

Informatik-Projektentwicklung

– Lecture 5 –

Prof. Dr. Peter Müller

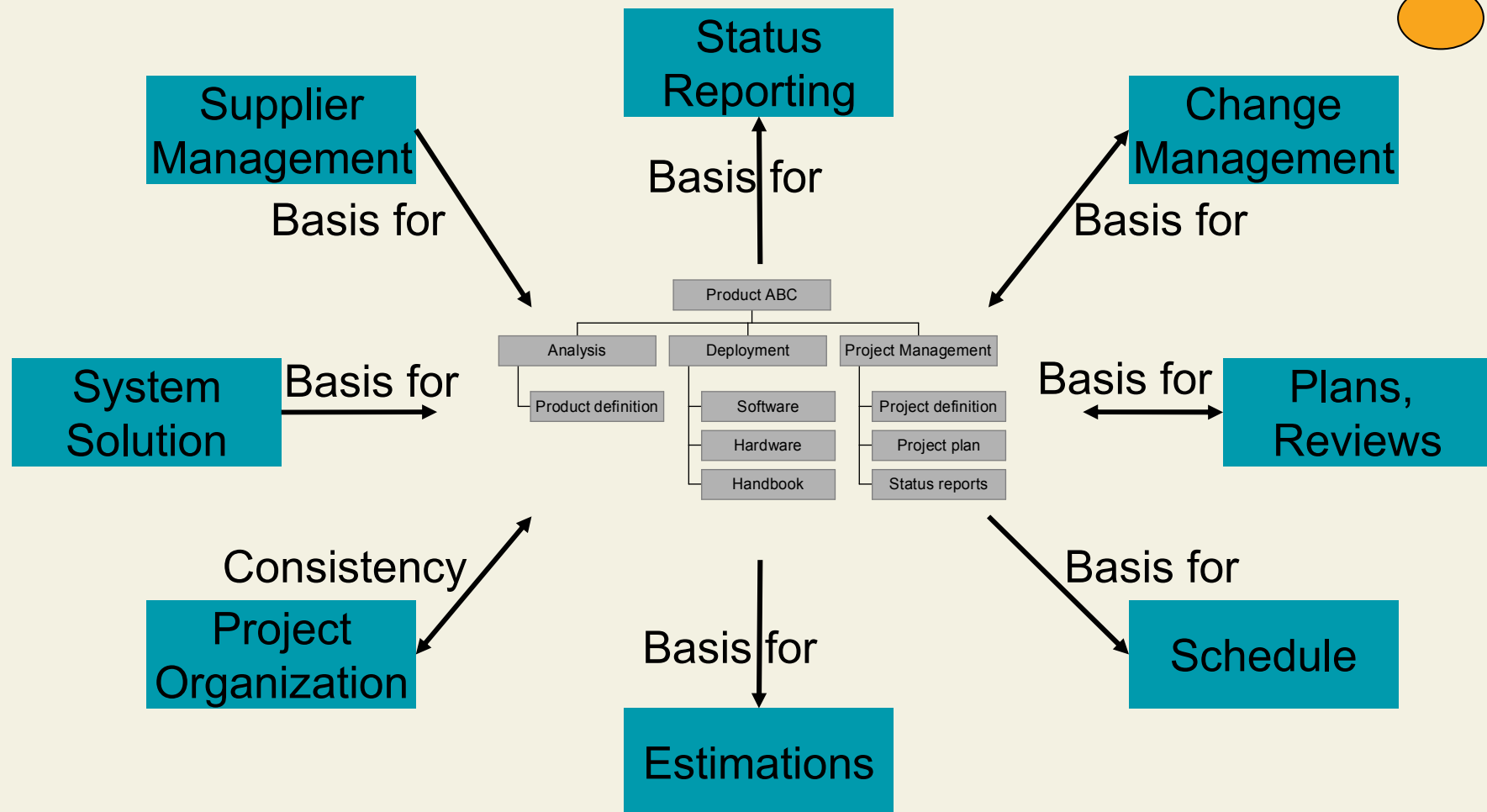
