

Schema Modularization and Business Rules in ORM

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Some diagrams in this lecture are based on [1]

Keywords: Modularization, Verbalization, Value constraints, Cardinality, multiplicity, Rules, Business Rules, Business logic derivation rules, integrity constraints

Conceptual Schema Design Steps

1. From examples to elementary facts



2. Draw fact types and apply population check



3. Combine entity types



4. Add uniqueness constraints



5. Add mandatory constraints



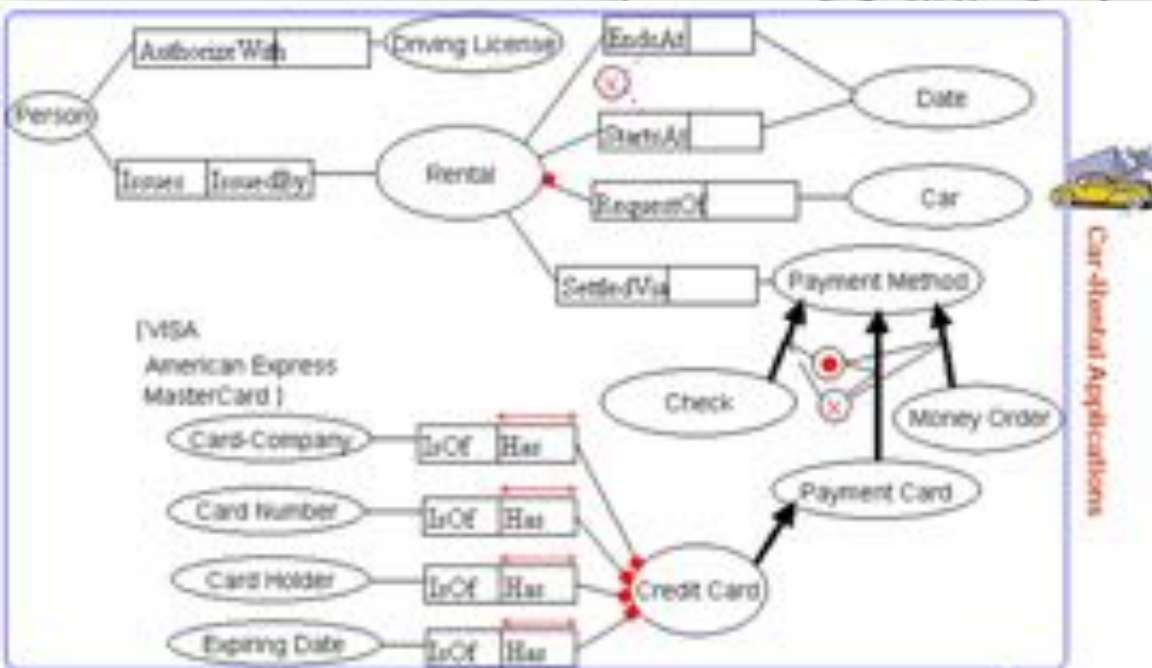
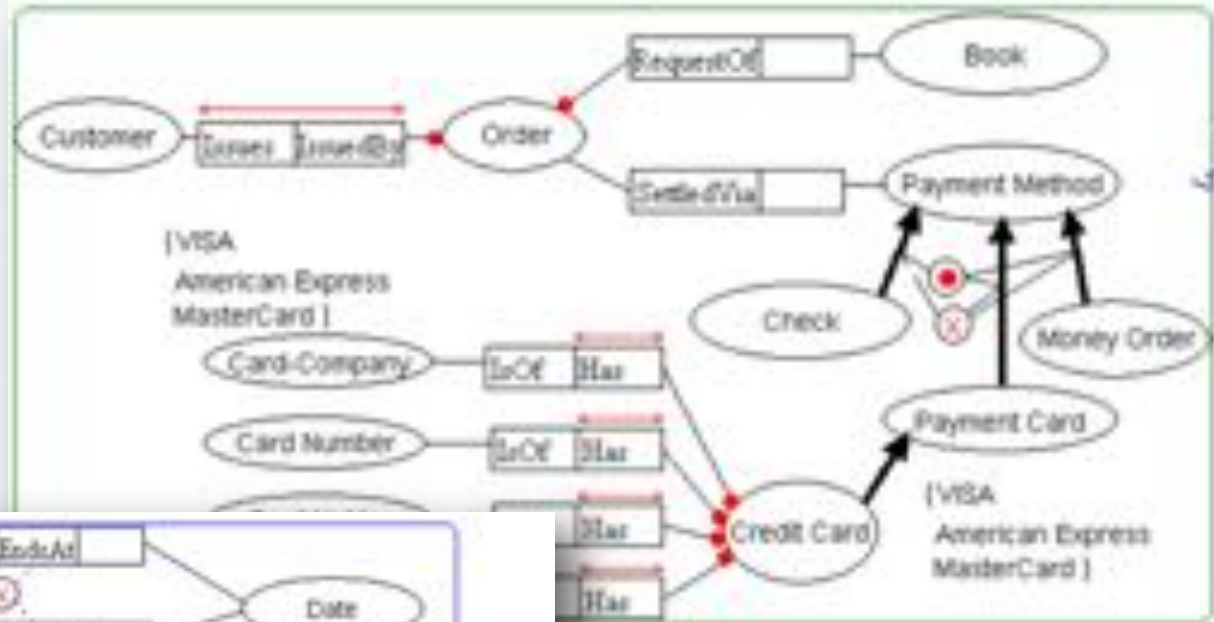
6. Add subtype relations and other constraints



