Taxonomy of Models of Computation

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Connect

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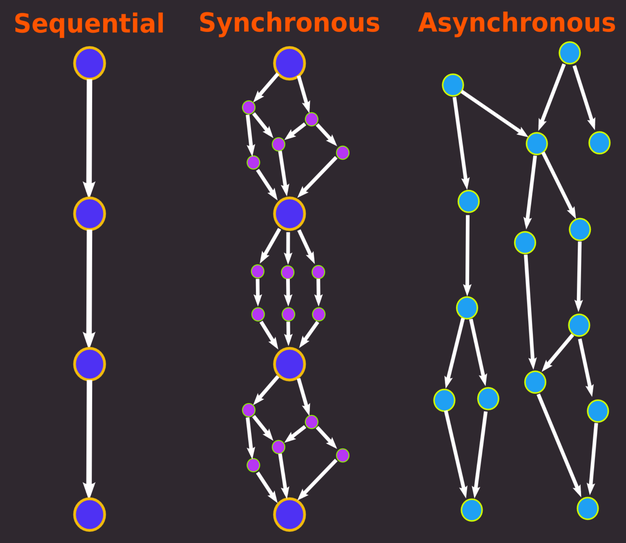
iCyPhy industrial cyber-physical systems

chess

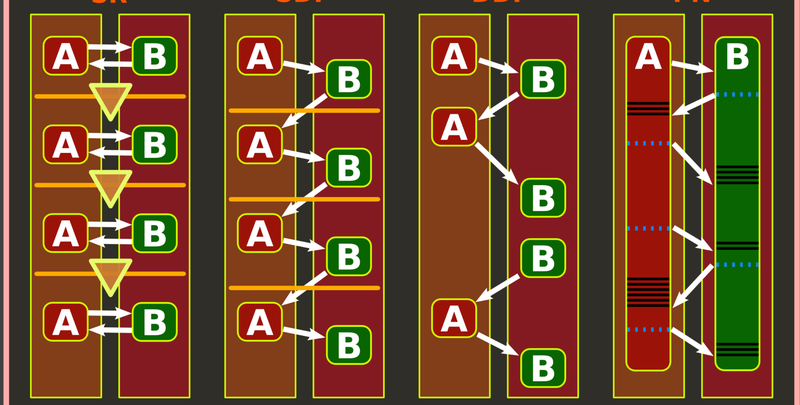
TerraSwarm

Processes



Execution

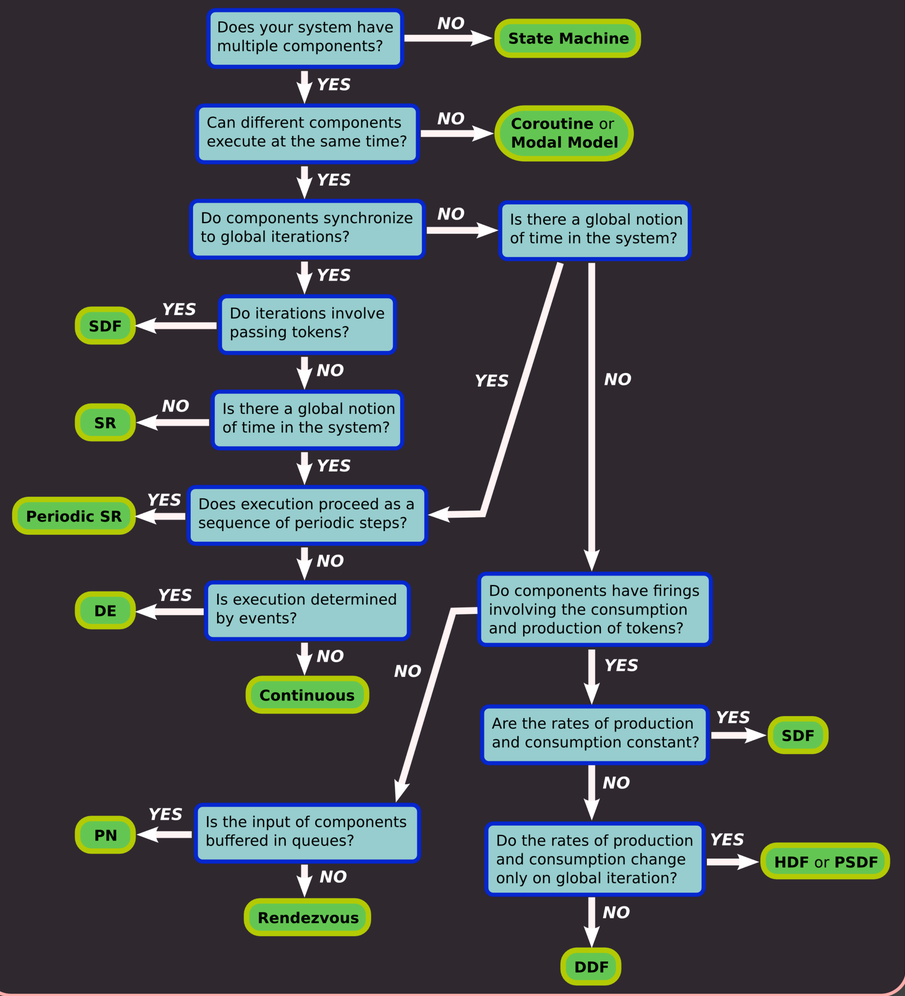
Intuitive comparison of execution in different MoCs for a simple model with actors **A** and **B** in a feedback loop.



