

# Models as the Basis for Visual Representation

Level of abstraction:

1. Low: “realistic” 3D visualisation
2. High: “insight” at high abstraction level

Link visualisation to model:

1. entity relationships (structure)
2. entity attributes

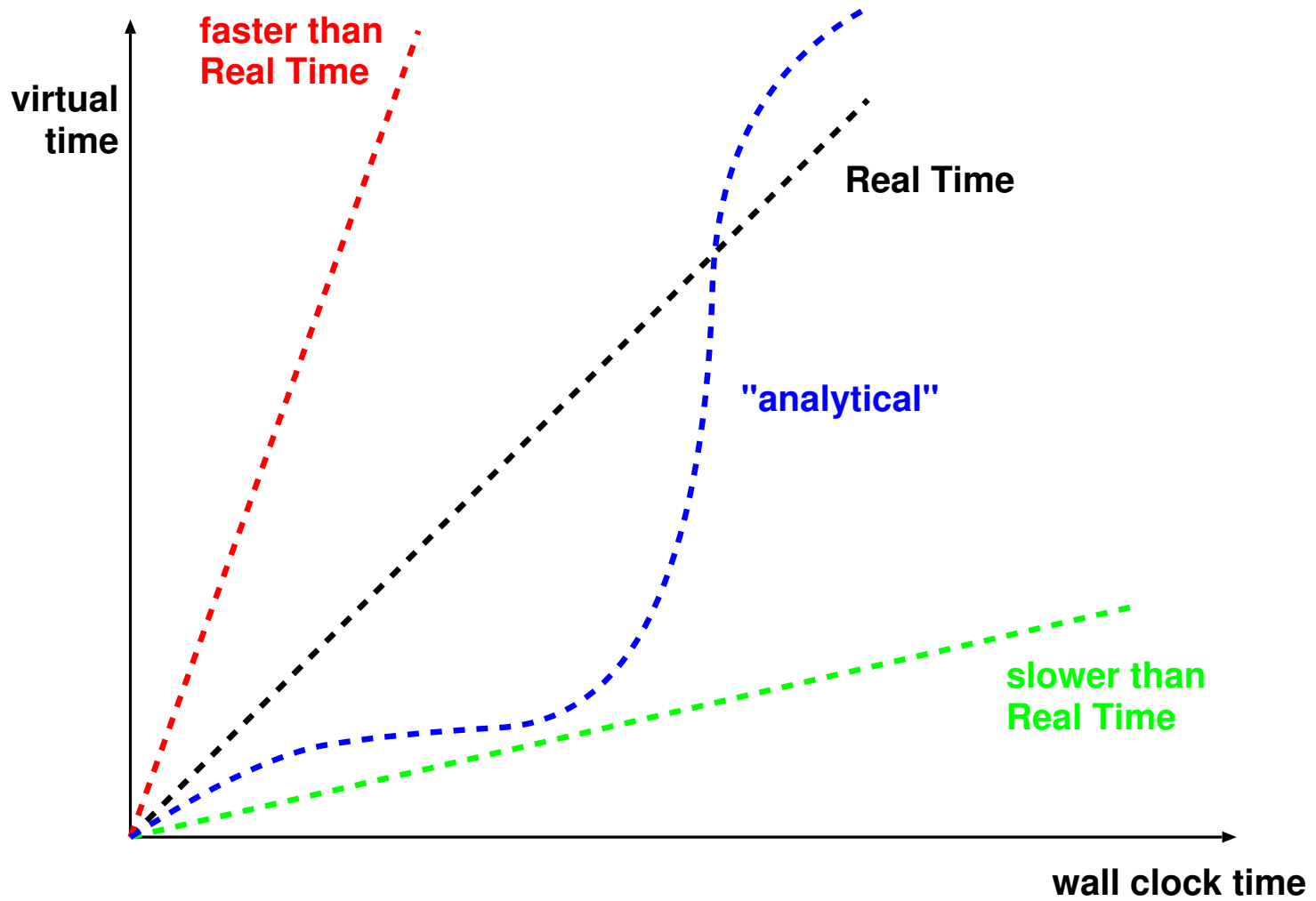
# Categories of Simulation Animation Implementation

1. Animation using a post-processor
2. Direct simulation animation
  - integrated program (one thread)
  - cooperating programs (multiple threads, observer pattern)
3. Visual Interactive Simulation: user in the loop
  - interrupt, modify (parameters, IC, ...), re-start
  - discrete event: transient behaviour
  - discrete event: statistical relevance ?
  - need to keep track of modifications  
(generate script logging the modifications)