Software Component Technology

Wintersemester 03/04

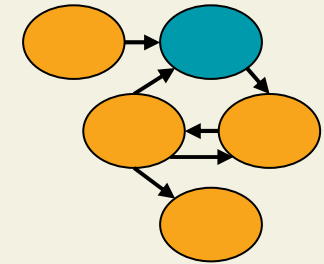
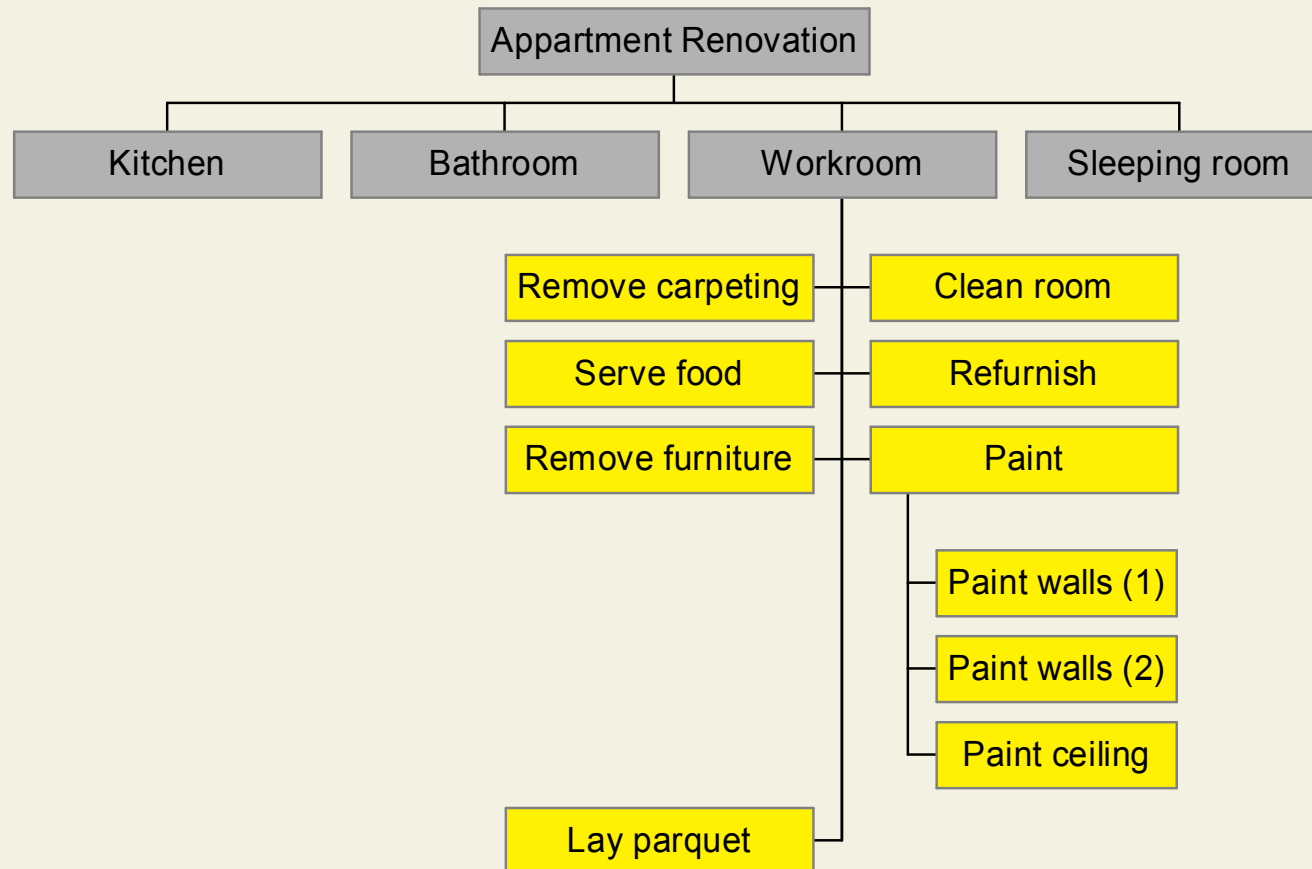
ETH