7. Final checks, & schema engineering issues

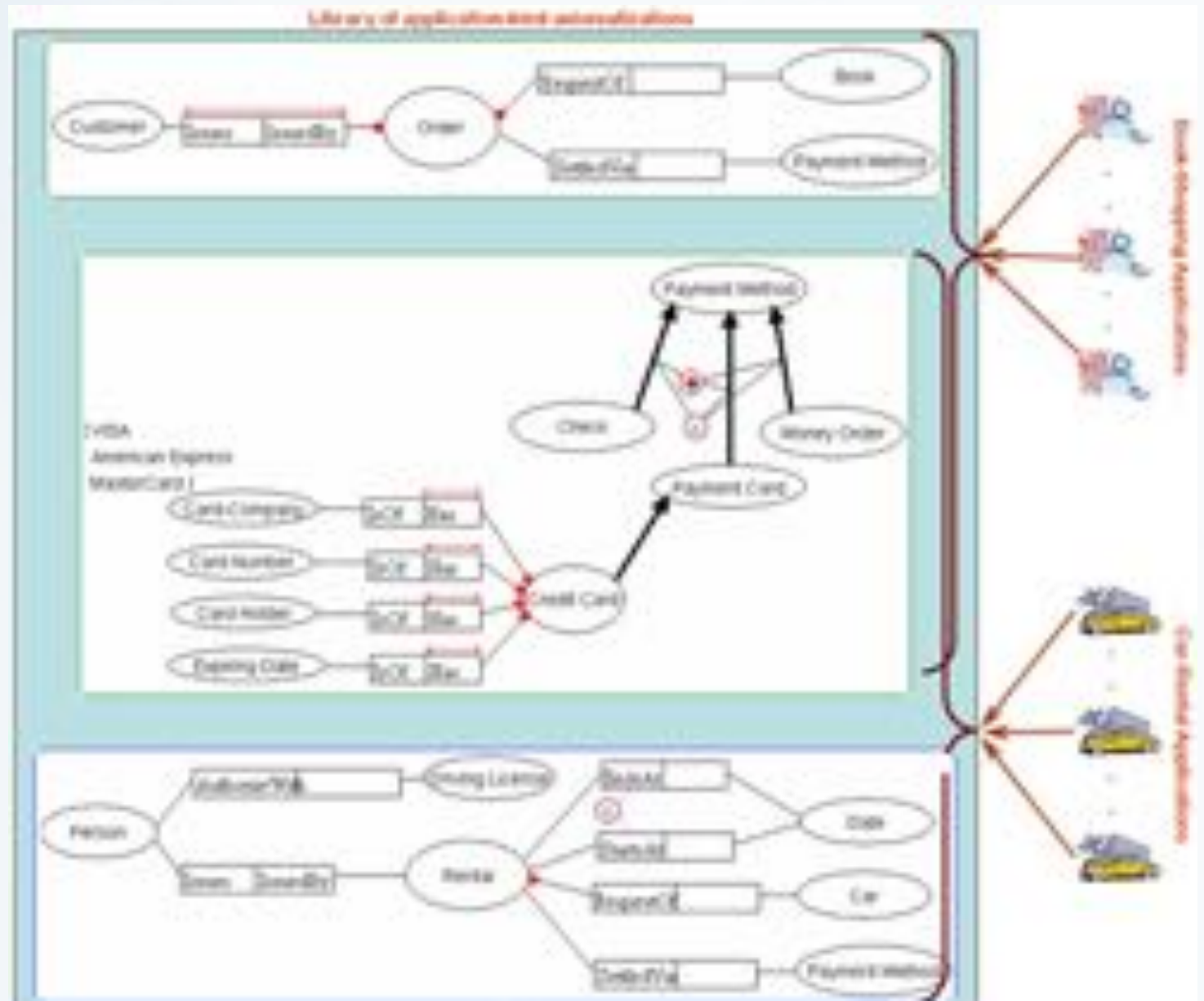


Modularization

