

Data Flow

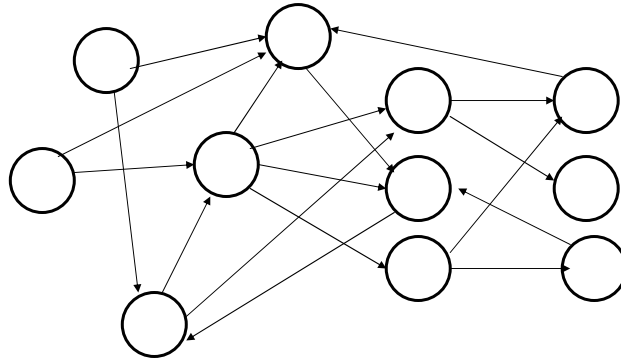
- Data flow systems
- Kinds of data flow systems
- Type of data flows

Data Flow Systems

- Characteristics of a data flow system
 - The availability of data controls the computation
 - The structure of the design is dominated by orderly motion of data from process to process
 - The pattern of data flow is explicit
- There is no other interaction between process in a pure data flow system
- Does not show procedural aspect (sequencing, repetition, decision making, etc.)

Kinds of Data Flow Systems

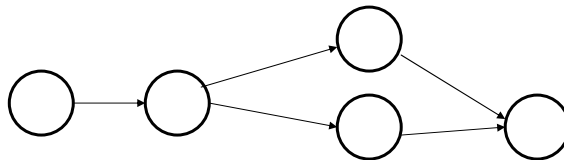
- Data can flow in arbitrary patterns



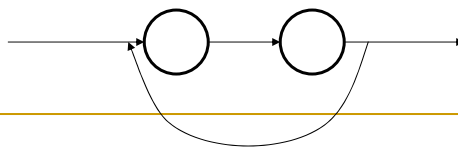
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Kinds of Data Flow Systems

- Nearly-linear data flow systems



- Highly-constrained cyclic structures



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Types of Data Flows

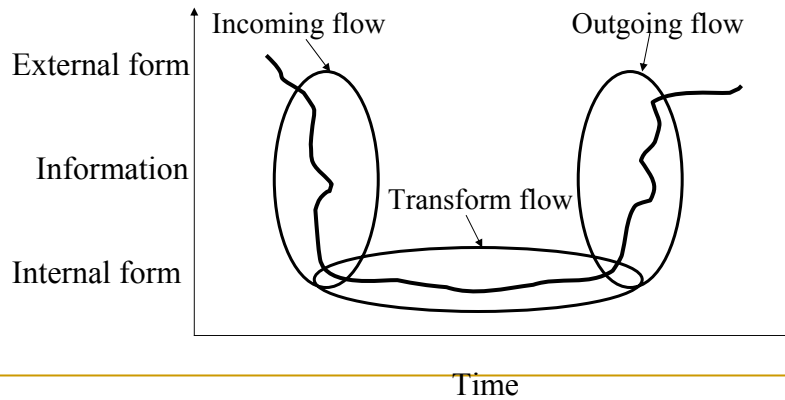
- Transform flow
- Transaction flow

Transform Flow

- Transform flow exists when
 - incoming input data is transformed within the system into an internal form
 - information in the system is subject to transformations while in its internal form
 - outgoing data is transformed within the system from an internal form to its external form

Transform Flow

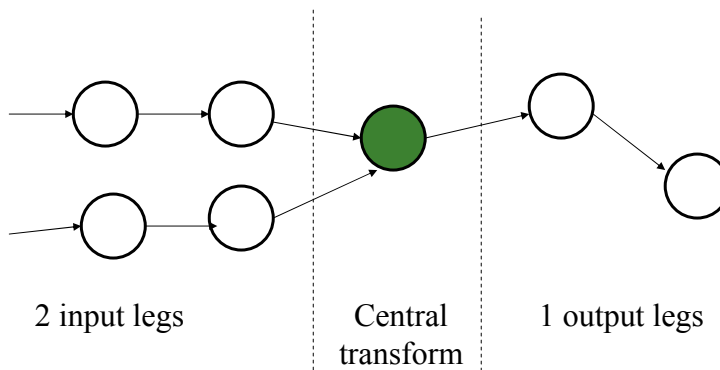
- Level 0 DF partitions the system according to



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Transform Flow

- Level n DF partitions the system according to



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Transaction Flow

- A special form of transform flow
 - A single input item (transaction) triggers data flow along several (action) paths
 - Many interactive systems and query/response system fit this model

