Fig.3. Meta-model of class diagrams

1. Association
An *association* is either directed or undirected, and indicates that the objects of the source and target class are associated. There is no fixed definition for the detailed semantics of *association* elements. The detailed semantics of an *association* is defined by the *name*, or the *sourceRole* and *targetRole* of the *association*.

2. Aggregation
An *aggregation* specifies that an object of the target class is *a member of* an object of the source class.

3. Composition
Similar to *aggregation*, a *composition* represents that an object of the target class is *a part of* an object of the source class.

The *aggregation* and *composition* elements both express the "whole-part" relations between objects, but the semantics of *aggregation* is loose "whole-part" relation, and the semantics of *composition* is close "whole-part" relation.

4. Generalization
A *generalization* indicates that the source class is the generalization of the target class, i.e., through a *generalization*, a subclass is generalized to a superclass.

5. Dependency
A *dependency* represents that the implementations of some *operations* in the source class depends on some *attributes* or *operations* in the target class.