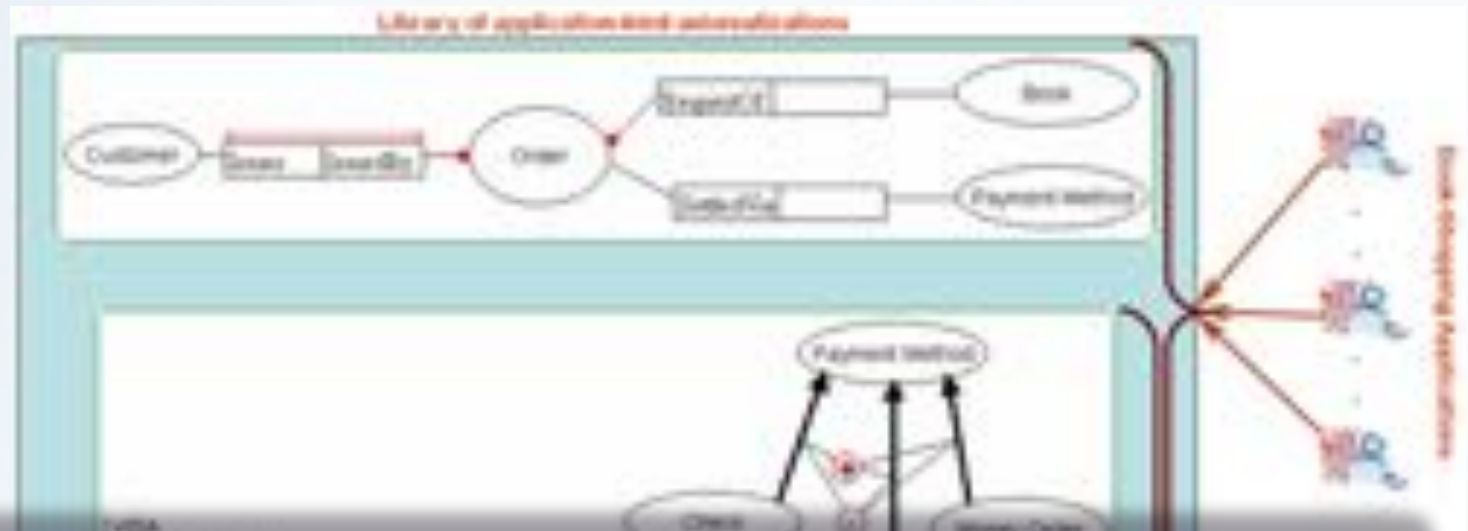


- Develop a conceptual schema as a set of modules and later compose to form one module.

