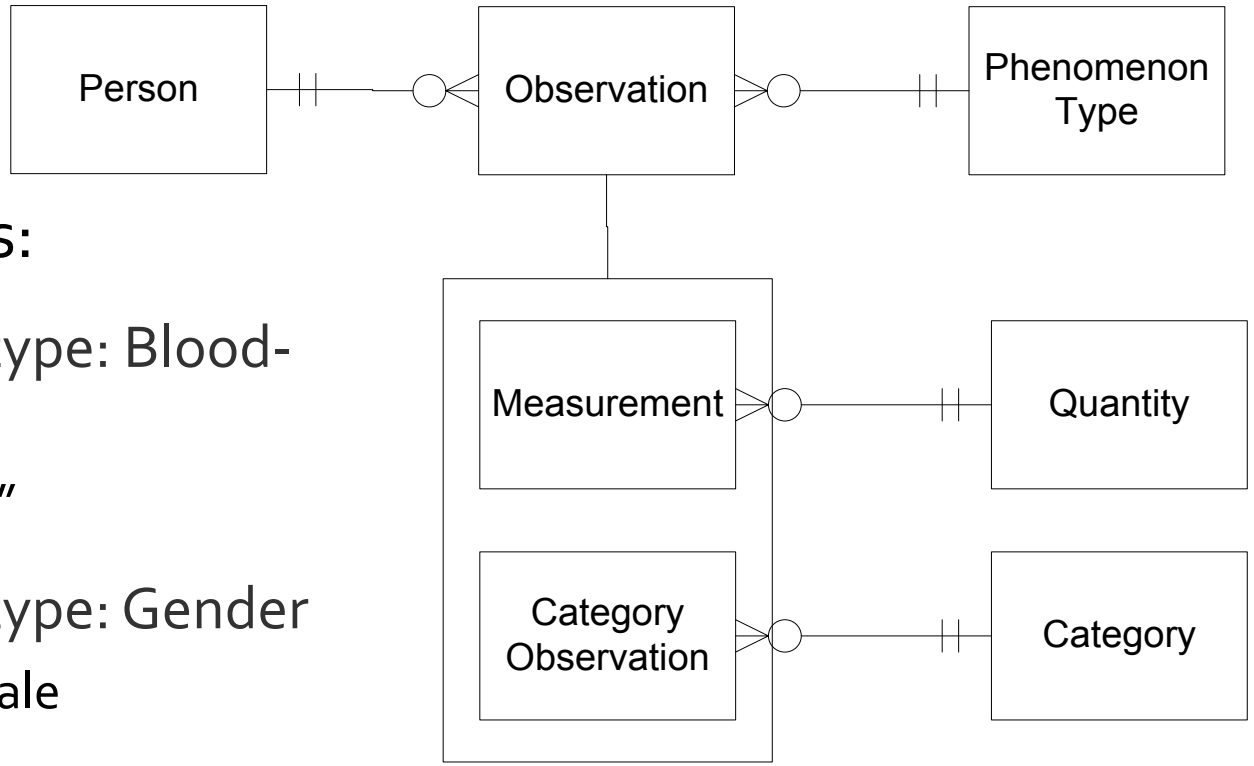
Exercise: OOA with Type Diagrams
Observation

- Reminder: Measurement example
- Problem: Qualitative observations
  - Observations are of a discreet, fixed (small) range
    - Examples: gender{male/female}, blood-type {A/B/AB/O}, has-diabetes{True/False}, …
  - They do not fit well into the Quantity idea because value entered can range for no reason
    - Example: if string is used then Gender = "Male" or "male" or "M" or "Man" or…
- Suggest a solution for modelling observations faithfully
- *Hint: the Measurement type needs to be replaced with a new type that extends the model*



Observation: possible solution



- Sample objects:
  - phenomenon-type: Blood-type
    - category: "A/B"
  - phenomenon-type: Gender
    - category: Female

1. Blood type is the instance of phenomenon type, and 'A/B' is the instance of the category. To record that a person has a blood type of 'A/B', we create an observation with a category of 'A/B' and a phenomenon type of Blood type.

2. Gender is the instance of phenomenon type, and male and female are instances of category. To record that a person is female , we create an observation with a category of female and a phenomenon type of gender.

Summary

- Difference and similarities between analysis and design
- Requirements engineering may need you to create **conceptual models** that allow us to understand and simplify the problem domain
- Conceptual models can become **reusable analysis patterns**
- Can use **TYPE diagrams** to create these models
- Example patterns in the area of observation & measurement
  - Dealing with quantities
  - Quantity conversion
  - Multiple measurements
  - Handling more general observations