

# Rules for relationship diagrams (i.e. node-link diagrams)

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## Diagram Rules

Larry, when we spoke you mentioned rules of a diagram. At first I thought you meant domain specific information, such as a class diagram vs a sequence diagram. Looking over the AT-API I think you were referring to rules similar to a table. Here are some initial rules I have identified:

1. Diagram consists of nodes and links, relationships between nodes
2. Nodes and link have attributes.
3. Attributes correspond to different levels of details. An AT device would always present the highest level of detail but a user should request the lower level of detail
4. Properties of Links
  - a. Directional/ non-directional
  - b. Single/ multiple links between nodes. Multiple links can be ordered
5. The language to describe nodes and links is domain specific.
6. Properties of nodes: nodes can be nested

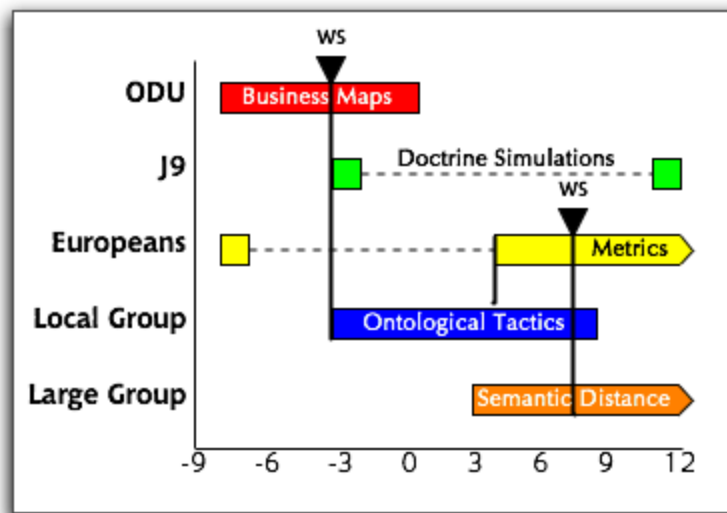
Examples of rules follow

# Rule 1: Diagram consists of nodes and links, relationships between nodes

UML diagrams, some examples

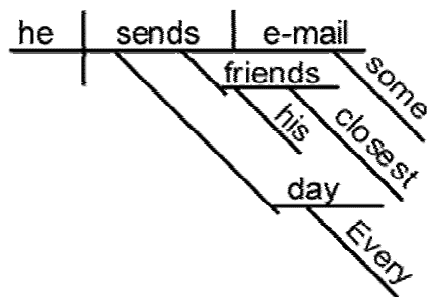
- Class
- State machine
- Sequence

More generally: **Gantt Chart**



More generally: **Sentence diagrams**

"Each day he sends his closest friends some e-mail."

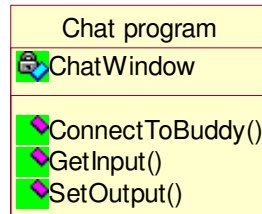


## Rule 2: Nodes and link have attributes.

Example from UML Class Diagram

### Node attributes

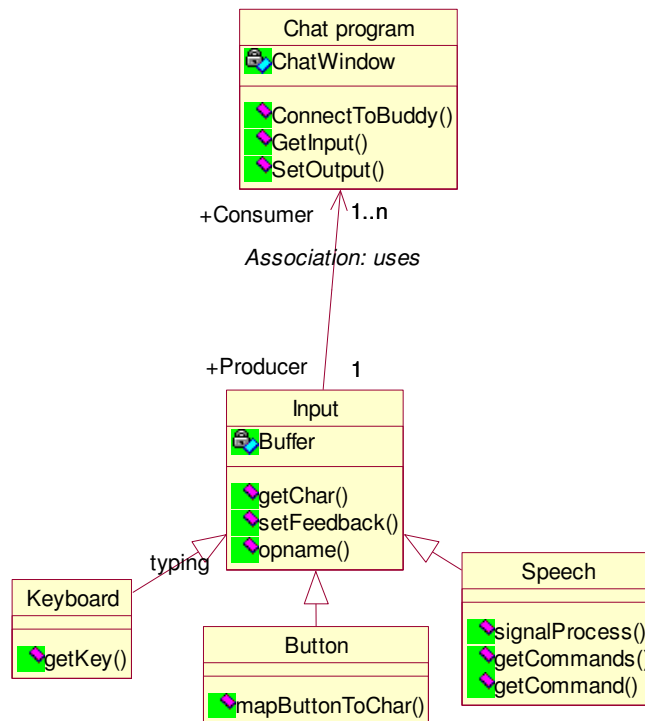
Class has member data and functions, like in a Chat program



### Link attributes

An association has:

- Name
- Roles
- Cardinality
- Etc.



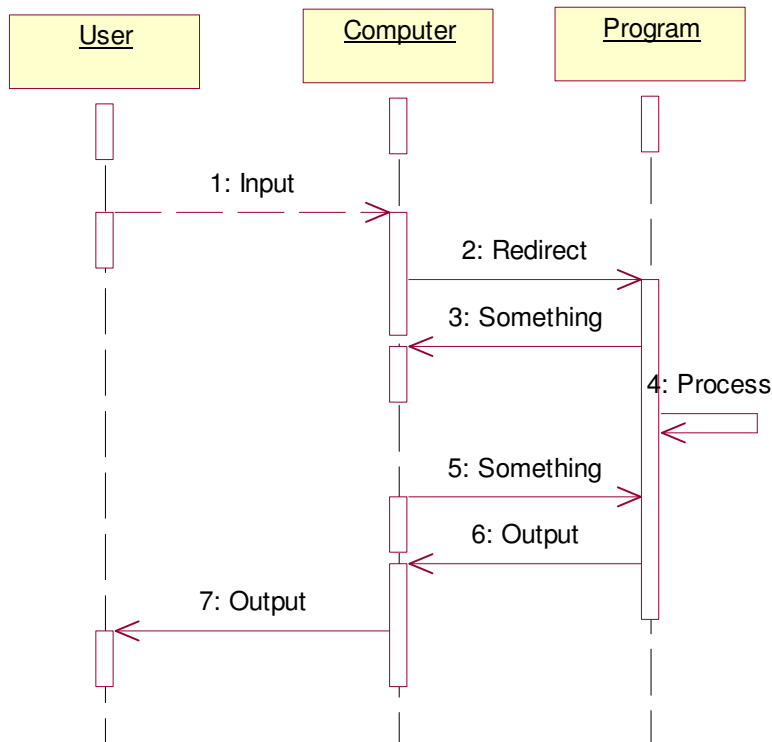
**Rule 3: Attributes correspond to different levels of details. An AT device would always present the highest level of detail but a user should request the lower level of detail.**

In class diagram above example, the link name is highest level of detail and the other details are secondary.

**Rule 4: Properties of Links**

- Directional/ non-directional
- Single/ multiple links between nodes. Multiple links can be ordered

Example in sequence diagram: See messages 2-6 between Computer and Program.



**Rule 5: The language to describe nodes and links is domain specific.**

Diagram	Node	Link
UML State Machine	State	Transition
UML Class diagram	Class	Relationship (association, generalization, dependency, etc)
UML Sequence diagram	Object	Message

**Rule 6: Properties of nodes: Nodes can be nested**