Modularization



Modularization

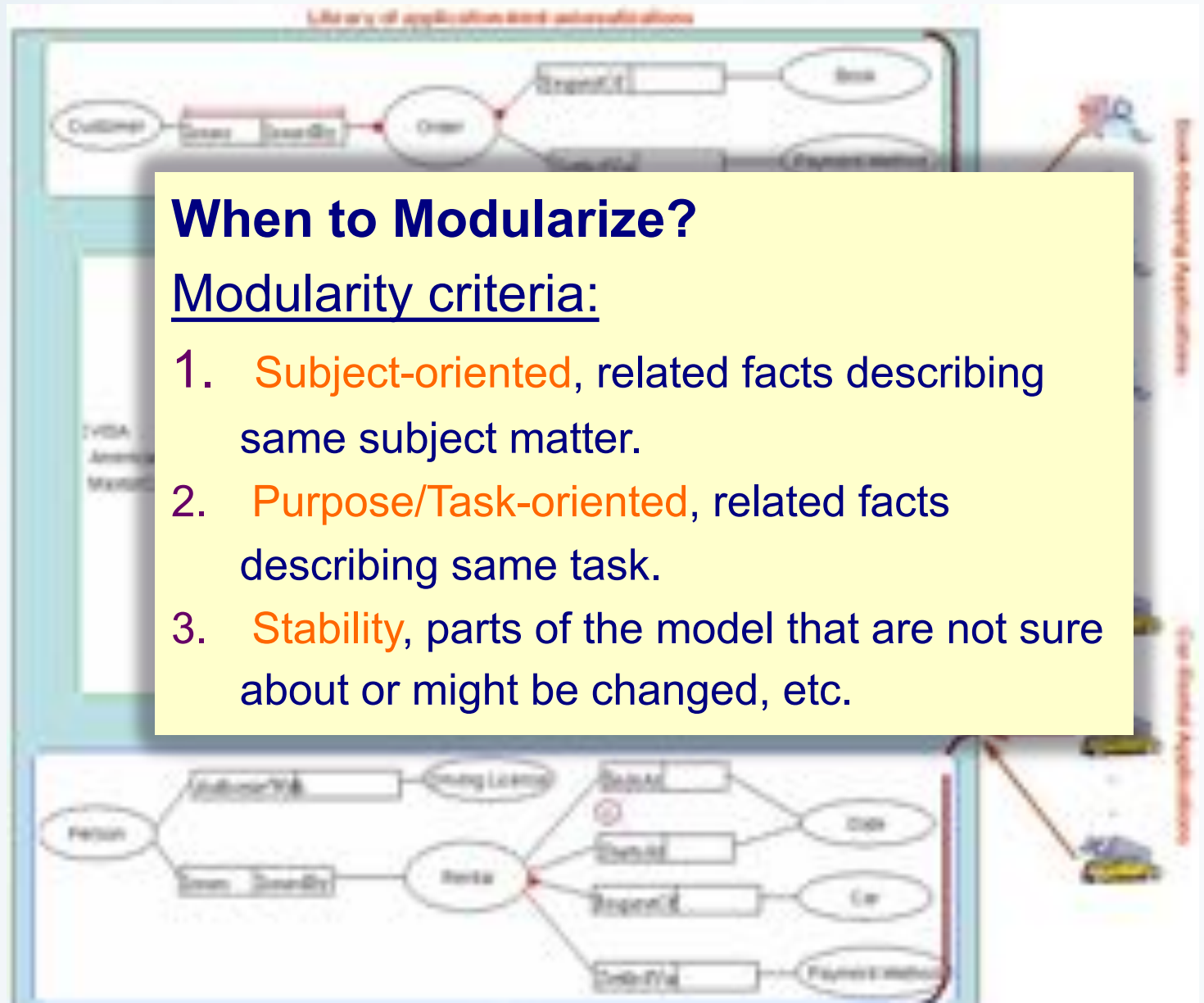


Why to modularize?

Because Modules are:

1. Easier to reuse
2. Easier to build, maintain, and replace
3. Enable distributed development of modules
4. Enable the effective management and browsing

Modularization



When to Modularize?

Modularity criteria:

1. **Subject-oriented**, related facts describing same subject matter.
2. **Purpose/Task-oriented**, related facts describing same task.
3. **Stability**, parts of the model that are not sure about or might be changed, etc.

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