# Technical Problems of Simulation Animation

- Transformation of simulated time to wall-clock time:  
non-equidistant, speedup/slowdown  
⇒ use buffer
- Suspension of animation on multi-tasking systems  
⇒ pre-compute (only if no real-time input)

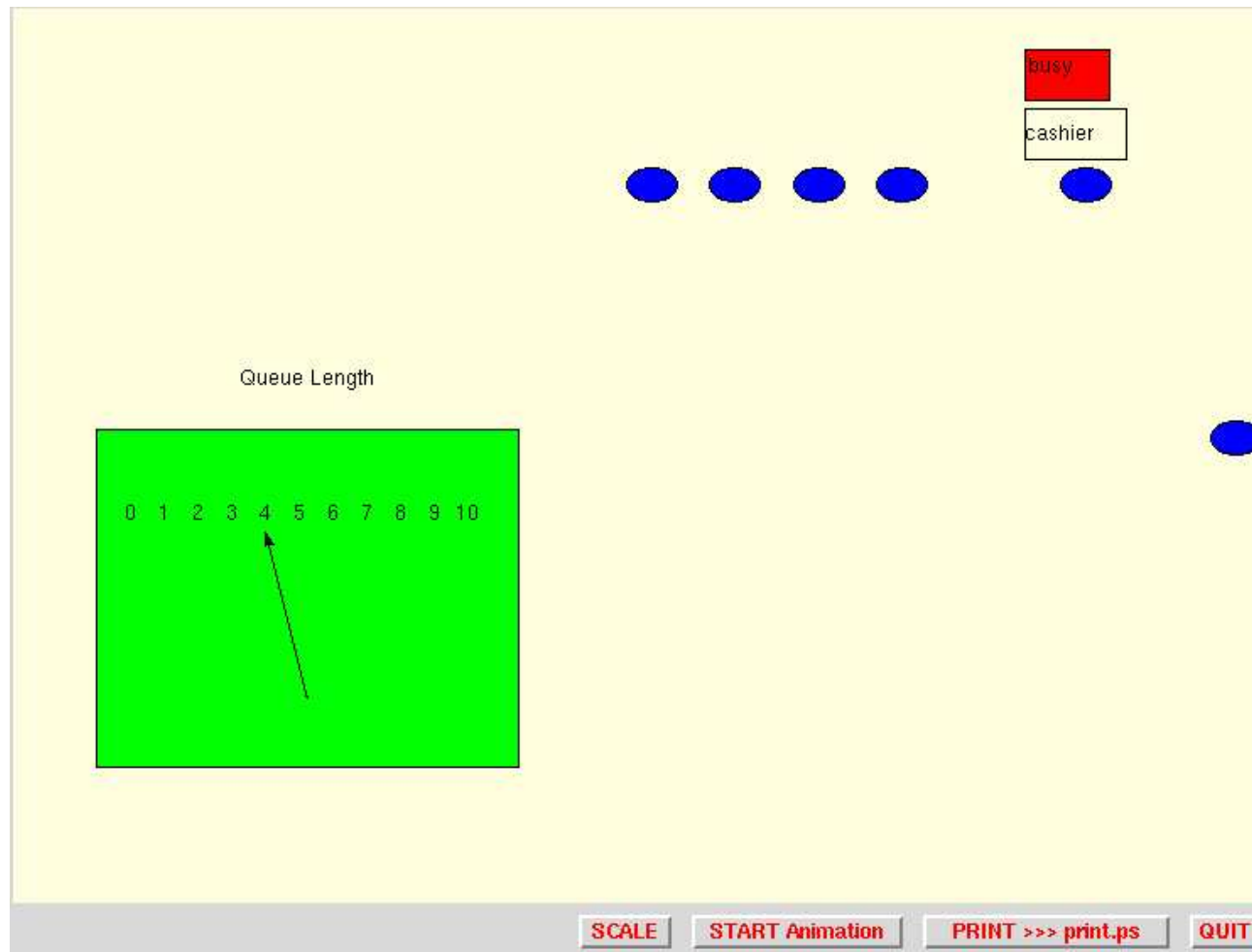
# Real Time Simulation



# Specification

1. Simulation (event, possibly parametrized) trace
2. Graphical objects
3. Mapping table: event  $\rightarrow$  graphical object methods
4. Speedup

# Cashier/Queue Animation



# Real Time Deadlines: Rate Monotonic Scheduling (RMS)