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WBS Relationships

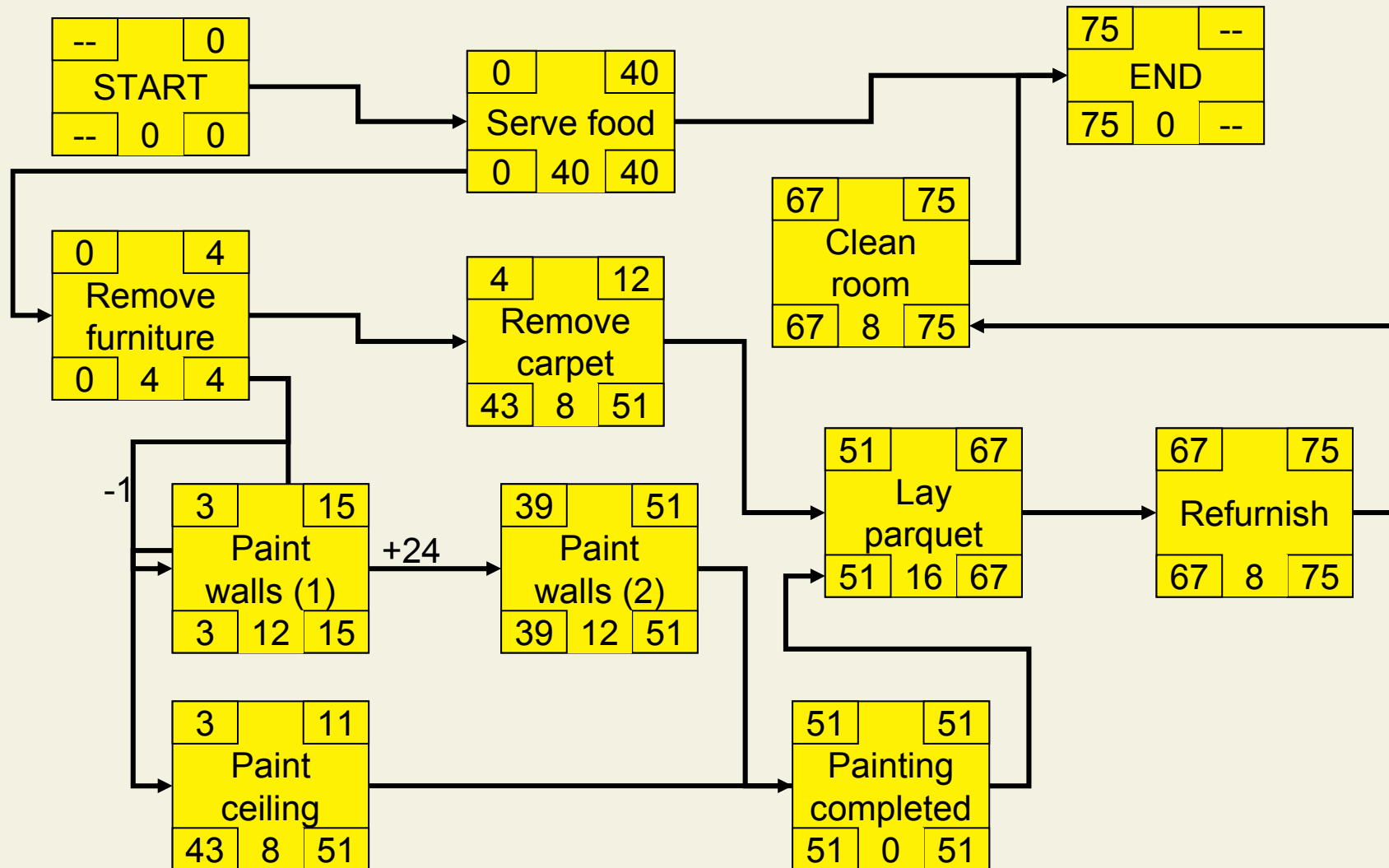


Activities



- Rule of thumb: 40 to 80 person hours

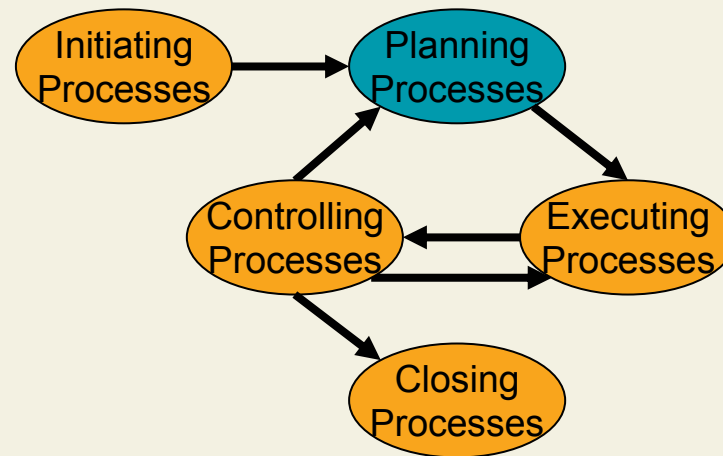
Network Diagrams



Agenda for Today

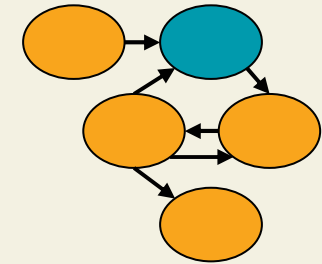
5. Schedule Analysis

