Data Flow Diagram Symbols

- **Process**
  - Step-by-step instructions

- **External agent**

- **Data store**
  - Data at rest

- **Data flow**

- **Real-time link**

Satzinger et al. Fig 6-2
Layers of DFD Abstraction
Decomposition Diagrams

A decomposition diagram or hierarchy chart shows the top-down, functional decomposition of a system.
RML: Basic constructs

• Class concepts (sets) and individual concepts (elements)
• Individuals are members of a class

Specific person: John  Generic person: X
RML: Relations

- Cardinality: Full (filled circle) vs Partial (no circle)
- Coverage: 1 (arrowhead), N (no arrow), max (numeric)
RML: Abstraction constructs
a) The basic components of APM

- Ax
  - Name
  - Input
  - Resource-signature
  - Action

- Store
- Timer
- External actor
- Flow
- Condition

b) The properties of ports and flows

- Triggering and Termination
- Mutual exclusivity of ports
  - Input: a xor b, Output: c and d

- Singular flow
- Conditional flow
- Repeating flow

c) Flow Splitters and Combiners

- OR
- XOR
- AND

Above: Flow logic in PPM
Below: Equivalent in APM

d) Resource Modeling

- Resource Taxonomy
- APM Resource
  - Actor
  - Tool
  - Object
  - Organizational Actor
  - Agent
  - Manual Tool
  - Software Tool
  - Material Object
  - Information Object
  - Invoked Software Tool
  - Active Information Object
  - Software Agent

- Detailed resource properties
  - Role
  - Concrete
  - Invoked
  - Available
  - Software Resource
  - Composite Resource
Conference Arrangement Case
Information Submodel

Legend:

- p# paper id
- s# session id
- ch# chair id
- r# reviewer id
- pid person id
- p#* repeated paper id
- r#* repeated reviewer id

1..N

Legend:

- p# paper id
- s# session id
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1..N
Use Case Name:

Summary:

Basic Course of Events:

Alternative Paths:

Exception Paths:
## Event Driven Process Chains (EPC)

<table>
<thead>
<tr>
<th>Designation</th>
<th>Icon</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event</td>
<td></td>
<td>Events describe the occurrence of a status that in turn acts as a trigger.</td>
<td>Order is received</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>Functions describe transformations from an initial status to a final status.</td>
<td>Verify order</td>
</tr>
<tr>
<td>Organization unit</td>
<td></td>
<td>Organization units describe the outline structure of an enterprise.</td>
<td>Sales organization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The organization units in the R/3 system are system organization units.</td>
<td></td>
</tr>
<tr>
<td>Information, material or resource object</td>
<td></td>
<td>Information, material, or resource objects portray objects in the real world (e.g., business objects, entities).</td>
<td>Sales order Inspection result</td>
</tr>
<tr>
<td>Process path</td>
<td></td>
<td>Process paths show the connection from or to processes (Navigation aid).</td>
<td>Delivery processing</td>
</tr>
<tr>
<td>Logical operator</td>
<td></td>
<td>Logical operators describe the logical relationships between events and functions or processes.</td>
<td>&quot;XOR&quot;, &quot;AND&quot;, &quot;OR&quot;</td>
</tr>
<tr>
<td>Control flow</td>
<td></td>
<td>Control flows describe the chronological and logical interdependencies of events and functions or processes.</td>
<td></td>
</tr>
<tr>
<td>Information/material flow</td>
<td></td>
<td>Information/material flows define whether a function is read, changed, or written.</td>
<td></td>
</tr>
<tr>
<td>Resource/organization unit assignment</td>
<td></td>
<td>Resource/organization unit assignments describe which unit (employee) or resource processes a function or process.</td>
<td></td>
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</tbody>
</table>
EPC and viewpoints