Global state change
Information transfer
Global boundary in schedule iteration
Process waiting for blocking read
Non-blocking write

Which MoC For Me?

A decision tree for deciding which Model of Computation to use for a single hierarchical level in a model.



Synopsis

State Machines
Single active state, transitions are conditioned on input.

Modal Models
State machines where states can have refinements.

Coroutine
Control transitions determined by stated components.

Discrete Event
Timed, discrete interactions between actors.

Synchronous reactive
All components synchronously react to an input.

Process Networks
Concurrent actors exchanging messages (KPN: blocking reads).

Rendezvous
Message passing with blocking reads and blocking writes.

Dynamic Dataflow
Actors that fire upon reception of a variable number of tokens.

Synchronous Dataflow
Actors that fire upon reception of a static number of tokens.

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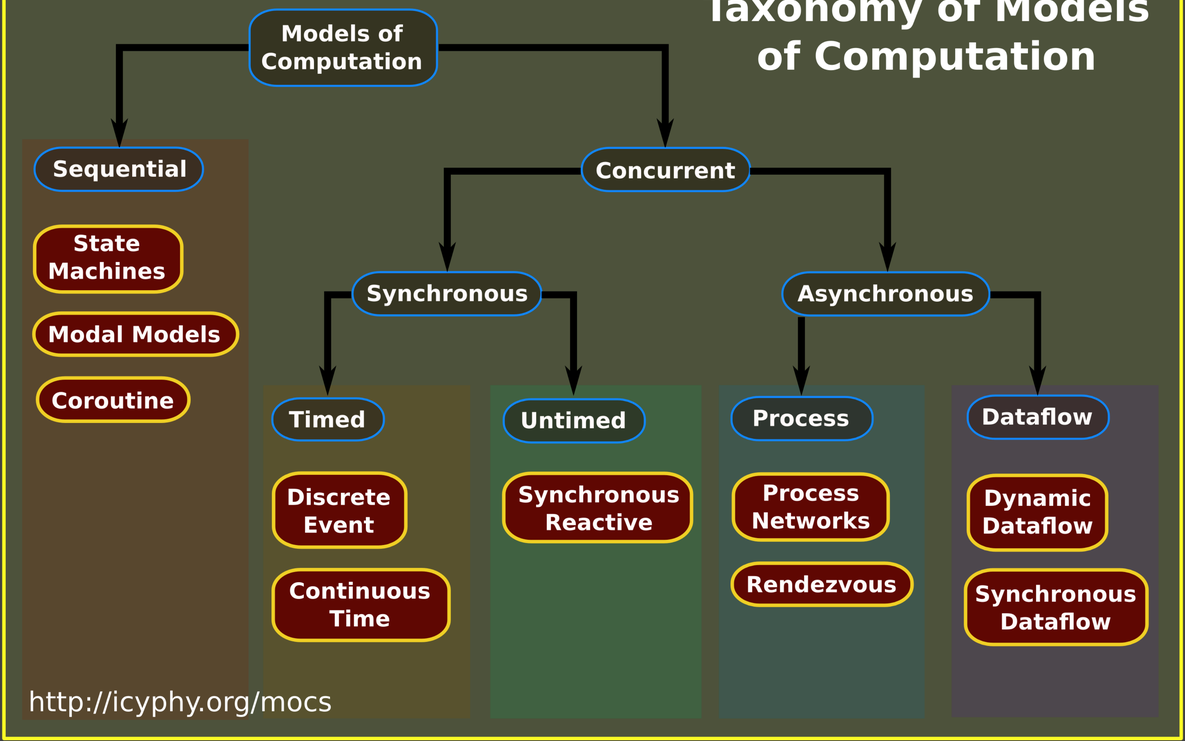

http://icyphy.org/mocs

Models of Sequence/Time