- Critical path analysis
- Schedule compression
- Resource leveling
- MS Project demo



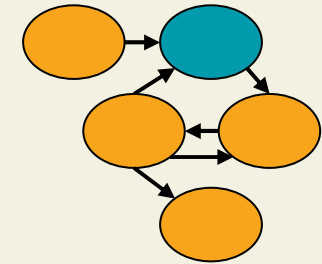
Presentation of practice projects

Analyzing a Schedule



- Identify schedule risks
- Determine if deliverables will be made on time
- Check resource usage
- Find potentials for compressing the schedule
- Consistency

Float



- Definition:

The amount of time that an activity may be delayed from its early start without delaying the project finish date

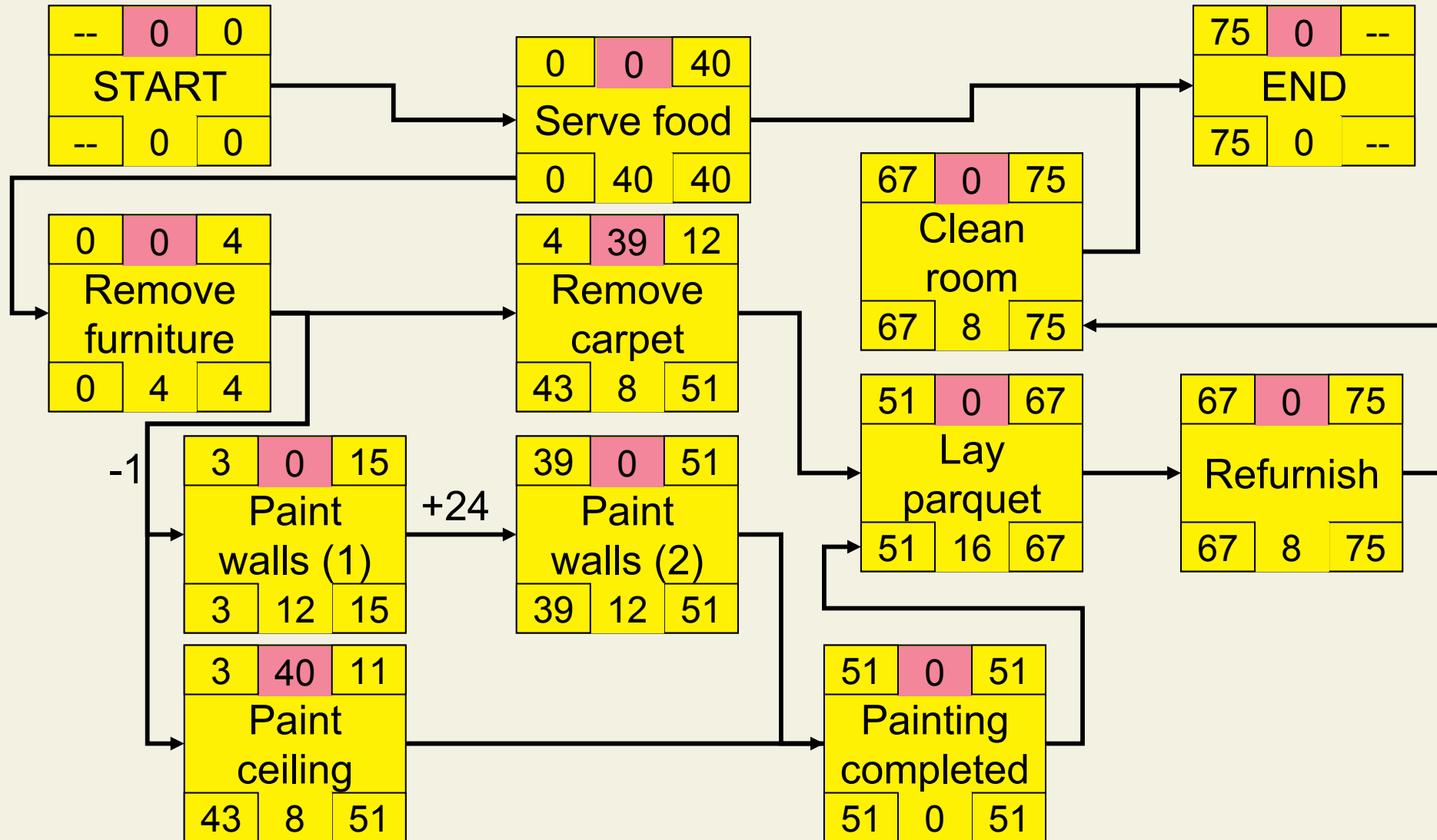
- $\text{Float} = \text{LF} - \text{EF} = \text{LS} - \text{ES}$

- Interpretation

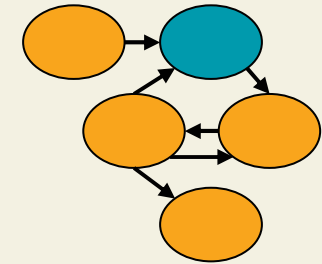
- Float > 0: Time is available
- Float = 0: Situation is critical
- Float < 0: Project is behind

- Sometimes called *Total Float*, *Slack*, or *Total Slack*

Float Example

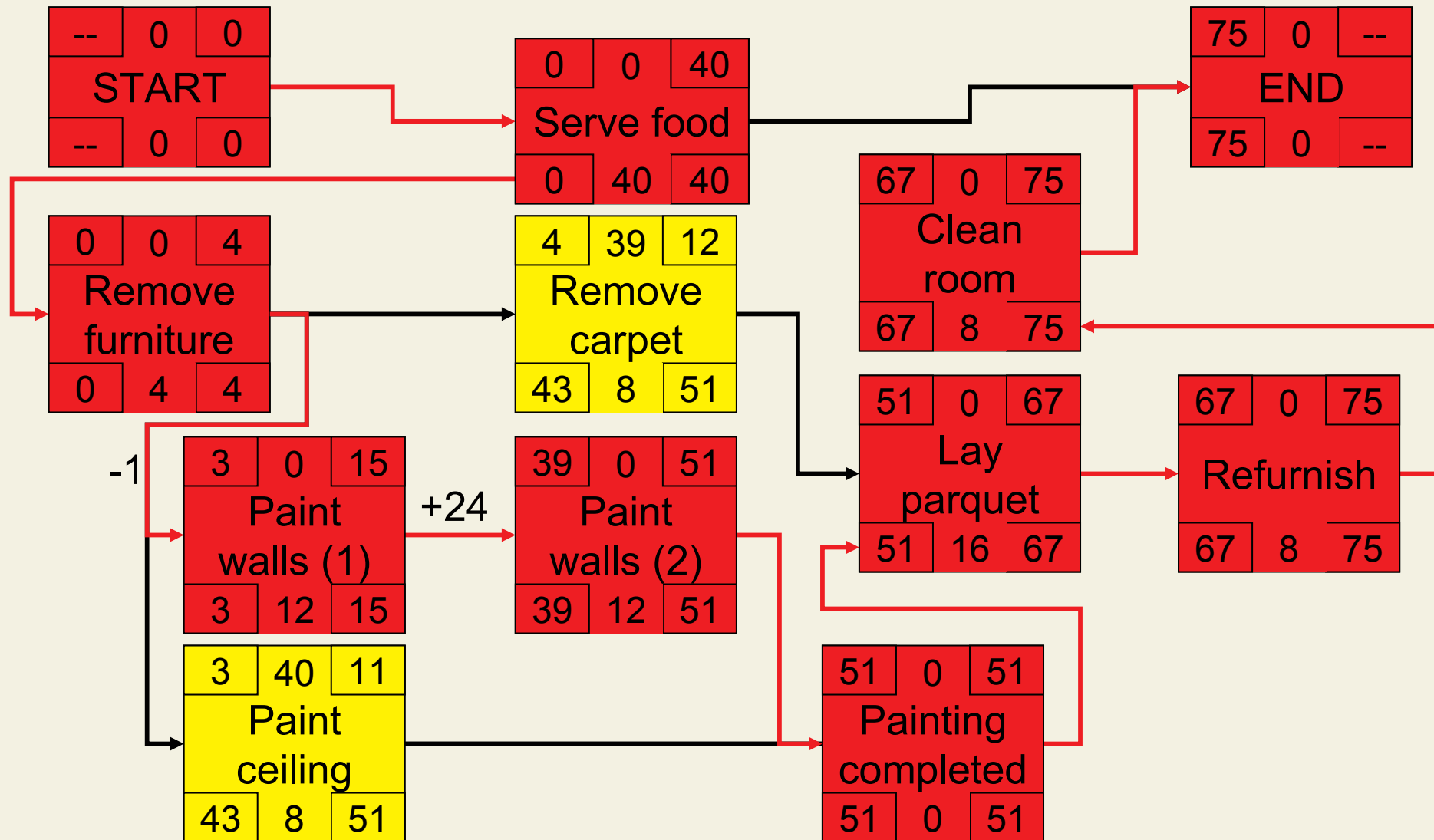


Critical Path

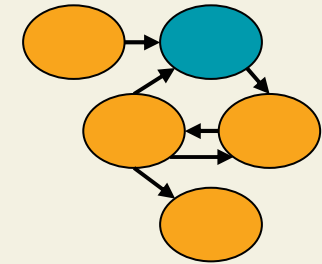


- Definition:
The series of activities that determines the duration of the project (the longest path through the network)
- Sum of float on critical path is zero (or negative)
- Critical path is important
 - To shorten project duration
 - To focus progress control
 - To identify schedule risks
- There can be several critical paths in a project

Critical Path Example



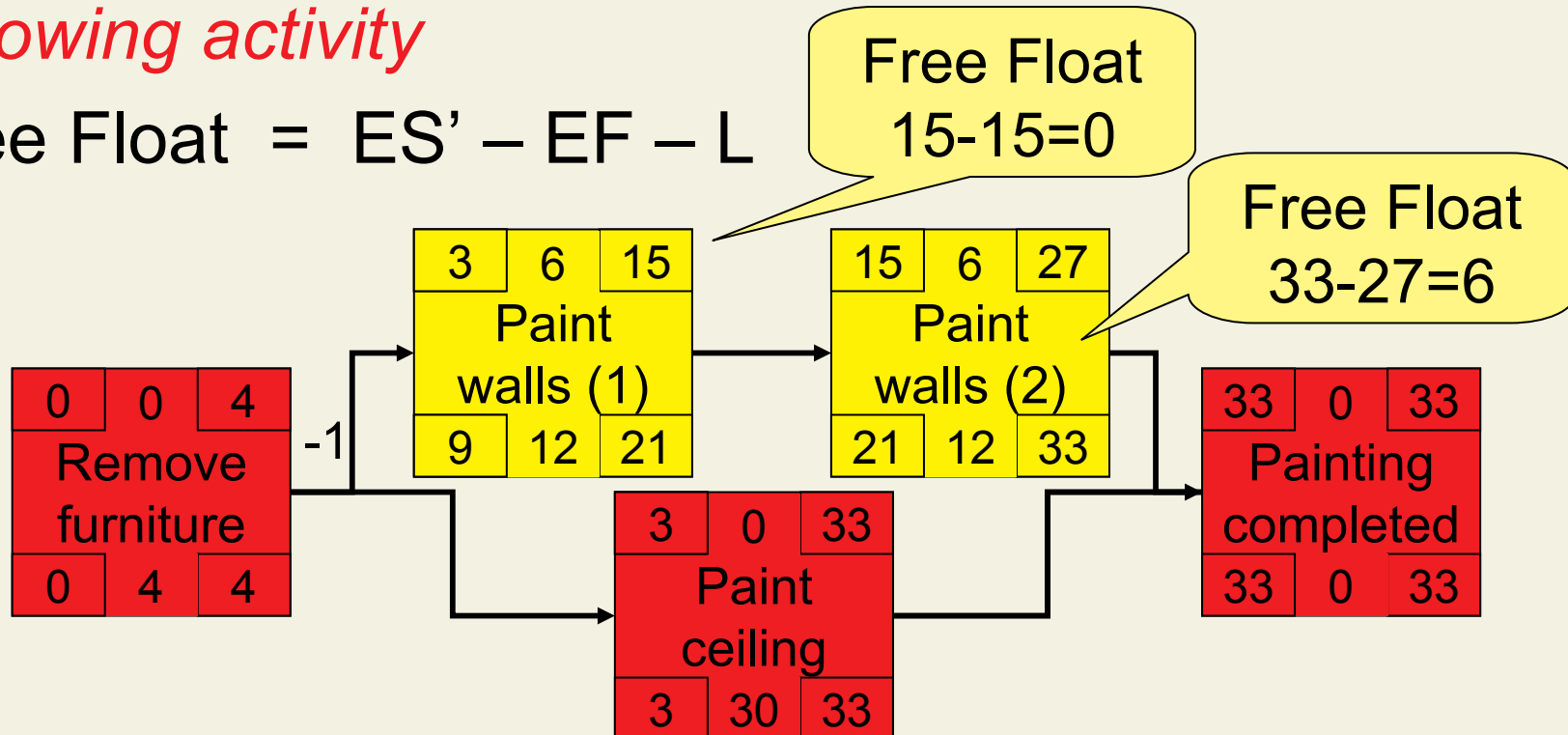
Free Float



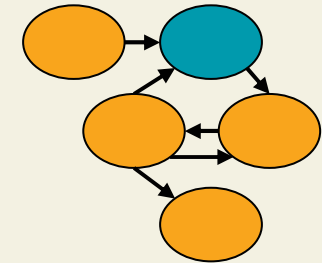
- Definition:

The amount of time that an activity can be delayed without delaying the early start of any immediately following activity

- Free Float = $ES' - EF - L$

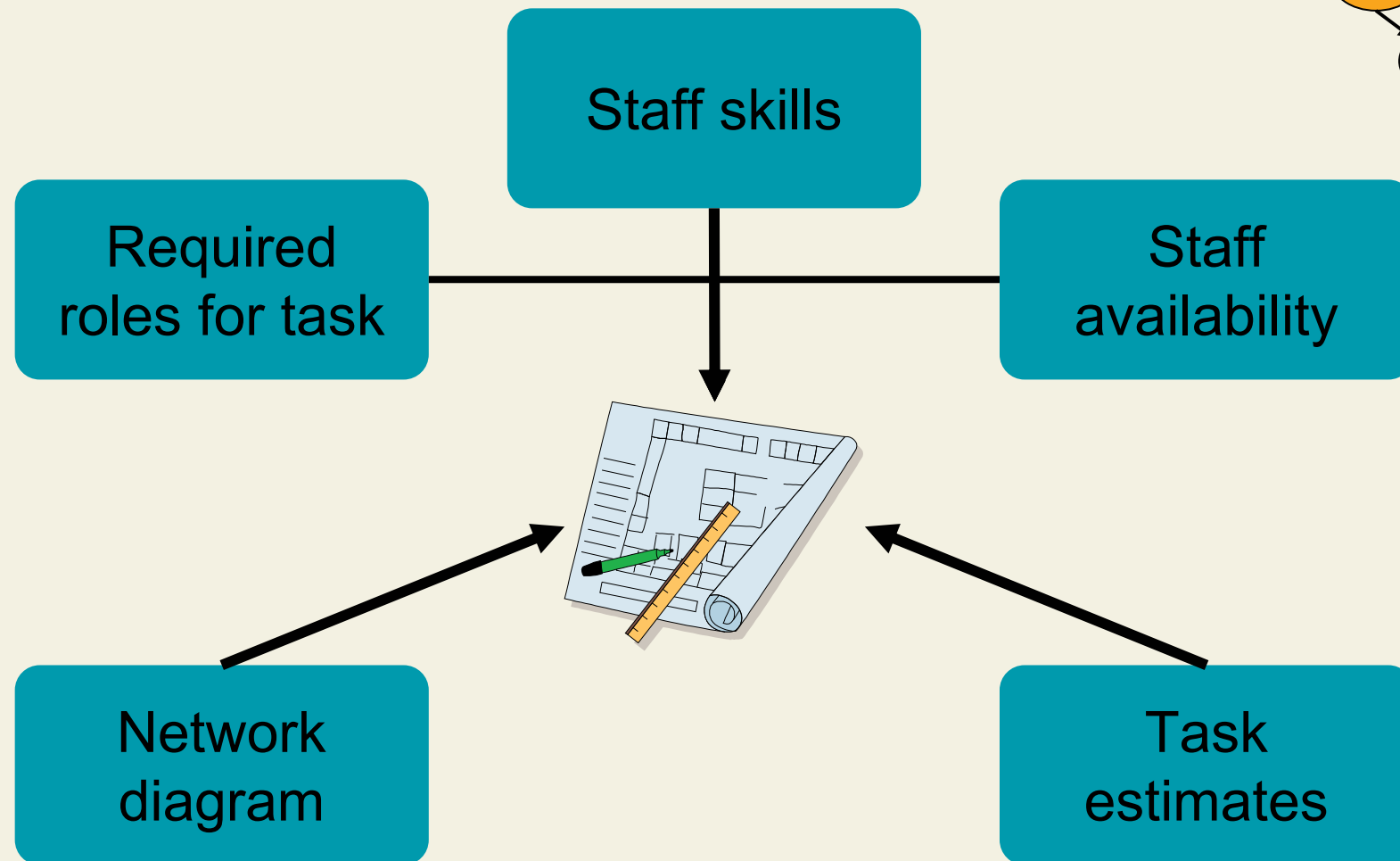
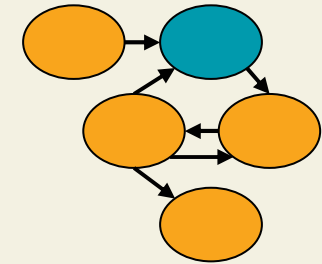


Resource Leveling

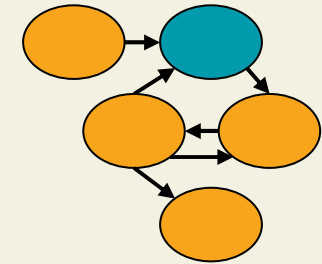


- Common results of critical path method
 - More resources required than available
 - Changes of resource levels are not manageable
- Analysis: Resource histograms
- Heuristic: Resource-based method
 - Allocate scarce resources to critical path first
- Resource leveling usually leads to longer project duration

Consistency



Schedule Development: Summary



- Purpose
 - To determine start and finish dates for project activities
- Schedule development is often iterated, not only during planning

Inputs	Tools & Techniques	Outputs
<ol style="list-style-type: none">1. Network diagrams2. Activity duration estimations3. Resource requirements4. Calendars	<ol style="list-style-type: none">1. Mathematical analysis (CPM)2. Duration compression3. Resource leveling heuristics4. PM Software	<ol style="list-style-type: none">1. Project schedule2. Schedule management plan3. Resource requirement updates